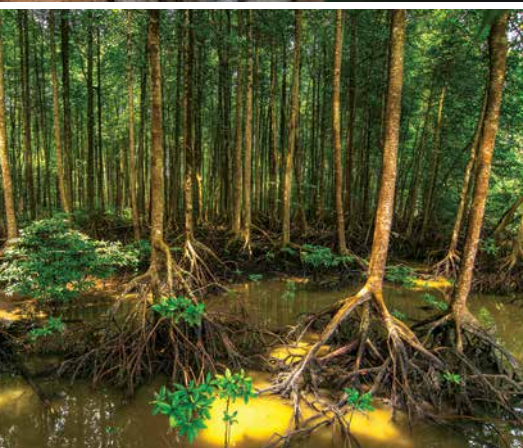




MINISTRY OF NATURAL RESOURCES
AND ENVIRONMENTAL SUSTAINABILITY

7TH THE NATIONAL REPORT

TO THE CONVENTION ON
BIOLOGICAL DIVERSITY

June 2026



MINISTRY OF NATURAL RESOURCES
AND ENVIRONMENTAL SUSTAINABILITY

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1. Lankayan reef. Credit: Reef Guardian
2. Helmeted hornbill. Credit: Sanjitpaal Singh/jitpics.com
3. Yellow meranti. Credit: Jamiluddin Jami
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MINISTRY OF NATURAL RESOURCES
AND ENVIRONMENTAL SUSTAINABILITY

7TH
THE
NATIONAL REPORT
TO THE CONVENTION ON
BIOLOGICAL DIVERSITY
June 2026

Foreword

by Dato' Sri Arthur Joseph Kurup,
Minister of Natural Resources and
Environmental Sustainability Malaysia



Malaysia stands as one of the 17 megadiverse nations in the world, serving as custodian of significant ecosystems including the oldest tropical rainforests and the tallest tropical tree on Earth. These essential ecosystems support over 15,000 species of vascular plant and more than 4,000 species of fauna. Our marine waters are located at the heart of the Coral Triangle, harbouring 76 percent of the world's coral species. This richness of biodiversity is not merely a source of immense national pride; It is a crucial national asset that secures our economy, ensures clean water, supports food systems, and enhances climate resilience, ultimately underpinning the well-being of our people today and for generations to come.

On 28th February 2026, Malaysia fulfilled its obligation under Article 26 of the Convention on Biological Diversity (CBD) by submitting its Seventh National Report to the CBD Secretariat. This enhanced national companion report complements the official submission made via the Online Reporting Tool (ORT) by providing a more comprehensive overview of Malaysia's progress in implementing its National Biodiversity Strategies and Action Plans (NBSAP), also known as the National Policy on Biological Diversity 2022-2030, and by outlining our contributions towards the global goals of the Kunming-Montreal Global Biodiversity Framework (KMGBF).

The findings presented in this report demonstrate that significant progress has been made towards achieving several national targets, with 14 out of 17 targets currently deemed on track for achievement by 2030. Central to this success is the Ministry of Natural Resources and Environmental Sustainability (NRES) Malaysia which actively drives cross-sectoral policies, institutional capacity enhancements, and robust resource mobilisation to address existing gaps. By championing these initiatives, Malaysia stands to gain immensely through the preservation of vital ecosystem services, ensuring long-term water security, sustainable food systems and heightened climate resilience. Furthermore, securing sustainable biodiversity financing will unlock green economy opportunities and position the nation as a global leader in tropical conservation, translating environmental wealth into tangible socio-economic well-being for our people.

This report reflects the collective efforts and contributions of stakeholders from all levels of government, the private sector, civil society organisations, Indigenous Peoples and local communities, academia, and youth. To effectively mainstream biodiversity conservation across national development priorities, the implementation of the NBSAP requires a comprehensive approach through a whole-of-government and whole-of-society. The Ministry of Natural Resources and Environmental Sustainability expresses its sincere gratitude to all stakeholders, as well as the Secretariat of the CBD and the United Nations Development Programme (UNDP) Malaysia, Singapore and Brunei Darussalam, for their unwavering support in bringing this report and publication to fruition. Additionally, we extend our thanks to the Global Environment Facility (GEF) for funding the report.

The path ahead requires a shared commitment to turning policy into practice. By empowering local communities, building regional green alliances, and scaling up public-private partnerships, we will translate this report's findings into flexible, on-the-ground enforcement and continuous legal reforms to secure our natural heritage.

Ahead of the upcoming 17th Conference of the Parties to the Convention on Biological Diversity (CBD COP17) in Yerevan, Armenia, Malaysia anticipates the global review of the implementation of the KMGBF. This major milestone aims to assess progress towards the 2030 biodiversity targets and represents a critical opportunity for the international community to take stock of our collective achievements while addressing the gaps between policy and action.

As we approach the 2027 midterm review of the NBSAP, this report will serve as an important reference for assessing progress, identifying gaps and informing future priorities. I hope that this report will further reinforce our collective commitment to conserving Malaysia's biodiversity and ensuring its sustainability for future generations.

Preface

by Datuk Wira Anis Rizana binti Mohd Zainudin,
Secretary General of Natural Resources and
Environmental Sustainability Malaysia



Malaysia's 7th National Report (7NR) to the Convention on Biological Diversity (CBD) was prepared and submitted as part of the global review of the implementation of the Kunming-Montreal Global Biodiversity Framework (KMGBF).

As the custodian of Malaysia's natural heritage, the Ministry of Natural Resources and Environmental Sustainability (NRES) has led the formulation of the 7NR by aligning national biodiversity priorities with global commitments. The Ministry continues to strengthen policies, monitoring mechanisms and legal frameworks to ensure the effective conservation and long-term protection of Malaysia's biodiversity.

The preparation of the report adopts a 'whole of nation' approach, involving extensive data collection through over 25 series of consultations involving more than 160 stakeholders' entities. It also incorporates technical reviews and inter-agency coordination processes that engage relevant ministries, departments, agencies, state governments and strategic partners. The preparation of this report was made possible by generous funding provided by the Global Environment Facility (GEF) under the Umbrella Programme to Support NBSAP Update and the 7th National Reports, executed through our strategic collaboration with the United Nations Development Programme (UNDP) Malaysia, Singapore and Brunei Darussalam.

Given the broad and cross-cutting nature of biodiversity governance, compiling the 7NR posed distinct challenges, particularly in terms of consolidating extensive datasets and aligning

numerous implementation initiatives across multiple sectors, stakeholders, and jurisdictions. The large number of biodiversity actions taken across the country required constant coordination and strict validation to make sure that this publication accurately reflects the latest national data and real progress on the ground.

The successful completion of this milestone was made possible only through the exemplary cooperation demonstrated by all partners throughout the process. I would like to extend my highest appreciation to all Federal and State government entities, civil society partners, private sector allies, and philanthropic foundations whose unwavering dedication and technical contributions brought this report to fruition. We owe an equal measure of gratitude to our grassroots communities and local champions, whose hard work is prominently displayed within these pages. I also wish to thank the Secretariat of the CBD, the GEF and the UNDP for their steadfast partnership and essential institutional and technical support.

May this publication serves as a definitive reference, driving collective action and fostering stronger partnerships for conserving our biodiversity, promoting its sustainable use, and ensuring fair and equitable sharing of benefits arising from the utilisation of biological resources.



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LIST OF ACRONYMS

Acronym	Full Form
ABS	Access and Benefit-Sharing
ACB	ASEAN Centre for Biodiversity
ACE	Achieving Co-existence with Elephants (Project, Johor)
AE EA	Asia Environmental Enforcement Awards
AGI	ASEAN Green Initiative
AKPS	Agensi Kawalan dan Perlindungan Sempadan Malaysia (Malaysia Border Control Agency)
AMLA	Anti-Money Laundering, Anti-Terrorism Financing & Proceeds of Unlawful Activities Act
APPGM-GE	All-Party Parliamentary Group Malaysia on Gender Equality
APPGM-SDG	All-Party Parliamentary Group Malaysia on Sustainable Development Goals
AS-ISK	Aquatic Species Invasiveness Screening Kit
ASARTR	Al-Sultan Abdullah Royal Tiger Reserve
ASEAN	Association of Southeast Asian Nations
BBNJ	Biodiversity Beyond National Jurisdiction
BCH	Biosafety Clearing-House
BCX	Bursa Carbon Exchange
BES	Biodiversity & Ecosystem Services
BESRA	Biodiversity and Ecosystem Services Risk Assessment
BGCI	Botanic Gardens Conservation International
BIOFIN	Biodiversity Finance Initiative
BIS	Biodiversity Implementation Support
BMRI	Bornean Marine Research Institute (Universiti Malaysia Sabah)
BNM	Bank Negara Malaysia
BOMBA	Fire and Rescue Department of Malaysia
BP3	Biodiversity Protection Programme (flagship tiger programme)
BRAHMS	Botanical Research and Herbarium Management System
BSA	Benefit-Sharing Agreement
BSL	Biosafety Level
CA TS	Conservation Assured Tiger Standards
CAN	CEO Action Network (Malaysia)
CBD	Convention on Biological Diversity
CBDR	Common But Differentiated Responsibilities
CBET	Community-Based Ecotourism
CBT	Community-Based Tourism
CCA	Community Conserved Areas
CCB	Climate, Community and Biodiversity Standards
CCPT	Climate Change and Principle-based Taxonomy
CDM	Clean Development Mechanism
CEEA	Climate Change Education and Awareness
CELC	Community Environmental Leadership Camp
CEPA	Communication, Education, and Public Awareness
CEFAS	Centre for Environment Fisheries and Aquaculture Science

LIST OF ACRONYMS

Acronym	Full Form
CEMACS	Centre for Marine and Coastal Studies (Universiti Sains Malaysia)
CERT	Community Elephant Ranger Team
CFIL	Climate Finance Innovation Lab
CFS	Central Forest Spine
CHM	Clearing House Mechanism
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on the Conservation of Migratory Species of Wild Animals
CNA	Competent National Authority (for ABS)
COFAR	Conservation Finance and Restoration Challenge
COMOS	Conservation Monitoring System (Sarawak)
COP	Conference of the Parties
CPTPP	Comprehensive and Progressive Agreement for Trans-Pacific Partnership
CRBR	Crocker Range Biosphere Reserve
CRP	Crocker Range Park
CSA	Conservation Set-Aside
CSO	Civil Society Organisations
CSR	Corporate Social Responsibility
CTI	Coral Triangle Initiative
CTI-WLF	Coral Triangle Initiative Women Leaders Forum
CVI	Coastal Vulnerability Index
DAKN	Dasar Agrofood Kebangsaan Negara (National Agrofood Commodity Policy 2021–2030)
DaMAI	Danum–Maliau–Imbak
DBKL	Dewan Bandaraya Kuala Lumpur (Kuala Lumpur City Hall)
DID	Department of Irrigation and Drainage
DOA	Department of Agriculture
DOE	Department of Environment.
DOFM	Department of Fisheries Malaysia
DOSM	Department of Statistics Malaysia
DSI	Digital Sequence Information
DVS	Department of Veterinary Services
DWNP	Department of Wildlife and National Parks (Sarawak)
EAAFP	East Asian–Australasian Flyway Partnership
EAFM	Ecosystem Approach to Fisheries Management
EBSA	Ecologically or Biologically Significant Marine Areas
ECRL	East Coast Rail Link
eDNA	Environmental DNA
EEZ	Economic Exclusive Zone
EFIMS	Electronic Forest Information Management System
EFT	Ecological Fiscal Transfer
EII	Ecosystem Integrity Index
EPD	Environment Protection Department (Sabah)
EQA	Environmental Quality Act

Acronym	Full Form
ESA	Environmentally Sensitive Area
ESG	Environmental, Social, and Governance
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FCC	Forest Conservation Certificate
FCO	Forest Carbon Offset
FDPM	Forestry Department of Peninsular Malaysia
FDS	Forest Department Sarawak
FELDA	Federal Land Development Authority
FFB	Fresh Fruit Bunch
FGV	FGV Holdings Berhad
FHIBR	Fraser's Hill International Bird Race
FMP	Fisheries Management Plan / Forest Management Plan
FMRS	Forest Monitoring and Remote Sensing system
FMU	Forest Management Unit
FoBK	Friends of Bukit Kiara
FOLUR	Food Systems, Land Use and Restoration (UNDP programme)
FPIC	Free, Prior and Informed Consent
FRIM	Forest Research Institute Malaysia
FSC	Forest Stewardship Council
GBIF	Global Biodiversity Information Facility
GDP	Gross Domestic Product
GEC	Global Environment Centre
GEF	Global Environment Facility
GESI	Gender Equality and Social Inclusion (Coral Triangle Initiative Hub)
GGAF	Green Growth Asia Foundation
GGP	Government Green Procurement
GIS-MCDM	Geographic Information System – Multi-Criteria Decision Making
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GMAC	Genetic Modification Advisory Committee
GMO	Genetically Modified Organism
GMP	Good Manufacturing Practice
GPA	Gender Plan of Action (CBD's Gender Plan of Action 2023-2030)
GRATK	Genetic Resources and Associated Traditional Knowledge (WIPO Treaty)
GRIIS	Global Register of Introduced and Invasive Species
GSPC	Global Strategy for Plant Conservation
GSTC	Global Sustainable Tourism Council
GWP	Global Wildlife Programme
HCV	High Conservation Value
HoB	Heart of Borneo
HWC	Human-Wildlife Conflict
HWW	Honorary Wildlife Warden

LIST OF ACRONYMS

Acronym	Full Form
IAS	Invasive Alien Species
IBA	Important Bird Areas
IBC	Institutional Biosafety Committee
IC-CFS	Improving Connectivity in the Central Forest Spine (GEF-UNDP project)
ICAEW	Institute of Chartered Accountants in England and Wales
IFRS	International Financial Reporting Standards
ILC	Indigenous and Local Communities
IMCA	Important Marine and Coastal Areas
IMMA	Important Marine Mammal Area
IMO	International Maritime Organization
INOS	Institute of Oceanography and Environment (UMT)
INSTO	International Network of Sustainable Tourism Observatories
INTERPOL	International Criminal Police Organization
IOES	Institute of Ocean and Earth Sciences (Universiti Malaya)
IP	Intellectual Property
IPLCs	Indigenous Peoples and Local Communities
IPM	Integrated Pest Management
IPPC	International Plant Protection Convention
IRCC	Internationally Recognised Certificate of Compliance
ISRA	Important Shark and Ray Areas
ITBC	Institute for Tropical Biodiversity and Conservation (Universiti Malaysia Sabah)
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
ITTO	International Tropical Timber Organization
IUCN	International Union for Conservation of Nature
IUU	Illegal, Unreported and Unregulated (fishing)
JAKOA	Department of Orang Asli Development
JBK	Jabatan Biokeselamatan Malaysia (Department of Biosafety Malaysia)
JC3	Joint Committee on Climate Change
JICA	Japan International Cooperation Agency
JKR	Jabatan Kerja Raya (Public Works Department)
KBS	Kementerian Belia dan Sukan (Ministry of Youth and Sports)
KLIA	Kuala Lumpur International Airport
KMGBF	Kunming-Montreal Global Biodiversity Framework
KOCP	Kinabatangan Orangutan Conservation Programme
KOPEL	Koperasi Pelancongan Mukim Batu Puteh Kinabatangan
LEAP	Locate, Evaluate, Assess, Prepare (TNFD assessment framework)
LIFE	Livelihood Insurance From Elephant
LKSW	Lower Kinabatangan–Segama Wetlands
LMO	Living Modified Organism
LSSC	Legal and Sustainable Supply Chains
LTSF-CBD	Long-Term Strategic Framework for Capacity-Building and Development
LUAS	Lembaga Urus Air Selangor

Acronym	Full Form
MAH	Malaysian Association of Hotels
MAB	Man and the Biosphere Programme (UNESCO)
MAQIS	Malaysian Quarantine and Inspection Services
MARDI	Malaysian Agricultural Research and Development Institute
MARRS	Mars Assisted Reef Restoration System
MAT	Mutually Agreed Terms (ABS)
MBC	Malaysia Biodiversity Centre
MBEB	Malaysia Blue Economy Blueprint
MBN	Majlis Biodiversity Negara (National Biodiversity Council)
MEME	Management and Ecology of Malaysian Elephants
MEXCOE	Meeting of Environmental Ministers and Members of the State Government Council Responsible for the Environment
MFF	Malaysia Forest Fund
MGP	Malim Gunung Perhutanan
MHLG	Ministry of Housing & Local Government
MIDA	Malaysian Investment Development Authority
MISC	Malaysia International Shipping Corporation Berhad
MMEA	Malaysian Maritime Enforcement Agency
MNS	Malaysian Nature Society
MOE	Ministry of Education
MOF	Ministry of Finance
MOTAC	Ministry of Tourism, Arts and Culture
MoU	Memorandum of Understanding
MPA	Marine Protected Area
MPBB	Malaysia Platform for Business and Biodiversity
MPC	Malaysia Productivity Corporation
MPOB	Malaysian Palm Oil Board
MPOGCF	Malaysian Palm Oil Green Conservation Foundation
MRB	Malaysian Rubber Board
MRV	Monitoring, Reporting and Verification
MSME	Micro, Small and Medium Enterprises
MSNR	Malaysian Sustainable Natural Rubber
MSP	Marine Spatial Planning
MSPO	Malaysian Sustainable Palm Oil
MTCS	Malaysian Timber Certification Scheme
MyABS	Malaysia Access and Benefit-Sharing Clearing-House
MyBIS	Malaysia Biodiversity Information System
MYCAT	Malaysian Conservation Alliance for Tigers
myGAP	Malaysian Good Agricultural Practices
MyHIJAU	National Green Recognition Scheme
MyIPO	Intellectual Property Corporation of Malaysia
MyMPA	Malaysia's Marine Protected Areas

Acronym	Full Form
MYSA	Malaysia Space Agency
MySMI	Malaysian Sustainable Mining Initiative (certification)
MyTKDL	Malaysia Traditional Knowledge Digital Library
MyTQA	Malaysia Tourism Quality Assurance
MyTTF	National Tiger Conservation Task Force
NAP	National Action Plan / National Agrofood Policy
NAP-WPS	National Action Plan on Women, Peace and Security (2025–2030)
NAPBHR	National Action Plan for Business and Human Rights 2025–2030
NBB	National Biosafety Board
NBR	National Biodiversity Roundtable
NBSAP	National Biodiversity Strategy and Action Plan
NCR	Native Customary Rights
NCTF	National Conservation Trust Fund
NCVI	National Coastal Vulnerability Index
NCZPP2	National Coastal Zone Physical Plan 2
NDC	Nationally Determined Contributions (UNFCCC)
NETR	National Energy Transition Roadmap
NFI / NFI-6	National Forest Inventory / Sixth National Forest Inventory
NFPA	National Framework for Protected Areas
NGO	Non-Governmental Organisations
NGT	New Genomic Techniques
NPBD	National Policy on Biological Diversity
NPHAP	National Planetary Health Action Plan
NPP	National Physical Plan
NPP4	National Physical Plan 4
NREB	Natural Resources and Environment Board (Sarawak)
NRES	Ministry of Natural Resources and Environmental Sustainability
NSRF	National Sustainability Reporting Framework
NTP	National Tourism Policy 2020–2030
NWRC	National Wildlife Rescue Centre
OBK	Operasi Bersepadu Khazanah
OECM	Other Effective Area-based Conservation Measures
PA	Protected Area(s)
PACOS	Partners of Community Organisations in Sabah
PDRM	Polis Diraja Malaysia (Royal Malaysia Police)
PEFC	Programme for the Endorsement of Forest Certification
PELINDUNG	Pertubuhan Pelindung Alam Malaysia
PERHILITAN	Department of Wildlife and National Parks Peninsular Malaysia
PES	Payments for Ecosystem Services
PIC	Prior Informed Consent
PIRECFS	Pelan Induk Rangkaian Ekologi Central Forest Spine
PNPV	Protection of New Plant Varieties Act

Acronym	Full Form
PRFs	Permanent Reserved Forests
PSATJB	Pertubuhan Sahabat Alam Tampik Johor Bahru
PSEAH	Protection from Sexual Exploitation, Abuse and Harassment
PSHBPTS	Pertubuhan Sahabat Hutan Bakau Pulau Tanjung Surat
PSMA	Port State Measures Agreement
PSPC	Perak State Parks Corporation
PULIHARA	Conservation/restoration programme (name, not initialised)
RASMA	Roots and Shoots Malaysia Award
RDC	Rainforest Discovery Centre
RE2	Sabah Renewable Energy Roadmap
REDD+	Reducing Emissions from Deforestation and Forest Degradation
REV-LOG	Timber revenue/logging tracking system
RFID	Radio Frequency Identification
RFN-4	Rancangan Fizikal Negara 4 (National Physical Plan 4)
RFZPPN-2	Rancangan Fizikal Zon Persisiran Pantai Negara 2
RIL	Reduced Impact Logging
RIMAU	Persatuan Pelindung Harimau Malaysia
RLE	Red List of Ecosystems
RMCD	Royal Malaysian Customs Department
RMK-13	Rancangan Malaysia Ke-13 (Thirteenth Malaysia Plan)
RSPO	Roundtable on Sustainable Palm Oil
RTE	Rare, Threatened and Endangered (species classification)
RUGS	Rangkaian Urban Green Spaces
SaBAES	Sabah Biodiversity Access and Export Online Application Licence System
SaBC	Sabah Biodiversity Centre
SASOF	Sabah Association for Social Forestry
SBC	Sarawak Biodiversity Centre
SCAP	Species Conservation Action Plan
SCCA	Silam Coast Conservation Area
SCP	Sustainable Consumption and Production
SDGs	Sustainable Development Goals
SDN-1	Site-Directed Nuclease (type of gene editing)
SEADPRI-UKM	Institute for Environment and Development, UKM
SEARRP	South East Asia Rainforest Research Partnership
SEATRU	Sea Turtle Research Unit (UMT)
SEC	Socio-Economic Considerations
SEEA	System of Environmental-Economic Accounting
SEEN	Sabah Environmental Education Network
SEEP	Sabah State Environmental Education Policy
SERASI	Program Sekolah Rakan Alam Sekitar
SFC	Sarawak Forestry Corporation
SFD	Sabah Forestry Department

Acronym	Full Form
SFM	Sustainable Forest Management
SFOMOS	Smart Forestry Monitoring System
SGS	SGS Malaysia (certification body)
SIMCA	Sugud Islands Marine Conservation Area
SIMS	Supply Chain Information Management System
SMPEM	Sustainable Management of Peatland Ecosystems in Malaysia
SOP	Standard Operating Procedure
SPARTA	Special Protected Areas Response Team
SPnCA	Sg. Pin Conservation Area
SRI	Sustainable and Responsible Investment
SSP	Sabah Structural Plan
STM	Sustainable Tourism Malaysia
SWD	Sarawak Wildlife Department
TCS	Turtle Conservation Society
TED	Turtle Excluder Device
TEEB	The Economics of Ecosystems and Biodiversity
TEK	Traditional Ecological Knowledge
TESSA	Toolkit for Ecosystem Service Site-based Assessment
TIC	Tengah Island Conservation
TK	Traditional Knowledge
TMDL	Total Maximum Daily Load
TNB	Tenaga Nasional Berhad
TNFD	Taskforce on Nature-related Financial Disclosures
TPA	Totally Protected Area (Sarawak)
TRX	Tun Razak Exchange
TVET	Technical and Vocational Education and Training
TWG	Technical Working Group
UCSI	UCSI University
UKM	Universiti Kebangsaan Malaysia
UM	Universiti Malaya
UMFC	Ulu Muda Forest Complex
UMPSA	Universiti Malaysia Pahang Al-Sultan Abdullah
UMS	Universiti Malaysia Sabah
UMSDC	UMS Sustainability and Development Centre
UMT	Universiti Malaysia Terengganu
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNDP-GEF	UNDP-Global Environment Facility
UNEP	United Nations Environment Programme
UNEP-WCMC	UN Environment Programme World Conservation Monitoring Centre
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCO-IOC	UNESCO Intergovernmental Oceanographic Commission

Acronym	Full Form
UNFCCC	United Nations Framework Convention on Climate Change
UNITEN	Universiti Tenaga Nasional
UNODC	United Nations Office on Drugs and Crime
UPEN	Unit Perancang Ekonomi Negeri (State Economic Planning Unit)
UPM	Universiti Putra Malaysia
UPOV	International Union for the Protection of New Varieties of Plants
USD	United States Dollar
UTP	Universiti Teknologi PETRONAS
VETOA	Veteran-Orang Asli Programme
VCS	Verified Carbon Standard
WCB	Wildlife Crime Bureau
WCS	Wildlife Conservation Society
WCU	Wildlife Crime Unit
WDPA	World Database on Protected Areas
WESTPAC	UNESCO Intergovernmental Oceanographic Commission's Sub-Commission for the Western Pacific
WIPO	World Intellectual Property Organization
WTO	World Trade Organization
WWF	World Wide Fund for Nature
YELL	Youth Environment Living Labs
YPKM	Yayasan Pendidikan Kasih Malaysia
YSD	Yayasan Sime Darby
YUFE	Youths United for Earth



EXECUTIVE SUMMARY

Malaysia has been a Party to the Convention on Biological Diversity (CBD) since 1994. On 28 February 2026, in fulfilment of its obligation under Article 26 of the Convention, Malaysia submitted its official Seventh National Report (7NR) to the CBD Secretariat via the Online Reporting Tool (ORT), a concise, indicator-driven account of progress in implementing the National Policy on Biological Diversity (NPBD) 2022-2030 and Malaysia's contributions to the Kunming-Montreal Global Biodiversity Framework (KMGBF).

But indicators alone cannot capture the full picture. The foundation of national conservation is a whole-of-society approach, one that depends on the active participation of Indigenous Peoples and Local Communities (IPLCs), the private sector, civil society, academia, and every Malaysian. The Ministry of Natural Resources and Environmental Sustainability (NRES) has therefore developed this Enriched 7NR: a domestic companion to the official submission, built on the same evidence and conclusions, but designed to give proper visibility to the full breadth of national action.

This document serves four purposes. It celebrates the contributions of all stakeholders. It informs the Malaysian public of national progress, including where gaps remain. It provides a diagnostic foundation for the NPBD's mid-term review in 2027. And it fosters the transparency and accountability without which conservation cannot succeed at scale. It transforms a statutory obligation into a national conversation.

THE OVERALL PICTURE: A FRAMEWORK BUILT, IMPLEMENTATION ACCELERATING

Malaysia's most significant achievement in this reporting period is the construction of a comprehensive enabling framework, the policy architecture, governance structures, legal instruments, and financial mechanisms on which effective conservation depends. The NPBD 2022-2030, explicitly aligned with the KMGBF and integrated into the 13th Malaysia Plan (2026-2030), provides the strategic roadmap. Landmark legislation, including the National Forestry (Amendment) Act 2022, the Fisheries (Amendment) Act 2025, and the Environmental Quality (Amendment) Act 2024, has strengthened the legal backbone. And governance has matured: engagement with IPLCs, the private sector, and civil society has evolved from consultation to structured co-management.

Against this framework, 14 of Malaysia's 17 NPBD targets are assessed as on track to be achieved by

Photo credit: The Habitat Foundation

2030. Three, covering marine protected area coverage, institutional and technical capacity, and financial resource mobilisation, are assessed as showing progress made but at an insufficient rate. This self-assessment reflects the gap between the pace of implementation and the scale of the challenge. The 7NR explains what is needed to close the gap.

KEY ACHIEVEMENTS

Across the 14 targets on track, the report documents progress that is measurable, diverse in character, and systemic rather than ad hoc. Several achievements stand out for their scale and significance.

Governance has been transformed. IPLCs, once beneficiaries of conservation policy, are increasingly its co-authors, serving as rangers, wildlife wardens, and scientific partners, and developing their own community protocols for protecting traditional knowledge. The Malaysia Platform for Business and Biodiversity (MPBB) has structured private sector engagement at scale, with major energy and plantation companies adopting corporate biodiversity frameworks and financial institutions mainstreaming nature-related disclosures under the Taskforce on Nature-related Financial Disclosures (TNFD) framework.

Women are leading this transformation at every level, holding senior leadership positions across NRES, Forest Research Institute of Malaysia (FRIM), the Sarawak Biodiversity Centre (SBC), and the Sabah Biodiversity Centre (SaBC). Women lead at least 19 specialised NGOs and research groups with strong scientific and community mandates. All-women ranger teams are conducting reforestation in Kinabatangan, and an all-female, all-Indigenous wildlife ranger team has been established in Peninsular Malaysia. During consultations for this report, women constituted more than 65% of all participants. The CBD's Gender Plan of Action 2023-2030 is being considered into national practice, with Gender Focal Points appointed across key ministries and a commitment to explicitly integrating gender considerations into the NPBD's 2027 revision.

Biodiversity is now embedded in economic decision-making. Almost 90% of Malaysia's oil palm planted area is certified under the mandatory Malaysian

Sustainable Palm Oil (MSPO) scheme; the revised MSPO 2.0 standard, effective 2025, explicitly prohibits conversion of natural forests and High Conservation Value areas. The East Coast Rail Link incorporated 28 dedicated wildlife crossings. The Environmentally Sensitive Area (ESA) framework legally mandates that national spatial planning avoid critical habitats. The principle that development and conservation must be planned together is no longer aspirational. It is enforceable.

On the ground, conservation is delivering measurable outcomes. The national 100 Million Tree Planting Campaign was exceeded ahead of schedule, resulting in 137 million trees planted. Sarawak has restored 137,178 hectares of degraded forest. Sabah now protects 27.3% of its land area, approaching the global 30x30 benchmark, and Sarawak has gazetted approximately 2.1 million hectares of new Totally Protected Areas. Intelligence-led enforcement under Operasi Bersepadu Khazanah has resulted in over 1,100 arrests and seizures valued at RM413 million. Malaysia's Access and Benefit-Sharing framework has moved from legislation to implementation: five Benefit-Sharing Agreements signed as of January 2026 are channelling revenue from commercial product development directly back to Indigenous communities in Sarawak and Sabah.

Financing has grown and diversified. Biodiversity-related public expenditure has grown by 40% to RM2.63 billion annually. The

performance-based Ecological Fiscal Transfer (EFT) has channelled RM800 million to states, directly incentivising the gazettement of over 340,000 new hectares of protected areas. The Bursa Carbon Exchange (BCX) successfully auctioned its first nature-based carbon credits from the Kuamut Rainforest Conservation Project in 2024, a signal that market mechanisms for biodiversity are becoming operational.

THE GAPS

While the significant advancements are evident, there are persistent gaps that hinder the full realization of Malaysia's national targets.

The protected area coverage is the most urgent gap. Coastal and marine protected area coverage stands

The foundation of national conservation is a whole-of-society approach, one that depends on the active participation of Indigenous Peoples and Local Communities (IPLCs), the private sector, civil society, academia, and every Malaysian.

at 5.34%, about half the 10% target. Protection is concentrated in nearshore areas; offshore and pelagic ecosystems remain largely unprotected. A national Marine Spatial Planning framework is still under development, and the institutional architecture for ocean governance lacks the coordination and mandate it needs.

There is a considerable gap in financing, primarily characterized by a lack of private sector investment and mobilization. While public expenditure has grown, it remains insufficient relative to need. Of the RM3.64 billion in private sector annual environmental expenditure, less than 1% is directed to wildlife and habitat conservation. Nature-related financial disclosures remain voluntary. No national biodiversity taxonomy yet exists to guide investment.

Capacity is uneven. Many states lack dedicated biodiversity units, and specialised expertise in taxonomy and conservation genetics is in short supply across the country. Translating federal policy into sub-national implementation remains a



Photo credit: Sanjitpal Singh / jitspics.com

key challenge, given the constitutional distribution of responsibilities over land and forests. Within institutions, women are well-represented in scientific, policy, and biosafety roles, but their representation in field enforcement and forestry departments remains below 30%. Gender Focal Points need better mandates and dedicated budgets. Sector-wide Protection from Sexual Exploitation, Abuse, and Harassment (PSEAH) protocols remain underdeveloped.

The measurement system is a major challenge that cuts across all other gaps. Across at least 12 of the 17 targets, baseline data against which to measure progress is still being established. More fundamentally,

the NPBD's indicators overwhelmingly measure outputs, patrols conducted, trees planted, plans published, rather than outcomes: species population trends, habitat quality, poaching pressure, seedling survival. A shift toward impact-driven assessment is necessary to validate the success of conservation initiatives. By focusing on measurable results rather than outputs alone, reporting can better align national achievements with actual ecological recovery.

Finally, new developments since the NPBD was adopted—including Malaysia's signing of the Biodiversity Beyond National Jurisdiction (BBNJ) Agreement, ongoing negotiations on Digital Sequence Information (DSI), and the rapid advance of New Genomic Techniques (NGT), have created regulatory gaps and new obligations. Combined with the growing climate-biodiversity interface, these require urgent attention in the forthcoming mid-term review.

THE ROAD TO 2030

The 7NR is structured as a diagnostic tool for the NPBD's 2027 mid-term review. That review is the critical decision point at which Malaysia can either recalibrate its ambitions with the urgency the situation demands, or allow the gap between policy and outcome to widen. The report points to five priorities that the review must address.

First, marine conservation must be accelerated as a matter of urgency. By 2027, Malaysia should have designated a coordinating authority for ocean governance, finalised the National Marine Spatial Planning Framework, and established a credible, funded pathway to 10% marine protected area coverage by 2030. The identification of 24 Important Marine and Coastal Areas provides the strategic blueprint; what is now needed is the institutional machinery to act on it.

Second, a whole-of-economy financing strategy must be established. A national biodiversity taxonomy is needed to support the move toward mandatory nature-related financial disclosures, and institutionalise biodiversity budget tagging across government. Private sector environmental expenditure stands at RM3.64 billion annually; redirecting even a modest share toward wildlife and habitat conservation would transform the financing landscape.

Third, the implementation engine must be strengthened at sub-national level. Fully operationalising the Malaysia Biodiversity Centre as a national coordination hub, launching targeted capacity programmes for state and local authority officers, and closing the

detection-to-enforcement loop in forest monitoring will collectively reduce the gap between what national policy commits to and what happens in the field.

Fourth, there is a need to transform the NPBD's measurement framework from outputs to outcome-focused. The 2027 review is the platform to do this, ensuring that there is at least one outcome-based indicator for each of the 17 targets.

Finally, the NPBD must be updated to reflect the world as it now exists. Malaysia's signing of the BBNJ Agreement in September 2025 creates new obligations for high seas biodiversity governance. Ongoing international negotiations on Digital Sequence Information and the rapid advance of New Genomic Techniques create regulatory gaps with direct implications for Malaysia's sovereign rights over its biological heritage. A dedicated climate-biodiversity framework is needed. The 2027 revision is the opportunity to close all these gaps.

THE MANDATE AHEAD

The 7NR documents a nation in transition. The institutional architecture is being built. Political commitment is real, from the National Biodiversity Council, chaired by the Deputy Prime Minister, to the community ranger in an Orang Asli village. The whole-of-society coalition that effective conservation requires is taking shape: from all-women ranger teams in Sabah to corporate sustainability officers in Kuala Lumpur adopting biodiversity frameworks, from Sarawak communities negotiating Benefit-Sharing Agreements to schoolchildren participating in citizen science programmes across the country.

Malaysia has built the frameworks. The task now is consistent implementation, accountability for outcomes, and placing biodiversity at the heart of national development. This 7NR provides the foundation for the NPBD's 2027 mid-term review and the next phase of national action.

Malaysia has built the frameworks. The task now is consistent implementation, accountability for outcomes, and placing biodiversity at the heart of national development.



Photo credit: Yusri Yusuf, UMT

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Malaysia has been a Party to the Convention on Biological Diversity (CBD) since 1994, reaffirming its commitment to the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from genetic resources.

In accordance with Article 26 of the Convention, Malaysia submitted its official Seventh National Report (7NR) on 28 February 2026 via the Online Reporting Tool (ORT). This submission documented Malaysia's progress in implementing the National Policy on Biological Diversity (NPBD) 2022-2030. It captures a critical transition period from the Aichi Targets to the Kunming-Montreal Global Biodiversity Framework (KMGBF) and serves as Malaysia's primary account of its contributions to this new global consensus.

The ORT's concise, indicator-based format cannot fully capture the breadth of biodiversity action occurring across the country. The foundation of national conservation is a whole-of-society approach, one that depends on the active participation of Indigenous Peoples and Local Communities (IPLCs), the private sector, civil society, academia, and every Malaysian.

To address this, the Ministry of Natural Resources and Environmental Sustainability (NRES) produced this enriched 7NR. While it shares the same evidentiary foundation and core conclusions as the ORT submission, it is designed to give proper visibility to the full spectrum of national action.

In a Nutshell: Two Reports, One Purpose, Different Audiences

- **The ORT Submission (28 Feb 2026):** Malaysia's official, statutory report to the CBD Secretariat. It is a concise, data-driven document aligned with the strict format and indicator requirements of the global reporting system.
- **This enriched 7NR:** An expanded, domestic version built upon the same official data and

conclusions. It is designed for the Malaysian public and national stakeholders, providing richer detail, success stories, project descriptions, and visuals that could not be accommodated within the ORT submission.

This enriched 7NR serves several important domestic functions. It is intended to:

- Celebrate the whole-of-society approach by acknowledging and documenting the contributions of all stakeholders.
- Inform the Malaysian public about national progress, enabling them to understand both the successes and the challenges in safeguarding our natural heritage.
- Enable policymakers and stakeholders to clearly identify implementation gaps, providing a vital foundation for the NPBD's mid-term review in 2027.
- Foster greater transparency, accountability, and awareness, ensuring that the story of Malaysia's biodiversity is owned and understood by all Malaysians.

1.2 BIODIVERSITY TREASURES OF MALAYSIA

Malaysia is globally recognised as one of 17 megadiverse countries, harbouring a significant proportion of the world's biological wealth within its borders. This status reflects the country's exceptional species richness and high levels of endemism across terrestrial, freshwater, and marine ecosystems. These assets constitute an extraordinary natural capital that underpins the nation's environmental health, economic prosperity, and cultural identity.

Terrestrial Biodiversity

Approximately 54.58% of Malaysia's total land area remains under forest cover, encompassing a rich mosaic of habitats including lowland dipterocarp forests, hill dipterocarp forests, montane forests, and unique freshwater swamp and peat swamp forests. These forests are among the oldest in the world and are centres of exceptional biodiversity. Malaysia's flora is estimated to comprise some 15,000 species of vascular plants, with approximately 8,300 in Peninsular Malaysia and 12,000 in Sabah and Sarawak. Of these, an estimated 30 per cent or 4,500 plant species are endemic, meaning they exist exclusively in Malaysia's specific regions. Mount Kinabalu in Sabah alone has recorded over 5,000 plant species, of which an extraordinary 40 per cent are endemic, demonstrating the global significance of Malaysia's botanical heritage. Malaysia is also home to the iconic *Richetia faguetiana*, with a specimen in Sabah's Danum Valley Conservation Area of about 100 metres tall, representing the world's tallest tropical tree.

The country's vertebrate diversity is equally impressive, including at least 306 species of mammals, 742

species of birds, 654 species of amphibians and reptiles, and over 2,000 species of freshwater and marine fish. Among the bird species, 68 are globally threatened and nine are endemic to the country. Malaysia is also home to seven Endemic Bird Areas, highlighting its critical importance for avian conservation.



Menara (Photo credit: Jamiluddin Jami)

***RICHETIA FAGUETIANA* — THE WORLD'S TALLEST TROPICAL TREE**

Richetia faguetiana, also known as Yellow Meranti or Seraya Kuning Siput, is a species of tree in the family Dipterocarpaceae that holds the title of the world's tallest tropical tree and the tallest flowering plant. Native to the rainforests of Borneo, the Malay Peninsula, and Thailand, these emergent giants can tower over the forest canopy.

The tallest known living specimen, named "Menara" (the Malay word for "tower"), is located in the Danum Valley Conservation Area in Sabah, Malaysian Borneo. It was officially measured on 6 January 2019 by a team that climbed the tree and used a direct tape-drop method. The height of this tree is 100.8 metres, which is the world's tallest tropical tree, and the third tallest tree in the world. Excluding its roots, Menara is estimated to weigh around 81.5 tonnes, with 95% of that mass in its trunk. It was first detected in 2018 using airborne LiDAR technology.

This remarkable tree surpasses other notably tall *R. faguetiana* specimens in Sabah, including a 96.9-metre tree in Tawau Hills National Park (found in 2018) and a 94.1-metre tree previously found in Danum Valley in 2016.

The tree's wood density ranges from 400–835 kg/m³, and it produces a resin locally known as dammar, historically used for torches. Its distinctive winged seeds spin like helicopters as they fall to the ground. However, despite its height, *R. faguetiana* is classified as Endangered on the IUCN Red List due to population decline from logging and habitat loss for agriculture.

Freshwater and Wetland Ecosystems

Wetlands cover approximately 5.1 million hectares of natural areas in Malaysia, including peat swamps, mangroves, rivers and lakes, as well as about 699,980 hectares of artificial wetlands including lakes and padi fields, bringing the total to 31 wetland types. These ecosystems play a vital role in maintaining environmental balance as they function as natural filters, carbon sinks, water catchment areas, buffers against coastal erosion, and habitats for a wide range of flora and fauna. Remarkably, 90 per cent of the nation's water supply originates from rivers flowing through forest ecosystems, demonstrating the direct link between forest conservation and human well-being.



Matang Mangroves (Photo credit: FRIM)

Coastal and Biodiversity

Malaysia's coastal and marine areas are equally rich, hosting critical ecosystems such as coral reefs, seagrass meadows, and mangrove forests. The country is uniquely positioned at the heart of the Coral Triangle, one of the world's most biodiverse marine hotspots, home to around 76 per cent of the world's coral species, over 3,000 reef fish species, and four of the seven marine turtle species.

Along Malaysia's extensive 4,800-km coastline, sixteen seagrass species have been identified, thriving in varied environmental conditions from the Malay Peninsula to Sabah and Sarawak. Seagrass meadows serve as primary producers in marine and estuarine settings and are essential food sources for marine organisms including dugongs, green turtles, and fish. These habitats support diverse fish and invertebrates, contributing significantly to local fisheries and providing sustenance for coastal communities that gather gastropods, bivalves, sea cucumbers, cockles, and edible seaweeds.

Economic and Social Significance

The economic value of Malaysia's biodiversity is substantial. Maritime resources contribute approximately 23 per cent to the nation's gross domestic product. Marine ecosystems alone, including coral reefs, mangroves, wetlands, and seagrass habitats, contributed an estimated US\$3.8

billion to the economy in 2022, while fisheries and aquaculture directly employ around 150,000 people.

Yet this figure, while substantial, represents only a fraction of biodiversity's true worth. As discussed later in this chapter, much of the value of natural capital remains "invisible" in standard economic accounting, meaning the degradation of these ecosystems does not register as a depreciation of national wealth.

Beyond direct economic contributions, biodiversity provides essential ecosystem services that are often invisible in economic accounting but fundamental to human well-being. These include climate regulation, water purification, pollination, flood control, and carbon storage. Malaysia's forests serve as crucial nature-based solutions to environmental challenges, supporting national goals such as maintaining at least 50 per cent forest cover, reducing carbon intensity by 45 per cent by 2030, and achieving net-zero greenhouse gas emissions by 2050.

Global Recognition and Conservation Significance

Malaysia's ecological significance is reflected in its international designations. The country hosts UNESCO World Heritage Sites, UNESCO Biosphere Reserves, UNESCO Global Geoparks, Ramsar Sites, ASEAN Heritage Parks, and IUCN Green List sites. Each designation is a testament to the global importance of its natural heritage. Beyond these inscribed sites, a growing pipeline of candidates across multiple designations signals Malaysia's commitment to expanding its internationally recognised conservation estate.

Biosphere Reserves

Malaysia is home to four UNESCO Biosphere Reserves under the Man and the Biosphere Programme: Tasik Chini (2009), Crocker Range (2014), Penang Hill (2021), and Kinabatangan (2025).

The Penang Hill Biosphere Reserve spans 12,481 hectares across Penang Island, creating a unique "hill to ocean" landscape. As Malaysia's first urban biosphere reserve, it hosts over 2,000 plant species and 500 animal species, including endemics like the Penang Hill vampire crab and Penang Slipper Orchid. It provides refuge for globally threatened species including the Sunda pangolin and Sunda slow loris, while its coastal waters are home to the Irrawaddy dolphin. The reserve also contains one of Asia's only five meromictic lakes, where seawater and freshwater remain unmixed.

The Kinabatangan Biosphere Reserve in Sabah, spanning approximately 413,867 hectares, is Malaysia's largest and a globally significant stronghold for riverine biodiversity. Its diverse habitats support 127 mammal species, including the Bornean orangutan, Bornean pygmy elephant, and proboscis monkey; 315 bird species, including all eight of

FOREST RESEARCH INSTITUTE MALAYSIA FOREST PARK SELANGOR – A UNESCO WORLD HERITAGE SITE

The Forest Research Institute Malaysia (FRIM) Forest Park Selangor achieved a monumental honour in July 2025 when it was officially inscribed as a UNESCO World Heritage Site. The decision, announced during the 47th World Heritage Committee session in Paris, recognised the site's outstanding universal value and its unique story of ecological redemption. This prestigious listing makes it Malaysia's sixth UNESCO World Heritage Site, placing it alongside natural wonders such as Kinabalu Park, Gunung Mulu National Park, and Niah National Park as a testament to the nation's environmental commitment.



Photo credit: FRIM

The story of FRIM Forest Park Selangor is one of remarkable transformation. Designated as a forest reserve in the 1920s, the area was initially a barren landscape degraded by tin mining and farming. Visionary researchers, including American botanist Dr. F.W. Foxworthy, initiated a large-scale reforestation project, planting a diverse range of tree species on the exhausted land. A century later, this ambitious experiment has proven a global success, with the site now a lush, mature tropical forest ecosystem serving as a living laboratory for rainforest rehabilitation.

Today, the 545-hectare park is a sanctuary for staggering biodiversity. Its protected forests are a haven for over 200 species of birds, from vibrant kingfishers to majestic hornbills. The park is also home to more than 60 mammal species, including elusive creatures like the Sunda pangolin and the critically endangered Sunda slow loris. The forest floor teems with insects, amphibians, and reptiles, while its rivers support various freshwater fish. This rich tapestry of life thrives within an active research station, where scientists continue to study this unique ecosystem. Standing among the lush, towering trees, it is almost impossible to believe that this vibrant rainforest was once a landscape degraded by mining, a powerful reminder that even barren land can be brought back to life.

Sabah's hornbills; over 100 reptiles; 33 amphibians; and more than 1,000 vascular plant species. It is also the ancestral homeland of the Indigenous Orang Sungai community, whose critically endangered dialect is recognised by UNESCO.

UNESCO World Heritage Sites

Malaysia's two longstanding World Heritage Sites, Gunung Mulu National Park and Kinabalu Park, have been joined by two recent inscriptions. The Forest Research Institute Malaysia (FRIM) in Selangor was designated in 2024, recognising its century-old managed forest and contributions to tropical forestry science. Niah National Park in Sarawak, inscribed in 2025, protects one of Southeast Asia's most significant archaeological sites, including evidence of human habitation dating back 50,000 years.

UNESCO Global Geoparks

Kinabalu Park in Sabah is designated as a UNESCO Global Geopark, recognising its exceptional geological heritage, diverse landscapes, and significance for sustainable local development. In addition, three candidate sites are in development: Lenggong Geopark (Perak), renowned for its archaeological heritage; Batu Caves (Selangor), with its unique limestone karst formations; and Sarawak Delta, which encompasses a complex coastal and estuarine landscape. Designation of these candidates

would further recognise Malaysia's geological diversity and its potential for sustainable tourism and community development.

Ramsar Sites

Malaysia's seven Ramsar sites cover 519,395 hectares of internationally important wetlands. Each site contributes uniquely to conservation and local livelihoods:

- Kuching Wetlands protects the proboscis monkey.
- Lower Kinabatangan Segama Wetlands supports Sabah's highest concentration of wildlife.
- Sungai Pulai contains Malaysia's largest seagrass bed with 12 recorded species.
- Pulau Kukup sustains local fisheries.
- Tanjung Piai draws tourists to the southernmost tip of mainland Asia.
- Tasek Bera provides resources for the Indigenous Semelai community.

Collectively, these wetlands deliver essential services valued at billions of ringgit annually through flood mitigation, carbon sequestration, and coastal protection.

Three additional sites are under consideration for Ramsar designation: the Klias Peninsula Wetland in Sabah, and Loagan Bunut National Park and Maludam National Park in Sarawak. Their inclusion would further strengthen Malaysia's representation of peat swamp and freshwater wetland ecosystems.

ASEAN Heritage Parks

Malaysia's ASEAN Heritage Parks showcase the region's shared natural heritage. Currently designated sites include the Tengku Hassan Wildlife Reserve, Bako National Park, and Lambir Hills National Park. Each protects distinct ecosystems, from peat swamp forests to pristine dipterocarp landscapes.

Four more candidate sites are being considered for ASEAN Heritage Park status: Penang National Park, Kuala Lawas, Kuala Trusan, and Limbang Mangroves. Their designation would expand Malaysia's representation of coastal and estuarine ecosystems within the regional network.

IUCN Green List

The Sugud Islands Marine Conservation Area in Sabah became Malaysia's first site to be

registered on the IUCN Green List, a global standard for effectively managed protected areas. It was followed by Pin Supu Forest Reserve, also in Sabah, demonstrating the state's leadership in achieving and maintaining high conservation standards.

A Global Responsibility

The conservation of Malaysia's biodiversity is not merely a national concern but a global responsibility. With 30 per cent of plant species being endemic, their extinction in Malaysia would mean their disappearance from the planet entirely. This biological heritage, from genes to ecosystems, provides essential services that form the very foundation for the nation's sustainable development and the well-being of its people, while contributing to the global community's efforts to sustain life on Earth.



Lankayan reef (Photo credit: Reef Guardian)

FIRST IUCN GREEN LIST SITE: SUGUD ISLANDS MARINE CONSERVATION AREA

The Sugud Islands Marine Conservation Area achieved recognition as Malaysia's first site on the IUCN Green List, a global standard for well-managed and effectively governed protected areas. This designation signals that the site meets internationally benchmarked criteria for good governance, sound design, effective management, and successful conservation outcomes.

Located off the east coast of Sabah, the conservation area is known for its rich marine biodiversity, including coral reefs, turtles, and pelagic species. Its Green List status reflects years of sustained management efforts, including strong enforcement, science-based monitoring, and collaboration between government agencies and conservation partners.

What makes this initiative unique is its emphasis on verified performance. Unlike designation-based recognition, the Green List requires demonstrable conservation impact and continuous improvement, making it one of the most rigorous global benchmarks.

A key learning is that achieving and maintaining Green List status requires adaptive management, transparent governance, and consistent stakeholder engagement. It also underscores the importance of integrating local knowledge with scientific monitoring.

The Sugud Islands' recognition sets a precedent for other marine protected areas in Malaysia. With the Green List framework now tested, there is strong potential to scale this model across priority marine sites, strengthening Malaysia's global standing in marine conservation and improving outcomes for biodiversity.

1.3 THE PRESSURES ON MALAYSIA'S BIODIVERSITY

Malaysia's rich biological heritage stands at a critical juncture. Despite significant policy commitments and a comprehensive protected area network, underlying pressures persist and, in some cases, are intensifying.

1.3.1 Demographic and Resource Demands

Malaysia's population is projected to reach 41.5 million by 2040, driving demand for housing, food, water, and energy. The core challenge is not growth itself, but the inability of current development models to absorb it without converting natural habitat.

Energy demand is projected to grow rapidly, fuelled by commercial growth and data centres. Meeting this demand will require power plants and solar facilities that pressure forested landscapes if not sited carefully. Hydropower, while renewable, inundates forests and fragments riverine ecosystems.

Large dam construction fragments riverine ecosystems, disrupting fish migration and inundating lowland forests. The balance between water security and freshwater biodiversity is currently tilted too far towards infrastructure.

Food production targets under the National Agrofood Policy 2021-2030 (NAP 2.0) create persistent tension with conservation. Vegetable demand pressures sensitive highlands (Cameron Highlands, Lojing, Kundasang). In fisheries, the shift toward aquaculture offers opportunities but requires careful management to avoid nutrient pollution and mangrove conversion.

1.3.2 Spatial and Governance

Land matters fall under state jurisdiction, leading to fragmented decision-making. Despite the Central Forest Spine initiative, biodiversity corridors are breached by piecemeal development approvals. The national road network has grown to approximately 290,000 km, but wildlife crossings remain reactive. Between 2020 and May 2025, 2,361 wild animals were killed in vehicle collisions, including five Malayan tigers.

Human-wildlife conflict has escalated dramatically, with 66,825 reports between 2020 and 2024 resulting in RM46.5 million in losses. The root cause is spatial: development encroaches upon wildlife corridors and erodes buffer zones.

Wildlife crime syndicates have grown increasingly sophisticated, migrating to encrypted platforms and dark web markets. Persistent demand for exotic pets and traditional medicine fuels poaching of tigers, pangolins, and birds. IUU

fishing remains a critical threat, with most coastal fish stocks exploited beyond maximum sustainable yield. Enforcement in Malaysia's vast maritime zones remains resource-intensive, despite strengthened governance through the Fisheries (Amendment) Act 2025.

1.3.3 Climate Change and Planetary Health

Climate change is a threat multiplier, amplifying existing stresses and pushing ecosystems toward tipping points. Rising temperatures and shifting rainfall patterns are altering habitats faster than many species can adapt.

In coastal waters, recurring marine heatwaves trigger mass coral bleaching, with shrinking recovery periods pushing reefs beyond resilience. On land, montane species face "mountaintop extinction" as warming shrinks their cool-weather habitats while fragmented landscapes prevent migration. Peat swamp forests become increasingly fire-prone as water tables drop.

Land use change and wildlife trade increase human-wildlife contact, creating pathogen spillover opportunities. For Malaysia, which experienced Nipah (1998-1999) and COVID-19, the One Health approach is essential. The National Planetary Health Action Plan (2025) is an important step toward treating forest protection as public health security.

1.3.4 Economic and Financial Barriers

Biodiversity and ecosystem services remain largely invisible in economic decision-making. Natural capital does not appear on national balance sheets; degradation does not register as wealth depreciation. Development projects quantify short-term returns while treating long-term losses of watershed protection and pollination as externalities.

The national cap on oil palm at 6.5 million hectares creates an intensification dilemma: with land fixed, pressure increases to raise yields. Sustainability certification schemes like MSPO have achieved impressive coverage, but smallholders face disproportionate barriers – complex processes, high costs, and unresolved land tenure – creating a two-tier system that undermines a just transition.

Funding biodiversity conservation requires balancing competing demands for public expenditure. The Ecological Fiscal Transfer has increased from RM60 million (2019) to RM250 million (2025). The National Conservation Trust Fund has financed 112 projects (RM22.62 million). However, the scale required far exceeds current allocations. Closing this gap requires sustained public expenditure complemented by private finance and innovative mechanisms.

1.4 NATIONAL POLICY ON BIOLOGICAL DIVERSITY 2022-2030

In response to the pressures outlined in Section 1.3, Malaysia developed the National Policy on Biological Diversity (NPBD) 2022-2030 as its primary strategic instrument to halt and reverse biodiversity loss.

Malaysia began revising its NPBD in October 2020, before the KMGBF was finalised. Following the adoption of the KMGBF in December 2022, Malaysia refined its draft to ensure full alignment. The NPBD was officially launched on 24 October 2023 and lodged with the CBD Secretariat on 2 August 2024.

Throughout the three-year process, Malaysia carried out extensive stakeholder engagement involving federal and state authorities, the private sector, academia, and NGOs. Despite COVID-19 challenges, the government used online and hybrid meetings to maintain participation. In total, 24 workshops and meetings were held, including thematic sessions on marine ecosystems, terrestrial habitats, and species protection, as well as consultations with the private sector and civil society.

The revision process was overseen by multistakeholder Technical and Steering Committees chaired by Ministry leadership, with representation from national and state governments, NGOs, and academia. Following consultations, the policy was endorsed by the Federal Cabinet on 18 October 2023 and launched on 24 October 2023. It has since been incorporated into the 13th Malaysia Plan (2026-2030), the National Physical Plan 5, the Sarawak Biodiversity Master Plan 2023-2030, the Sabah Biodiversity Strategy 2024-2034, and other state-level policies.

1.4.1 Overview of the NPBD 2022-2030

The NPBD is Malaysia's strategic framework for conserving biological diversity, promoting its sustainable use, and ensuring fair and equitable benefit-sharing. Structured around five overarching goals, the policy establishes 17 national targets supported by 61 concrete actions to be achieved by 2030, aligning with the KMGBF and the SDGs.

1.4.2 Principles Guiding the Policy

Five core principles guide implementation. Heritage recognises biodiversity as a national heritage to be sustainably managed and conserved for future generations. Precautionary principle establishes that lack of scientific certainty should not postpone measures to prevent significant biodiversity loss. Shared Responsibility acknowledges that conservation is the collective responsibility of all sectors of society. Participatory Approach ensures that indigenous peoples and local communities are recognised in conservation and benefit-sharing. Good Governance emphasises accountability and transparency in decision-making.

1.4.3 Goals and Targets

The NPBD's five goals and 17 targets form an integrated framework designed to address the full spectrum of biodiversity challenges facing Malaysia. Together, they span stakeholder engagement, pressure reduction, ecosystem safeguarding, benefit-sharing, and capacity enhancement.

Goal 1

Empowering and Harnessing Stakeholder Commitment – Recognising that conservation requires active participation from the whole of society, Goal 1 focuses on empowering all stakeholders. Target 1 aims for more Malaysians to be aware of biodiversity values and understand practical steps for sustainable use. Target 2 seeks to strengthen the roles of indigenous peoples and local communities (IPLCs), civil society, the private sector, and academic institutions in conservation.

Goal 2

Reducing Pressures on Biodiversity – This goal addresses direct and indirect pressures through five targets. Target 3 ensures terrestrial and marine spatial planning incorporates biodiversity conservation. Target 4 mainstreams biodiversity into development frameworks across all sectors. Target 5 strengthens forest governance specifically for biodiversity conservation. Target 6 ensures agrofood, agricommodity, and fisheries production are managed sustainably. Target 7 realises synergies between tourism and conservation.

Goal 3

Safeguarding Ecosystems, Species and Genetic Diversity – This goal safeguards key ecosystems, species, and genetic diversity through six targets. Target 8 expands protected areas to at least 20% of terrestrial areas and inland waters, and 10% of coastal and marine areas. Target 9 ensures threatened ecosystems are sustainably managed and degraded ecosystems restored. Target 10 secures ecological corridors across terrestrial, freshwater, and marine realms. Target 11 enables recovery of threatened species through targeted management. Target 12 minimises poaching and illegal trade of flora and fauna. Target 13 establishes measures to control invasive alien species.

Goal 4

Sustainable Use and Equitable Benefit-Sharing – This goal ensures sustainable use and equitable benefit-sharing through two targets. Target 14 enhances Malaysia's capacity to implement the Access and Benefit-Sharing framework. Target 15 establishes a biosafety system to manage the adverse impacts of modern biotechnology.

Goal 5

Enhancing Capacity, Knowledge and Skills – This goal improves capacity, knowledge, and skills through two enabling targets. Target 16 strengthens Malaysia's overall capacity to implement the Policy. Target 17 seeks a significant increase in funds and financial incentives for biodiversity conservation from government and non-government sources.

1.4.4 Implementation Framework

The implementation framework adopts a “Whole of Government” and “Whole of Society” approach. The National Biodiversity Council serves as the primary platform for federal and state governments to discuss biodiversity strategy. The framework clearly outlines roles and responsibilities while establishing mechanisms for monitoring progress and periodic review.

1.5 FORMULATING THE 7NR

Translating the ambitious goals of the NPBD into a credible progress assessment required a deliberate and inclusive process. The preparation of the 7NR was therefore designed not merely as a reporting exercise, but as a nationwide effort to capture the full spectrum of biodiversity actions across Malaysia. This section describes how the 7NR was formulated through four distinct stages, each designed to ensure that the final report accurately reflects the collective efforts of the whole of society.

The preparation of the 7NR was carried out in 4 stages, namely:

- Stage 1: Stakeholder Engagement
- Stage 2: Data Collection
- Stage 3: Data Validation
- Stage 4: Socialising the Report

1.5.1 Stage 1: Stakeholder Engagement

Engagement sessions for the 7NR were conducted at multiple levels. Women, youth, IPLCs, civil society, business communities, and academia were engaged, their inputs sought and efforts documented. The goal was to ensure the 7NR reflects diverse knowledge systems—from scientific data to traditional practices—and secures nationwide ownership of NPBD implementation findings.

Engagement sessions in November–December 2025 focused on explaining the 7NR process and identifying information requirements. Sessions in January–February 2026 focused on presenting findings, achievements, gaps, and challenges for stakeholder verification and validation. All meetings were fully documented.

Prior to the engagement sessions, the 7NR team carried out desktop studies on NPBD

implementation progress and challenges, reviewing technical reports and workshop outputs to ensure an informed consultation process.

Twenty-two engagement sessions were held with NGOs, government agencies, private sector, academia, IPLCs, and youth, across online and in-person workshops in Sabah, Sarawak, and Peninsular Malaysia. All sessions were guided by facilitators. Participants were briefed on the 7NR requirements and processes, including the types of information needed. Data templates, including online forms, were prepared and circulated to the participants to facilitate data collation.



Stakeholder consultation workshop

1.5.2 Stage 2: Data Collection

Data collection was a key challenge given the short timeframe and hundreds of stakeholders involved. The process involved systematically gathering quantitative and qualitative information against CBD reporting indicators and national targets. Data streams included forest and wetland inventories, species assessments, protected area management effectiveness scores, research publications, financing, and economic and social data related to biodiversity dependency.

The 7NR team provided templates and forms (Excel, Word, Google forms) to facilitate data capture. Stakeholders were specifically asked for data on areas where access was difficult, such as participation of women and youth, financing, and private sector activities. These areas had not been systematically collated in the past. The team also relied on personal and institutional networks to reach relevant parties. A significant amount of information was received as reports, published papers, and website stories, all of which was collated, analysed, and synthesised.

The primary challenge was integrating data from diverse stakeholders. Significant geographic and taxonomic gaps exist. Robust data are sometimes limited to flagship protected areas or charismatic species, while lesser-known ecosystems like peat swamps and limestone karsts remain understudied. The 7NR team addressed these challenges by sourcing data from multiple sources and cross-checking for reliability. An unexpected but positive challenge was that some stakeholders provided substantial amounts of data, requiring detailed sifting to ensure critical information was captured.

1.5.3 Stage 3: Data Validation

To ensure credibility, the assembled data and draft report underwent a validation exercise involving three multi-stakeholder workshops where stakeholders and experts scrutinised the information and narratives. They cross-referenced findings, resolved discrepancies, and assessed methodological robustness.

The main validation avenues were:

- Multi-stakeholder Workshop Sarawak (Kuching, 8 Jan 2026)
- Multi-stakeholder Workshop Sabah (Kota Kinabalu, 12 Jan 2026)
- Multi-stakeholder Workshop Peninsular Malaysia (Putrajaya, 15 Jan 2026)

Draft 1.0 was circulated before the workshops. During each workshop, participants were briefed on the 7NR processes, then divided into four groups to provide feedback on the 17 national targets. All feedback was documented. Based on this, the 7NR team rewrote and improved the text and recalculated indicators. Additional meetings were held to gather more information or clarify queries.

The revised draft, Draft 2.0, was emailed to stakeholders on 23 January 2026 and presented to the NPBD Technical Committee (3 February 2026) and NPBD Steering Committee (5 February 2026). Feedback was used to produce Draft 3.0, circulated on 9 February 2026. The Minister endorsed the report on 24 February 2026, followed by Federal Cabinet endorsement on 27 February 2026. The report was then submitted to the CBD via the ORT.

Key challenges during validation included diverse data collection methods that made comparison difficult, overcome by triangulation. Navigating sensitive data, such as threatened species locations and financing, required careful handling to balance transparency with protection.

1.5.4 Stage 4: Socialising the Report – Enriched 7NR

After submission via the ORT on 28 February 2026, NRES started the preparation of the enriched version of the 7NR. This enriched Seventh National Report celebrates the whole-of-society approach by documenting stakeholder contributions and informing the Malaysian public of national progress in safeguarding natural heritage. It also contains recommendations for the mid-term review of the NPBD, scheduled in 2027. A stakeholder consultation workshop was held in May 2026 to present the contents of the enriched report.

1.6 7NR – MORE THAN JUST A STATUTORY SUBMISSION

With the report now published, its true value lies not in the document itself but in what it enables. The process of preparing the 7NR was a challenging, complex, multi-stakeholder undertaking, but it was also a strategic opportunity for Malaysia.

It promoted a holistic, evidence-based review of national progress, highlighting both successes and challenges. It helped to catalyse inter-ministerial and inter-stakeholder dialogue, uncover critical knowledge gaps to guide future work, and reinvigorated commitment to the NPBD. The gaps and the challenges identified will also help Malaysia in its mid-term review of the NPBD, scheduled for 2027.

Ultimately, the success of Malaysia's 7NR will be measured not by its timely submission, but by its tangible impact on national conservation governance. By treating the report not as an endpoint but as a milestone in a continuous adaptive management cycle, Malaysia plans to leverage this international obligation to strengthen domestic action, ensuring its unparalleled biological heritage is conserved for future generations.



CHAPTER 2

THE PROGRESS IN IMPLEMENTING THE NATIONAL POLICY

2.1 INTRODUCTION

This chapter describes Malaysia's progress against the 17 national targets of the NPBD 2022-2030. Each target is structured consistently: an introduction to the strategic approach, the current level of progress, specific actions taken, key indicators, examples of initiatives driving change, and challenges with considerations for future implementation.

The chapter is organised across the NPBD’s five goals:

Goal	Targets Covered
Goal 1: Empowering Stakeholders	Target 1 (Awareness) Target 2 (Stakeholder Roles)
Goal 2: Reducing Pressures	Target 3 (Spatial Planning) Target 4 (Mainstreaming) Target 5 (Forest Governance) Target 6 (Sustainable Production) Target 7 (Tourism)
Goal 3: Safeguarding Ecosystems	Target 8 (Protected Areas) Target 9 (Restoration) Target 10 (Ecological Corridors) Target 11 (Threatened Species) Target 12 (Poaching) Target 13 (Invasive Alien Species)
Goal 4: Benefit-Sharing	Target 14 (ABS) Target 15 (Biosafety)
Goal 5: Capacity & Finance	Target 16 (Capacity Building) Target 17 (Financing)

As of this reporting period, Malaysia is assessed as “on track to achieve” for 14 of its 17 targets. The remaining three targets – Target 8 (Protected Areas), Target 16 (Capacity Building), and Target 17 (Financing) – are assessed as “progress made but at an insufficient rate.”

Note on progress assessments

For several targets, quantitative baselines are still under development. Progress assessments in this chapter are therefore based on proxy indicators and documented on-the-ground action.

The evidence presented in this chapter demonstrates that Malaysia’s whole-of-society approach is delivering measurable results. From public awareness campaigns reaching millions to landscape-scale co-management agreements with indigenous communities, from mandatory sustainability certification covering more than 90% of oil palm plantings to wildlife-friendly infrastructure design on major transport projects, the initiatives documented here reflect a national commitment to translating policy into action.



Photo credit: The Habitat Foundation

Goal 1: Empowering Stakeholders**TARGET 1**

BY 2030, MORE MALAYSIANS ARE AWARE OF THE VALUES OF BIODIVERSITY AND THE STEPS THEY CAN TAKE TO CONSERVE AND USE IT SUSTAINABLY

INTRODUCTION

Malaysia's strategy for Target 1 is a large-scale effort to embed biodiversity as a core societal value. Beyond isolated campaigns, the strategy relies on interconnected pillars to translate awareness into sustained action. Widespread success stories across three key, mutually reinforcing domains, demonstrate its implementation: Mobilising the Nation (from mass awareness to grassroots action), Educating for Life (building a pipeline of stewards), and Mainstreaming Biodiversity (integrating values into economy, culture, and governance). This integrated approach ensures that heightened awareness directly fuels participatory action, empowers a continuous wave of knowledgeable citizens, and is solidified by supportive economic and governance frameworks.

CURRENT LEVEL OF PROGRESS TOWARDS THE TARGET

On track to achieve target.

ACTION 1.1: ENHANCE BIODIVERSITY CONSCIOUSNESS ACROSS ALL SEGMENTS OF SOCIETY

Scaling public engagement and converting it into tangible participation bridges the gap between national consciousness and local ownership. This includes launching high-impact, media-savvy national campaigns to secure biodiversity's place in public conversation and drive support. A critical focus is empowering communities as active conservation partners through grants, training, and platforms for local projects and citizen science, transforming citizens into knowledge producers and on-the-ground managers. Sustained nationwide platforms such as annual celebrations (e.g., International Day for Biodiversity) and long-running programmes (e.g., SERASI, PALS Club and Eco Schools) maintain engagement momentum across diverse demographics.

Mainstreaming biodiversity also means making it relevant and rewarded in everyday decisions, market signals, and policy frameworks. Strategic collaborations with finance, retail, and creative industries integrate

sustainability into business, investment, and popular culture. Supportive policies and fiscal mechanisms at state and national levels incentivise conservation behaviour, while multi-stakeholder networks (e.g., Sabah Environmental Education Network) align government, NGOs, academia, and business.

Examples include integrating nature-related considerations into corporate and financial literacy (e.g., AEIOU Programme), leveraging popular culture through documentaries (e.g., Layar Liar Malaysia), and partnering with retail for public engagement. The Sarawak Biodiversity Centre's programme of over 200 VIP, Corporate, and Diplomatic Visits (2022-2025) showcases biodiversity's link to biotechnology and the bioeconomy, aligning awareness with Sarawak's Post-COVID-19 Development Strategy 2030. Bank Negara Malaysia has also mainstreamed nature-related disclosure in corporate finance through adoption of TNFD principles.

Key Indicator:

By 2030, the Public Awareness Levels on the Importance of Biodiversity has Increased Compared to 2024 Levels

Baseline pending. Assessment based on proxy indicators. Key initiatives driving this progress include high-impact national campaigns such as Save Our Malayan Tiger, nationwide annual celebrations of International Day for Biodiversity engaging thousands, extensive community empowerment programmes like the Sabah Community Environmental Leadership Camp and Ulu Muda KakSum, and sustained outreach by institutions such as the Sarawak Biodiversity Centre which conducted over 350 activities from 2022-2025. Grassroots citizen science initiatives across multiple districts in Sabah and long-running platforms like SERASI, PALS Club and Eco-Schools further demonstrate the extensive and deep-rooted engagement that is systematically building public awareness across all segments of society. Based on the scale and reach of ongoing activities, achieving this target is well within reach.

ACTION 1.2: INGRAIN BIODIVERSITY CONSCIOUSNESS WITHIN THE CHILDREN AND YOUTH

This domain invests in structured, experiential learning to cultivate a lifelong ethic of stewardship and create skilled future advocates. Actions focus on embedding environmental values into the education system which integrate practice with curriculum. Hands-on discovery through nature centres (e.g., Rainforest Discovery Centre) and restoration activities connect theory to real-world ecosystems. Furthermore, the strategy creates a pipeline of advocates through advanced training and networks that equip youth to lead and influence policy.

Progress has moved beyond one-off events to establish structured pathways for lifelong learning and leadership development. Programmes like SERASI, PALS Club and Eco-Schools are successfully embedding environmental values into school curricula and culture, with numerous institutions achieving national and international recognition for their sustainability practices. A Teachers' Training Module for Mainstreaming Biodiversity Conservation into the Public Education System was developed by FRIM in collaboration with the Ministry of Education Malaysia (MOE), the ASEAN Centre for Biodiversity (ACB) and NGOs. More than 50 teachers from schools surrounding protected areas (PA) in Pahang, Johor, and Perak were involved in developing the module, with training sessions conducted for 100 teachers. Sarawak Biodiversity Centre's (SBC) School and Institutional Visits, and STEM programmes reached students from kindergarten to university levels, while its unique LitSara® Wisdom Tours educated both international visitors and local students on traditional knowledge and Access and Benefit-Sharing (ABS).

Hands-on, place-based education has been scaled up significantly. Participation in restoration activities (e.g., the Wetlands Awareness Programme) and operations of nature discovery centres (e.g., Rainforest Discovery Centre) provide direct connections to ecosystems for thousands of students and volunteers. Advanced programmes are cultivating a skilled generation of advocates. Malaysian youth, trained through fellowships and leadership camps (e.g., ASEAN Youth Biodiversity Leaders, Sarawak Youth Green Leaders, Youth Environment Living Labs, Youth Camp on Climate Change, Sepilok Junior Rangers, Children's Bird Camp), are now actively shaping discourse, founding environmental clubs, and influencing policy agendas. Recently, 13 members of Youths United for Earth (YUFE) were trained and mentored by environmental journalists from Macaranga to raise public awareness about wildlife crime by creating social media posts and Instagram Reels.

Key Indicator:

By 2030, the number of children and youths participating in biodiversity conservation activities has increased by 50% compared to 2024 levels

Baseline pending. Assessment based on proxy indicators. The extensive portfolio of youth-focused programmes suggests that achieving a 50% increase is highly feasible. Contributing activities include foundational programmes like SERASI (involving approximately 1,500 schools) and Eco-Schools (83 active schools), experiential learning at the Rainforest Discovery Centre (reaching over 40,000 participants since 2020), and youth leadership initiatives such as the Sarawak Youth Green Leaders (42 graduates) and Youth Environment Living Labs (YELL) (mobilising 8,768 youth). Programmes like the COFAR Challenge (engaging 220 university students), ALAM Be-Leaf (mobilising over 3,000 volunteers), Rakan Bumi, and the Roots and Shoots Malaysia Award (engaging 349 youths) collectively demonstrate a robust and expanding pipeline of youth participation that positions the indicator for successful achievement.

EXAMPLES OF INITIATIVES DRIVING CHANGE

Across Malaysia, a quiet transformation is taking place as biodiversity consciousness takes root in communities, classrooms, and boardrooms. The following examples capture this momentum, showcasing initiatives that have successfully moved beyond mere awareness to inspire action, forge unlikely partnerships, and create lasting impact. They represent the collective effort of government agencies, civil society, private sector, and local communities working together for nature.

(a) Save Our Malayan Tiger Campaign: A high-profile multi-year national campaign using media and celebrity partnerships to raise funds and public engagement for critical habitat and anti-poaching work, fostering a participatory model that integrates local volunteers and indigenous stewards in monitoring and habitat restoration. The campaign has raised more than RM 2.5 million in funds, a significant part of which have been used for community education and awareness. This campaign also saw the innovative collaboration between the Football Association of Malaysia, the Ministry of Youth and Sports, and PERHILITAN where RM1.00 from every ticket sold for the Malaysian National Football Team's international matches is donated to the fund.

- (b) Celebration of International Day for Biodiversity:** The event is celebrated annually across the country with NRES, Sabah Biodiversity Centre (SaBC) and Sarawak Biodiversity Centre (SBC) taking the lead. Various activities ranging from seminars, talks, exhibitions, tree planting and community events attract thousands of participants. This celebration is also carried out by civil society and the private sector, for example Sarawak Energy's annual biodiversity day event attracts over 1000 participants. From 2022 to 2025, SaBC's state level celebration has attracted more than 1200 participants.
- (c) Tioman Community Marine Conservation Group:** Led by Reef Check Malaysia and supported by Amanah Lestari Alam (ALAM), this initiative seeks to remove ghost nets and coral predators, install marine buoys, remove debris and enhance community awareness. The outcomes have been impressive, with 80% of participants now having a deeper knowledge of ocean conservation and understanding the need to change unsustainable fishing practices.
- (d) Ulu Muda KaKSUM Community Carnival:** This carnival celebrates the Ulu Muda Forest Complex and its nearby communities in Mukim Sok, who depend on the forest. First launched in 2023, the event, supported by WWF-Malaysia, was repeated in 2024 and 2025. Its goals are to increase local knowledge of Ulu Muda's biodiversity and its role as a vital water catchment, and to strengthen community stewardship. Over three editions, around 1600 participants have joined, making KaKSUM the area's first large-scale community conservation carnival, successfully raising awareness and fostering greater local involvement.
- (e) Sabah Community Environmental Leadership Camp 2025:** This intensive 8-day camp, organised by Reef Check Malaysia and Green Semporna, equipped 36 participants from across Sabah with advanced skills in climate adaptation, grant writing, and project management. A key outcome was a mini-grant scheme that funds participants' own conservation projects, such as a community-led initiative to combat destructive fish bombing through patrolling and awareness in Mabul. This represents a strategic shift from raising general awareness to building concrete, community-executed action plans.
- (f) SERASI Programme:** A foundational school-based initiative that inspires students to become environmental stewards by integrating sustainability into school culture and curriculum. Core practices include recycling, energy efficiency, and community outreach. The programme has involved approximately 1,500 schools in Sabah and Sarawak, with participating schools earning prestigious national and international awards, including the ASEAN Eco Schools Award and the Japan Education for Sustainable Development Award. Kelab Pencinta Alam Sekitar (PALS Club) implemented by Natural Resources and Environment Board (NREB) Sarawak cultivates environmental awareness and positive action among students.
- (g) Eco-Schools Programme:** This global initiative, implemented locally by the Green Growth Asia Foundation (GGAF) and supported by Federal and state governments, international organisations and corporate sponsors including Yayasan PETRONAS, empowers schools to integrate environmental education across themes like waste, water, and biodiversity. It promotes sustainable habits and climate action, culminating in the prestigious Green Flag award. Currently, 83 Malaysian schools are active participants, with 26 schools having achieved the Green Flag for their exemplary eco-friendly practices.
- (h) Rainforest Discovery Centre (RDC):** As a flagship environmental education centre under the Sabah Forestry Department, the RDC provides immersive environmental education in Sandakan. Its diverse programmes for youth, teachers and communities focus on forestry, biodiversity, and sustainable development. From 2020 to 2025, it delivered 440 programmes to 32,689 participants. Since 2020, RDC has also reached out to more than 2,300 community participants, over 7,400 students and more than 50 villages throughout Sabah through roadshows featuring interactive role-play sessions.
- (i) The Sarawak Youth Green Leaders:** This programme, led by Sarawak Eco Warriors, is modelled on the ASEAN Youth Biodiversity Leaders initiative. It has completed 5 cohorts, each with different themes and featuring mentorship, leadership training, and insights into biodiversity governance. Consequently, participating youth are now actively building their own environmental communities and forging external partnerships. Alumni have founded groups like the Sarawak Youth Network in Conservation, the Swinburne Sarawak Green Club, and Cyberjaya Go Green Club. To date, 42 youths have participated.



- (j) **ALAM Be-Leaf Programme:** Coordinated by the NRES, ALAM and Yayasan Hijau Malaysia, this targeted initiative contributed to the national 100 Million Tree Planting Campaign. Its primary outcome was the successful mobilisation of over 3,000 volunteers, who planted more than 8,000 mangrove saplings in a single concerted effort, translating awareness into direct restoration action.
- (k) **Rakan Bumi:** This initiative under the Rakan Muda program of the Ministry of Youth and Sports promotes sustainable lifestyles, environmental awareness, and youth involvement in conservation activities. It aims to unite the community through activities such as mangrove tree planting and awareness campaigns. Several subgroups have been formed including Rakan Bumi Lestari Hijau (Trash to Cash), Rakan Bumi: Save the Sea, and Rakan Bumi: Plogging Komuniti.
- (l) **Innovative Educational Tools for Awareness Raising:** Various stakeholders have developed innovative awareness tools that translate complex science into accessible formats. Marine biologists developed Reef Stakes, a board game for managing coral reef ecosystems. WWF-Malaysia and Aurecon Lestari developed ROW (Roads or Wildlife) for planning roads in sensitive areas. Sabah's Environment Protection Department developed EcoPolitan and EcoExplorers to educate youth. These tools are actively used in public outreach and professional training.
- (m) **Coastal Flooding Adaptation and Resilience (COFAR) Challenge:** Organised by the Securities Commission Malaysia and Institute of Chartered Accountants in England and Wales (ICAEW) Malaysia, in collaboration with SD Guthrie Berhad and SEADPRI-UKM, the COFAR Challenge engaged 220 students from 29 universities. Using Carey Island as a real-world case study, participants developed adaptive solutions including geotextile barriers and oyster reefs, with nature-based approaches offering biodiversity co-benefits. These were paired with innovative financing mechanisms, illustrating how youth-led collaboration can advance climate adaptation.
- (n) **Sarawak Biodiversity Centre's Integrated Outreach Programme:** This comprehensive, state-level programme focuses on three key audiences: the general public and students via annual celebrations and school visits; cultural communities through exhibits at major festivals and LitSara® Traditional Wisdom tours; and economic planners via engagements with corporate leaders, investors, and diplomats. With hundreds of activities logged over three years, this programme embeds biodiversity into public consciousness, education, and high-level economic planning simultaneously.
- (o) **Freshwater Turtle Conservation:** Programmes led by the Turtle Conservation Society of Malaysia (TCS) integrate school outreach (benefitting more than 30,000 rural students from 2012 – 2025, community talks, and nest protection (saving more than 11,000 terrapin eggs from human consumption). This work helps translate abstract biodiversity concepts into tangible, place-based conservation action linked to local rivers and livelihoods, engaging youth in the process.
- (p) **Environment Volunteer Programme in Cameron Highlands:** Led by Regional Environmental Awareness Cameron Highlands (REACH) and funded by Yayasan Sime Darby, this programme engages the local community in reforestation 16 hectares of illegally cleared land within the Gunung Brinchang forest reserve by planting 20,000 endemic tree species. This effort has involved 48 volunteer sessions and more than 2,000 participants, alongside continuous school engagement on conservation topics like river protection and recycling.
- (q) **The Roots and Shoots Malaysia Award (RASMA):** This youth-focused programme fosters active citizenship by encouraging participants to move beyond awareness and implement community-based projects. It promotes personal growth and skill development through structured volunteerism. The initiative has demonstrated significant growth, with a 54.1% increase in graduate participation between 2023 and 2025, engaging a total of 349 youths aged 16-25 during this period.
- (r) **Wetlands Awareness Programme:** Led by the Sabah Wetlands Conservation Society, this initiative transforms wetlands into living classrooms for students from Kota Kinabalu and Tuaran. Through monthly sessions combining guided education at the Kota Kinabalu Wetland Ramsar Site and hands-on mangrove planting at Sulaman Lake Forest Reserve, it demonstrates critical ecosystem services like flood control. To date, 1,500 students have gained practical experience and appreciation for wetland conservation.
- (s) **Layar Liar Malaysia:** A new documentary series produced by Nuvista Media in collaboration with Yayasan Sime Darby aims to increase awareness of Malaysia's rich natural heritage. Concerned about the lack of local awareness, the producers filmed at 18 locations across Malaysia and directly engaged about 200 school children as part of the outreach. The documentaries have had more than 13 million views on various platforms as of January 2026.

SABAH ENVIRONMENTAL EDUCATION NETWORK

Established in 2005, the Sabah Environmental Education Network (SEEN) is a pioneering multi-stakeholder platform for environmental education in the state. Led by the Environment Protection Department Sabah, SEEN has grown from 22 to 44 members, reflecting its expanding influence.

A landmark achievement was the launch of the Sabah Environmental Education Policy (SEEP) in November 2009. Created to unify efforts amid complex challenges, SEEP defines environmental education as a transformative process fostering awareness, knowledge, and skills to drive behavioural change for conservation. Crucially, SEEP champions cross-sector collaboration among government bodies, communities, schools, businesses, and individuals.

SEEN drives numerous impactful initiatives. Its SERASI programme has been implemented since 2003 in 450 of Sabah's 1,296 schools. The Climate Change Awareness Programme with CEEA, Japan engaged over 15,700 participants between 2017 and 2022. The Environmental Education Race (29 editions) and Young Rangers programme have registered over 13,000 students since 2010. SEEN also supports the 5R Wildlife Campaign and Wildlife Junior Ranger Programme.



Photo credit: SEEN

Demonstrating adaptability, SEEN members remained active during COVID-19 lockdowns, pivoting to online events like EE Webinars and a Virtual EE Race. Through decades of work, SEEN remains the cornerstone of coordinated environmental education in Sabah.

SERUAN SETU – SECRET GARDENS OF THE SEA

Seruan Setu – The Secret Gardens of the Sea is an innovative production by gamelan ensemble Rhythm in Bronze (RiB), which premiered in August 2023 at the Kuala Lumpur Performing Arts Centre. The project uniquely fuses art and science to spotlight Malaysia's critically endangered seagrass ecosystems.

The production arose from collaboration between the arts and marine science. Music director Dr Jillian Ooi Lean Sim is a marine ecologist, Associate Professor at the University of Malaya, and Pew Fellow. Under artistic director Dato' Zahim Albakri, eight composers created 10 original gamelan pieces inspired by seagrass and coastal communities.

The initiative's immersive, research-based creative process included a lab in Tanjung Kupang, Johor, where composers walked through seagrass meadows and spoke with fishermen and villagers. These encounters shaped musical narratives, transforming scientific data into emotional storytelling.

"Seruan" means "call to action" in Malay, while "setu" refers to tape seagrass, a declining species. The performance combined gamelan with singing, dancing, and video projections to reveal seagrass as

breeding and feeding grounds for marine life like green turtles and dugongs, while also protecting coastlines and supporting food security.

Following its sold-out premiere, the production gained international recognition, invited to the Malaysia Pavilion at COP28 in Dubai. RiB also organised the "Secret Gardens of the Sea Conference" at Universiti Malaya, uniting artists, scientists, and conservationists to explore music-marine science collaboration.



Photo credit: Rhythm in Bronze

YAYASAN PETRONAS WALK4TREES CAMPAIGN

The Yayasan PETRONAS Walk4Trees Campaign was an innovative initiative that ran from 2021 to 2023, designed to simultaneously address environmental challenges and contribute to a more sustainable lifestyle by linking employees' health to the broader environmental and planetary health objectives. The concept was simple yet powerful: for every one million steps recorded by PETRONAS employees, Yayasan PETRONAS would plant one tree. The challenge proved remarkably successful, with over 23,400 employees participating and collectively achieving 24.02 billion steps by June 2021, far exceeding the initial target. This achievement translated into a pledge to plant more than 24,000 trees, with Yayasan PETRONAS further expanding on the commitment and planted a total of 50,000 trees nationwide.

Implemented in partnership with the Global Environment Centre (GEC), the campaign conducted ecosystem restoration activities across 14 project sites in 11 states, including the Raja Musa Forest Reserve in Selangor, the Binsuluk Forest Reserve in Sabah, and the Sungai Merbok Forest Reserve, Kedah. A key feature was the engagement of 24 local community groups, including Orang Asli communities in Perak, Selangor and Pahang. These communities were trained to establish and run nurseries, plant and maintain the saplings, and monitor biodiversity through methods like camera trapping. The initiative provided them with crucial supplementary income, especially during the COVID-19 pandemic.

The campaign has resulted in the planting of 74,652 trees across Malaysia, comprising 62 native species. It has also supported the establishment of community nurseries, such as one in Kampung Buntal, Sarawak, and the construction of canal blocks in peatland areas for fire prevention and water management in Selangor, Pahang and Sabah. For its outstanding impact, Yayasan PETRONAS and GEC received the ASEAN Green Initiative (AGI) recognition for Large-Scale Tree Planting Initiatives from the ASEAN Centre for Biodiversity in 2023.

Photo credit: Yayasan Petronas



CHALLENGES & CONSIDERATIONS FOR FUTURE IMPLEMENTATION

Malaysia's progress in building public awareness has established a strong foundation. However, to achieve the 2030 target of widespread sustainable action, three specific gaps must be addressed:

- Knowledge-action gap** – High awareness does not automatically translate into daily pro-environmental behavior. Citizens lack specific, practical pathways for change in their own lives. *Considerations for future implementation: Shift focus from raising awareness to designing for behavior change. Integrate behavioral insights (“nudges”) and design thinking into public communications, making sustainable choices more visible, attractive, and easy.*
- Shallow ecological literacy** – Public understanding remains at the level of key term recognition, not deep comprehension of ecological interconnectivity and systemic causes. This limits support for complex, long-term solutions. *Considerations for future implementation: Mainstream experiential, place-based learning that demonstrates cause and effect. Support media and communicators in moving beyond headline issues to explain ecological functions and the socio-economic benefits of biodiversity.*
- Incomplete mainstreaming across sectors** – Biodiversity is not yet embedded as a core value across all economic sectors, cultural institutions, and community norms. Current efforts rely disproportionately on voluntary leadership and pilot projects. *Considerations for future implementation: Move beyond standalone campaigns to embed biodiversity values into business models, state and local development plans, and cultural norms. Create mandates and market signals that make biodiversity consideration standard practice, not a voluntary add-on (see also Target 4).*

Goal 1: Empowering Stakeholders**NPBD TARGET 2**

BY 2030, THE ROLES OF INDIGENOUS PEOPLES AND LOCAL COMMUNITIES, CIVIL SOCIETY, THE PRIVATE SECTOR, AND ACADEMIA IN BIODIVERSITY CONSERVATION HAVE BEEN STRENGTHENED SIGNIFICANTLY

INTRODUCTION

Malaysia has institutionalised a whole-of-society model, moving non-state engagement from consultation toward shared governance. This is achieved through five strategic actions:

- IPLCs – Recognising Indigenous Peoples and Local Communities as inherent stewards through legal recognition of customary rights, co-management protocols, and the national OECM framework.
- Civil Society – Embedding NGOs as formal co-managers of protected areas and partners in restoration, species recovery, and community empowerment.
- Private Sector – Maturing corporate engagement through the Malaysia Platform for Business and Biodiversity (MPBB), the Blueprint for Accelerating Biodiversity Action, and TNFD alignment.
- Stakeholder Participation – Institutionalising non-state voices in policy development through permanent forums like the National Biodiversity Roundtable.
- Academic Community – Translating university research into public tools, professional training, and policy foundations.

Underpinning all five is a deliberate design principle: structuring conservation programmes to require the complementary assets of all stakeholder groups from the outset, moving decisively toward genuine co-creation.

CURRENT LEVEL OF PROGRESS TOWARDS THE TARGET

On track to achieve target.

ACTION 2.1: EMPOWER AND SUPPORT INDIGENOUS PEOPLES AND LOCAL COMMUNITIES

The most profound shift is the growing recognition of IPLCs as inherent stewards and co-governors, not merely project beneficiaries. This shift is now moving beyond pilot projects toward systemic integration. IPLC members are increasingly employed as forest rangers, wildlife wardens, and monitoring technicians (e.g., Central Forest Spine, Lanjak Entimau, Honorary Wildlife Warden (HWW) programme), translating traditional knowledge into professionalised protection and creating conservation-linked livelihoods.

Models of co-management are being proven at scale. The eight-village network in the Lower Kinabatangan-Segama Wetlands (LKSW) Ramsar site now functions as a de facto co-management entity, with community data directly informing official plans. The HWW programme formally grants official enforcement powers to community leaders.

Active development of the national OECM framework is setting the stage to recognise Community Conserved Areas (CCAs). Key sites such as the Kiau Community Forest (487 ha) and the over 12,000 hectares of coastal and marine areas stewarded by Sabah IPLCs are prime candidates.

A review to amend Malaysia's Orang Asli Act 1954 was completed between July 2024 and September 2025. The process involved extensive consultation with 1,336 stakeholders, including Orang Asli leaders, professionals, NGOs, government bodies and human rights institutions. JAKOA is now preparing a Cabinet Memorandum for policy approval. Key proposed amendments include establishing a dedicated Orang Asli Advisory Council and formally recognising customary institutions as custodians of traditional knowledge. Besides amending the Act, JAKOA, in collaboration with UNDP, is currently developing the Orang Asli Development Policy to replace the 1961 policy.

To strengthen IPLCs as inherent stewards and co-governors, various awareness and capacity building programmes are being carried out (e.g. PACOS awareness programmes on KMGBF, ABS and community protocols).

Key Indicator:

By 2030, policies to empower indigenous peoples and local communities have been developed and implemented

While specific quantitative data for this indicator is not compiled in a single metric, the significant progress in amending the Orang Asli Act, developing the new Orang Asli Development Policy, formulating the national OECM framework, and implementing co-management programmes like the LKSW and the Community Ranger Programme demonstrates that Malaysia is on track to meeting this target.

ACTION 2.2: DEVELOP LONG-TERM PARTNERSHIPS WITH CIVIL SOCIETY

Civil society has become an essential partner in national conservation efforts — not just advocating, but also helping implement and innovate. NGOs now act as co-managers, scientific collaborators, and convenors across different ecosystems. For example, in the LKSW, a coalition led by Forever Sabah supports a hybrid governance model where community data shapes official management plans. In Lanjak Entimau, civil society groups have trained Iban community members to work as expert camera trappers alongside the Smithsonian Institution, showing how NGOs can connect local knowledge with international science.

Civil society also creates platforms for dialogue, such as the Safer Roads Roundtable, which turns conservation challenges into structured policy discussions. Organisations like WWF-Malaysia serve as long-term operational partners in state-level initiatives like the Sarawak Conservation Programme. Meanwhile, the Turtle Conservation Society of Malaysia (TCS) works with state agencies to help recover river terrapin populations. Through these roles, civil society channels both public and private funding into sustained field operations, building a durable, “whole-of-society” capacity for enforcement, research, and community empowerment.

Key Indicator:

By 2030, the number, size, and duration of collaborative projects with civil society have increased by 50% compared to 2024 levels

Baseline pending. Assessment based on proxy indicators. The proliferation of long-term, strategic partnerships documented in examples below, such as the Sarawak Conservation Programme and the multi-stakeholder tiger protection efforts, indicates a significant upward trend. This progress, alongside the formalisation of civil society roles in governance platforms, justifies the assessment that Malaysia is on track to meeting this target.

ACTION 2.3: HARNESS THE STRENGTH OF THE PRIVATE SECTOR

Corporate engagement is maturing rapidly, characterised by depth and broader mainstreaming. The Malaysia Platform for Business and Biodiversity (MPBB), established in 2020, and the Blueprint for Accelerating Biodiversity Action for Businesses (2025) provide clear pathways for integration, alongside growing alignment with frameworks such as the TNFD.

Corporate foundations such as Yayasan Sime Darby, Yayasan Hasanah, and Yayasan PETRONAS have become dominant, strategic financiers in Malaysia’s conservation landscape, funding over 100 long-term initiatives. Their sustained, outcome-focused investments demonstrate a mature shift from ad-hoc philanthropy to being core, reliable partners.

Beyond financing, corporations are emerging as direct conservation actors. Sawit Kinabalu, a state government-linked company, voluntarily established and manages the 2,632-hectare Sg. Pin Conservation Area (SPnCA) within its commercial operations, demonstrating how biodiversity protection can be strategically integrated into core business planning. The site was endorsed by NRES as one of Malaysia’s six pioneer OECM sites in 2024.

The uptake of the Taskforce on Nature-related Financial Disclosures (TNFD) framework is accelerating, with Bank Negara Malaysia playing a catalytic role in socialising and mainstreaming nature-related disclosure across the finance sector. Recognition schemes like the Hornbill Award further incentivise corporate action. Organisations like the CEO Action Network (CAN) Malaysia, a coalition of over 75 leading CEOs, elevates biodiversity to boardroom-level strategic conversation, recently partnering with WWF-Malaysia on high-level dialogue. Recognising the growing demand for sustainability professionals, the Securities Commission Malaysia is facilitating the establishment of the Association of Sustainability Professionals (ASP) to support professional development and standard-setting.

Key Indicator:

By 2030, all public listed companies are reporting on biodiversity conservation initiatives

All public listed companies are already required to report on sustainability, which invariably covers biodiversity. However, the extent and depth of reporting currently vary, and no specific guidelines yet exist on how biodiversity should be addressed. Despite this, foundational work to mainstream biodiversity reporting is underway. The growing adoption of the TNFD framework, with Bank Negara Malaysia playing a catalytic role in socialising nature-related disclosure across the finance sector, is moving biodiversity into core corporate governance. Recognition schemes like the Hornbill Award incentivise meaningful action, while coalitions like the CEO Action Network (CAN) elevate biodiversity to boardroom-level strategic conversation. This emerging architecture of market signals, corporate leadership, and regulatory momentum justifies the assessment that Malaysia is on track to meeting this target.

ACTION 2.4: ENHANCE STAKEHOLDER PARTICIPATION IN THE DECISION-MAKING PROCESS

Soliciting stakeholder feedback is now standard practice in biodiversity governance. The formulation of the NPBD 2022 – 2030 and the 7NR involved extensive consultations across government, civil society, IPLCs, academia, and the private sector. Nearly all biodiversity-related action plans and strategies, whether national or state-level, are developed through structured engagement processes that ensure diverse voices inform policy design from the outset.

Beyond individual consultations, progress in institutionalising collaboration is evident through formal alliances that coordinate action and influence policy frameworks. At the national level, the Malaysian CSO-SDG Alliance holds an official seat on the National SDG Steering Committee. Through its “Environment and Sustainability” thematic group, it ensures a collective non-governmental voice is embedded in national policy dialogues.

At the state level, formal partnerships demonstrate mature collaboration models. The Sabah Association for Social Forestry (SASOF), an alliance of NGOs, community organisations, and academia, has a direct mandate in training, community forest management, and influencing sustainable forestry practices. Similarly, the Sabah Environmental Education Network (SEEN) brings together government agencies, NGOs, and educators to spearhead environmental education across the state. These and similar multi-stakeholder platforms across other states reflect a nationwide shift towards participatory governance.

Key Indicator:

By 2030, Stakeholder participation in public consultation processes has led to positive outcomes towards biodiversity conservation

While it is difficult to quantitatively attribute all positive outcomes to public consultation, there are clear examples of participation leading to tangible results. The integration of community data from the LKSW into official government management plans and the extensive consultations that shaped the amendments to the Orang Asli Act are direct evidence of this. Furthermore, the formal seats for civil society on national steering committees ensure their participation is structured to influence policy. This demonstrates that Malaysia is on track to meeting this target.

ACTION 2.5: STRENGTHEN COLLABORATIONS WITH THE ACADEMIC COMMUNITY

Universities and research institutes are at the forefront of applied conservation science, generating critical data and solutions for policy and management. Universiti Malaysia Sabah's Institute for Tropical Biology and Conservation (ITBC), a designated Centre of Excellence, produces actionable research to improve the management and resilience of key ecosystems and species. The Institute of Oceanography and Environment (INOS) and Sea Turtle Research Unit (SEATRU) at Universiti Malaysia Terengganu, the Institute of Ocean and Earth Sciences (IOES) at Universiti Malaya, and the Centre for Marine and Coastal Studies (CEMACS) at Universiti Sains Malaysia drive marine conservation science, informing fisheries management and species protection policies.

This model of research informing strategy is demonstrated across diverse collaborations. The comprehensive biodiversity survey on Penang Hill, led by Universiti Sains Malaysia and international collaborators, provides the scientific foundation for the site's UNESCO Biosphere Reserve nomination. The Barn Owl for Smallholders Initiative, spearheaded by the Malaysian Palm Oil Green Conservation Fund (MPOGCF) in collaboration with Universiti Sains Malaysia's Barn Owl and Rodent Research Group, promotes sustainable pest control in oil palm plantations through applied ecological research. In Sarawak, peatland rehabilitation at SD Guthrie's Lavang Estate involves partnership with the Sarawak Tropical Peat Research Institute, Universiti Putra Malaysia, and the Forestry Department Sarawak, demonstrating how academic expertise advances landscape-scale restoration.

Key Indicator:

By 2030, at least 30% of research is effectively translated and implemented into policy papers

A formal tracking system to measure the percentage of research translated into policy is not yet in place. However, clear instances of this translation are occurring. The biodiversity survey on Penang Hill directly supports its UNESCO Biosphere Reserve nomination. Community-led data from the LKSW is integrated into official management plans. Academic partners provide scientific support to programmes like the Community Elephant Ranger Team. This emerging pattern of research informing policy and management decisions justifies the assessment that Malaysia is on track to meeting this target.

EXAMPLES OF INITIATIVES DRIVING CHANGE

The following examples provide evidence of the progress outlined. They illustrate the foundational role of IPLC-led stewardship, the pivotal function of civil society as co-managers and convenors, the strategic shift of the private sector, and the critical enabling infrastructure for collaboration.

(a) Landscape-Scale Co-Management of the Lower Kinabatangan-Segama Wetlands:

Eight Indigenous villages have transitioned to recognised stewards and co-managers of Malaysia's largest Ramsar site. Through a partnership with the state government and Forever Sabah, a hybrid governance model now sees community-led orangutan monitoring protecting over 1,150 hectares of forest corridors. Communities self-declare and monitor over 2,500 hectares of fisheries zones, and women-led programmes released 199 Painted Terrapin hatchlings in 2025. Their data and maps are now integrated into official government management plans, demonstrating a functional co-management pathway.

(b) Upland Forest Protection through Customary Law:

The Kiau Community Forest: The Dusun Kiau community has governed and protected approximately 487 hectares of ancestral forest since 2001 through a formalised customary governance system. A community Board of Trustees enforces adat-based rules with customary penalties (sogit), creating a stand-alone conservation institution. This governance has resulted in healthier forest regeneration, clean water catchments, and sustained availability of medicinal plants, demonstrating the effectiveness of community-led protection.

(c) Mangrove Defense and Cultural Resilience:

The Tombonuo Community of Sungai Eloi, Pitas: The Tombonuo community enforces strict Indigenous law to protect their customary mangrove territories. They uphold community protocols like Kopongoraa (customary fines) and prohibit extraction in Binondaan (sacred zones), using traditional ecological knowledge to guide sustainable harvesting. Their assertion of governance is demonstrated by requiring Free, Prior and Informed Consent (FPIC) from any outsider seeking access to their land.

(d) Intangible Governance for Resource Abundance - The Murut Tahol Naufasan Tavol System:

The community of Alutok sustains resource abundance through the Naufasan Tavol system, a traditional practice imposing community-consensus seasonal harvesting bans.

Enforced by elders using symbolic markers and customary penalties, this culturally embedded governance ensures resources are available for major ceremonies. Elders document the system's effectiveness through observations of recovering fish populations during prohibition periods.

(e) IPLCs as Key Partners in Marine Conservation in Sabah:

IPLCs are cornerstone partners in Sabah's marine conservation. A 2023 conference mapped 17 coastal IPLC groups protecting over 12,000 hectares for potential OECM recognition. Simultaneously, IPLCs are key implementers in large-scale coral restoration in Tun Mustapha Park. Working together with Sabah Parks, community-supported efforts have restored 3,202 m² of reef (2022-2025). Monitoring indicates a 20.8% increase in live coral cover and a 30-fold increase in fish biomass, with over 267 stakeholders trained as citizen scientists. The initiative has also been recognised by the Malaysian Books of Records for Largest Coral Fragment Planting Event 2025.

(f) Community-Based Mangrove Conservation: Pulau Tanjung Surat:

The Pertubuhan Sahabat Hutan Bakau Pulau Tanjung Surat, supported by Yayasan PETRONAS, Yayasan Sime Darby, and the Global Environment Centre, has executed a successful mangrove restoration programme. Since 2018, the group has planted over 84,000 mangrove trees, revitalising degraded coastal areas. This initiative has achieved dual objectives: ecological recovery, shielding the shoreline from erosion, and economic revitalisation through ecotourism and local handicraft production.

(g) Sabah Honorary Rangers and Wardens Programme:

Sabah Wildlife Department formally empowers local community leaders, tourism operators, and plantation representatives as official Honorary Wildlife Wardens (HWW). Trained in law enforcement, conflict mitigation, and digital monitoring, these wardens are transformed from residents into recognised conservation ambassadors with authority. This model builds critical bridges between government agencies and communities, directly aligning with state biodiversity strategies. Similarly, Sabah Parks has its own Honorary Park Ranger, Honorary Park Warden dan Malim Biosfera programmes that empower members of the local communities to act as stewards of the parks.

(h) Community Elephant Ranger Team (CERT) in the Telupid District:

CERT is a collaborative force formed by four villages, Sabah Wildlife Department, Sabah Forestry Department, NGOs Forever Sabah and Seratu Aatai, with scientific support from Danau Girang Field Centre. The coalition empowers villagers to protect the Bornean

pygmy elephant through the Forest Garden Project, planting native fruit trees to prevent crop raiding. They conduct patrols, provide rapid response to elephant sightings, and train villagers as citizen scientists, creating a sustainable model for human-elephant coexistence.

(i) Local Communities as Scientific Partners in Lanjak Entimau Wildlife Sanctuary:

In a collaborative wildlife survey with the Sarawak Forestry Corporation and the Smithsonian Institution, the local Iban community, particularly women, were formally trained and employed as camera trappers. This initiative moved beyond consultation by recognising community members as expert field technicians and essential scientific partners, ensuring their unique knowledge directly informed the first-ever biodiversity baseline for this critical corridor.

(j) Magical Mysteries at Bukit Kiara Citizen Science Initiative:

This initiative by the Friends of Bukit Kiara (FoBK) empowers volunteers

to monitor firefly populations as indicators of ecosystem health. Supported by UNDP-GEF funding, the National Landscape Department, and academic partners, this community-driven citizen science initiative has produced significant scientific outcomes, including the 2025 rediscovery of the rare Gombak bent-winged firefly, demonstrating how civil society can lead monitoring and contribute valuable data.

(k) Multi-Stakeholder Tiger Protection in Belum-Temenggor:

A coalition of government agencies (Perak State Parks Corporation, PERHILITAN) and NGOs such as WWF-Malaysia and RIMAU, supported by corporate donors, conducts integrated anti-poaching patrols. This partnership has significantly strengthened enforcement capacity. Snaring incidents in Royal Belum State Park declined dramatically, from hundreds in 2017 to zero active snares recorded from 2022 to 2025, showing how civil society can reinforce on-the-ground enforcement.

ACHIEVING CO-EXISTENCE WITH ELEPHANTS (ACE) PROJECT, JOHOR

The ACE Project is a multi-stakeholder initiative that seeks to mitigate human-elephant conflict in Johor, bringing together major plantation companies such as FELDA, FGV Holdings, SD Guthrie, Johor Plantations Group, IOI Corporation, Aramijaya, and TH Plantations, alongside non-profits including MPOGCF and Earthworm Foundation. The secretariat is led by the Management and Ecology of Malaysian Elephants (MEME) research group at the University of Nottingham Malaysia, supported by the Sime Darby Foundation. Working with PERHILITAN, the Forestry Department, and the Wildlife Conservation Society (WCS) Malaysia Programme, the coalition focuses on the districts of Segamat, Kluang, Mersing, and Kota Tinggi.

By sharing elephant movement data, partners have identified critical wildlife corridors to inform practical actions. MEME has analysed approximately 58 GPS satellite collared elephant data points for Peninsular Malaysia. For the coalition's work in the southern landscape, one PhD and three MRes students from MEME have researched elephant movements and the human dimensions of conflict. All four have since graduated.

Between 2022 and 2025, the project organised five workshops for oil palm plantation estate and sustainability teams, with participation from approximately 10 plantations and 20 estates. Non-profits including MPOGCF, Earthworm Foundation, WCS Malaysia Programme, WWF-

Malaysia, Seratu Aatai, and Bringing Back our Rare Animals (BORA) also took part.

The coalition developed a free online module on human-elephant conflict and coexistence, available in English and Malay at www.ace-coalition.com. To date, 517 participants from the oil palm industry, students, educators, and the public have accessed it. The project has also distributed 252 conservation kits to plantation estates and local communities. Each kit contains a board game, three safety posters, a noise maker, and a t-shirt.

Through this collaborative approach, the ACE Project is building long-term capacity for coexistence within Johor's agricultural landscapes.



Photo credit: MEME

ORANG ASLI COMMUNITIES-LED EFFORT IN THE FIGHT FOR MALAYAN TIGERS

Following the 1st National Tiger Survey (2017–2020), local NGO Pertubuhan Pelindung Alam Malaysia (PELINDUNG) engaged over 200 Orang Asli villages along Peninsular Malaysia's Titiwangsa Range. Indigenous communities were vital to the survey's success, granting access to customary lands and providing guides to cover more than 10,000 sq km of forest with over 700 camera-trap stations.

This overwhelming support led the Director General of PERHILITAN to visit Kampung Sempadek in Gua Musang, Kelantan (2019) for direct dialogue with villagers. From this visit emerged the idea of formally incorporating local communities into wildlife protection. The following year, PERHILITAN launched the Veteran-Orang Asli (VETOA) Program, later renamed the Renjer Komuniti (Community Ranger) Program, with 600 rangers funded under the national budget.

PELINDUNG was invited to recruit and manage the rangers while securing its own funding for equipment and supplies. Based on outstanding ranger performance, PERHILITAN gradually increased PELINDUNG's allocation. Some Orang Asli even quit city jobs to return as rangers, improving family and community cohesion.

By 2025, PELINDUNG managed over 600 community rangers from 66 Orang Asli communities across the Titiwangsa Range, forming 120 teams covering more than 10,000 sq km of critical tiger habitat. Rangers receive training in GPS, cameras, data recording, and camera-traps. Each post protects its ancestral lands, with PELINDUNG mentoring team leaders for 6–12 months until they operate independently.

With additional support from Yayasan Hasanah (Hasanah Special Grant 2022, 2024, 2025) and PPB Group Berhad, PELINDUNG's rangers have become the major force protecting the Titiwangsa Range. Over five years, they have completed more than 250,000 km of foot patrols and maintained over 1,100 camera-trap stations. This is an excellent example of civil society, government, corporate, and foundation partners working together to safeguard the Malayan tiger, local livelihoods, and community values.



Photo credit: PELINDUNG

SUNGAI PIN CONSERVATION AREA (PRIVATE CONSERVATION ZONE)

The Sungai Pin Conservation Area (SPnCA) in Sabah's Kinabatangan district shows the private sector can drive biodiversity conservation. Sawit Kinabalu, a state government-linked company, voluntarily established this 2,632-hectare site within its commercial oil palm plantation on flood-prone land unsuitable for cultivation, choosing protection over forced production.

Today, SPnCA is a biodiversity stronghold with 521 plant species, 17 protected mammals (including orangutans and proboscis monkeys), and 28 protected bird species, six endemic to Borneo. Camera traps confirm breeding populations of orangutans and pangolins. The area acts as a wildlife corridor connecting Pin Supu Forest Reserve with the Kinabatangan Valley Sanctuary, with canopy bridges enabling safe orangutan movement.

In 2024, SPnCA was nominated as a pilot site for the Orang Utan Diplomacy Initiative under the Malaysian Palm Oil Green Conservation Foundation. It also supports community development by helping local women's groups generate income through bead crafts, linking conservation with women's empowerment.

On 12 November 2024, NRES endorsed SPnCA as one of six pioneer OECMs in Malaysia. It is now pursuing IUCN Green List certification which would make it the first oil palm company-led conservation site in Malaysia to meet international standards.



Photo credit: SKG Green Sdn Bhd



(l) Influencing National Policy: The Safer Roads Roundtable:

Convened by NRES and WWF-Malaysia in response to escalating wildlife-vehicle collisions, the Safer Roads Roundtable brought together government agencies, engineering professionals, and conservationists. This platform strengthens the role of civil society as a critical convener and policy influencer, translating conservation challenges into structured dialogue to mainstream biodiversity into national infrastructure planning.

(m) Biodiversity Badge – Scouts Association of Malaysia

(Pengakap): Launched on 27 May 2025 through a strategic collaboration between NRES and the Scouts Association, the Biodiversity Badge institutionalises biodiversity stewardship within Malaysia's national youth platform. Anchored in the Scouts' core values, the initiative reaches over 300,000 registered Scouts nationwide, providing a structured mechanism to mainstream biodiversity literacy and foster long-term conservation-oriented behaviour.

CHALLENGES & CONSIDERATIONS FOR FUTURE IMPLEMENTATION

Malaysia's progress in strengthening multi-stakeholder roles has established a resilient architecture for collaboration. However, to fully realise the 2030 target, five specific gaps must be addressed:

- **Recognition gap for IPLC stewardship** – The full scope of IPLC-led initiatives is not systematically documented, limiting learning, resourcing, and mainstreaming. *Considerations for future implementation: Accelerate formalisation of customary rights and OECM recognition, and implement a national programme to document IPLC-led outcomes for official reporting.*
- **Dialogue without shared authority** – Multi-stakeholder platforms remain consultative, not decision-making. *Considerations for future implementation: Pilot legally recognised co-management bodies with statutory decision-making powers for community and civil society representatives.*
- **Policy incoherence across sectors** – Conservation partnerships are undermined by incompatible development approvals elsewhere in government, eroding trust. *Considerations for future implementation: Strengthen cross-agency biodiversity assessments for all land-use approvals and enhance environmental planning authority.*
- **Narrow private sector engagement** – Current model relies on voluntary leadership from large corporations, with no structural alignment for SMEs or high-footprint industries. *Considerations for future implementation: Develop regulations, fiscal incentives, green public procurement, and accessible green finance to create a business case across all sectors.*
- **Short-term, project-based funding** – Reliance on grants creates instability and administrative burden, diverting energy from core conservation work. *Considerations for future implementation: Shift to long-term (5-10 year) core funding agreements and streamline grant management to reduce overhead (see also Target 17).*

Goal 2: Reducing Pressures**NPBD TARGET 3**

BY 2030, TERRESTRIAL AND MARINE SPATIAL PLANNING FULLY INCORPORATE ELEMENTS OF BIODIVERSITY CONSERVATION

INTRODUCTION

Malaysia's strategy for Target 3 centres on the systematic mainstreaming of biodiversity conservation into terrestrial and marine spatial planning frameworks. This encompasses strengthening the management of ecologically significant landscapes and seascapes, as well as safeguarding land and coastal areas from incompatible development pressures. A key priority is ensuring that biodiversity values and ecological considerations are integrated at the earliest stages of land use decision-making, thereby reducing threats to ecosystems before they potentially materialise. This approach extends to urban planning, where biodiversity-responsive design is continuously promoted to harness ecosystem services for improved societal well-being and climate resilience.

CURRENT LEVEL OF PROGRESS TOWARDS THE TARGET

On track to achieve target.

ACTION 3.1: STRENGTHEN BIODIVERSITY CONSERVATION ELEMENTS IN NATIONAL, STATE AND LOCAL DEVELOPMENT PLANS

Mainstreaming biodiversity into spatial planning ensures that development does not impose undue pressure on natural resources. This prioritises recognition and protection of important biodiversity areas within development plans and strengthens screening mechanisms to prevent incompatible encroachment.

Biodiversity-Inclusive Spatial Planning at National and Sub-National Levels

Malaysia has established a legislative and institutional framework for multi-tiered spatial planning, anchored by the Town and Country Planning Act 1976 (Act 172). Under this Act, the National Physical Plan (RFN), now in its fourth iteration (2021), sets out the overall spatial and land use strategy for Peninsular Malaysia. The Act establishes a cascading hierarchy: state structure plans are guided by the RFN, and local plans conform to their respective structure plans. A key RFN policy is the Environmentally Sensitive Area (ESA) framework, which categorises biodiversity-important areas into three ranks that restrict or permit controlled development. This framework serves as a national reference for screening development projects and determining EIA requirements.

Environmentally Sensitive Areas (ESA) for Peninsular Malaysia

The NPP4 enhanced the ESA framework by introducing additional biodiversity areas and stronger management prescriptions, bringing total ESA coverage in Peninsular Malaysia to nearly 11.3 million hectares. The Planning and Management Guidelines for Environmentally Sensitive Areas (2025) standardise ESA definitions and categories (expanded from 11 to 15) and provide clearer guidance for planning and management activities.

Environmentally Sensitive Areas (ESA) for Peninsular Malaysia

- Rank 1** - Gazetted protected areas, including terrestrial and marine parks, highlands, and dam catchments.
- Rank 2** - Recognised but not yet gazetted important areas (e.g., wetlands, peat swamps, turtle sites, ecological corridors).
- Rank 3** - Sustainable use zones, such as water intake points and specific contour areas.

In Sabah, the Sabah Structure Plan 2033 integrates biodiversity-important areas into land-use planning and has adopted the ESA framework adapted to local ecological contexts. The Sabah Conservation Area Network maps High Conservation Value Forests, water catchments, wildlife habitats and corridors to guide development planning while supporting the jurisdictional approach to palm oil certification. These instruments have contributed to 27.3% of Sabah's land area being gazetted as protected areas, with major forest complexes (e.g., Danum Valley, Maliau Basin, Imbak Canyon, Crocker Range) designated as no-go areas for development. A Sabah Land Policy is also being prepared as a high-level framework for land use decision-making.

In Sarawak, spatial planning operates under a decentralised, division-specific, ordinance-based system. Divisional and local plans are being prepared for major urban centres (Kuching, Miri, Sibul, Bintulu) under state planning ordinances. State land use policies protect important biodiversity areas through legal designations such as Totally Protected Areas and Permanent Forest Estates, resulting in 13% of Sarawak's land area legally protected as national parks and wildlife sanctuaries. The Department of Land and Survey Sarawak is developing 3D cadastral mapping systems to spatially delineate water catchments, forests, marine areas, and protected areas using modern geospatial technologies.

Coastal Resilience and Marine Spatial Planning

Since 2021, Malaysia has updated several key coastal and marine plans. The 2nd National Coastal Zone Physical Plan (NCZPP2) provides a coastal and marine-specific ESA framework for Peninsular Malaysia, incorporating a Coastal Vulnerability Index to identify biodiversity-important areas vulnerable to development pressures and climate hazards. In addition, 18 Integrated Shoreline Management Plans (ISMPs) have been completed across multiple states. Sabah has developed its own Shoreline Management Plan as a risk management tool for coastal development.

Beyond the shoreline, NPP4 and RFZPP2 have reinforced Marine Spatial Planning (MSP) as a key policy measure, with several important seascapes mapped and prioritised. Since 2021, MSP has been elevated as a core policy priority to support the blue economy agenda while maintaining ecosystem health. A National MSP Framework and the Malaysia Blue Economy Blueprint are under development to provide spatial guidance for conservation, tourism, and renewable energy. Sub-national blue economy blueprints are also being prepared in Sabah and Sarawak.

At the international level, Malaysia signed the BBNJ Agreement in September 2025, initiating internal processes toward ratification. This positions Malaysia to engage constructively in implementing area-based marine conservation and cooperative mechanisms relevant to ecosystem-based ocean planning and transboundary marine ecosystem management.

Key Indicator:

By 2030, important landscapes and seascapes have been integrated and recognised in the national, state, and local development plans

Malaysia's robust and well-established spatial planning framework, anchored by the National Physical Plan, the Environmentally Sensitive Area classification, and complementary state-level planning instruments, provides a strong foundation through which important landscapes and seascapes are systematically recognised across national, state and local development plans - which indicates that this indicator may already been achieved. The challenge lies in harmonising the ESA framework, classifications and management prescriptions across national and sub-national levels.

ACTION 3.2: ENHANCE URBAN AND RURAL BIODIVERSITY CONSERVATION

Embedding biodiversity considerations into the planning and management of urban and rural landscapes, this action encompasses the expansion and protection of green and blue spaces, integration of ecological corridors into built environments, and strengthening policy frameworks that link biodiversity to social well-being and climate resilience. These efforts are increasingly advanced through government-led planning as well as growing participation from the private sector and civil society.

Expanding and Protecting Green Spaces

The Government is updating the National Urbanisation Policy 2, maintaining a target of 20 m² of green space per person. This is reinforced by the Rural Development Policy 2030 and National Landscape Policy 2.0, emphasising biodiversity's role in social well-being across urban and rural settings. In Sarawak, a state-level Urban Development Policy is being developed. Supporting guidelines include the Planning and Development Guidelines on Open Space (2021), mandating minimum 10% open space in commercial developments. Federal and state governments provide technical assistance, grants, and capacity building, with Sarawak linking local authority funding partially to the size of their green spaces.

As of 2024, an average of 33.6% of built-up areas in Malaysian cities is designated as open public space. Kuala Lumpur has nearly 2,400 hectares designated as green areas, with 977.55 hectares gazetted, including Bukit Kiara Federal Park, Bukit Kerinchi Recreational Park, Kepong Metropolitan Park, and Titiwangsa Lake Gardens. In Sarawak, the Public Parks and Greens Ordinance protects urban parks such as Kuching Waterfront, Reservoir Park, and Padang Pasir, while Sabah has areas like Kota Kinabalu Wetlands and Tun Fuad Stephens Botanical Garden.

Enriching Urban and Peri-Urban Biodiversity

Secondary urban forests on alienated and non-gazetted land also support urban biodiversity. Local plans prioritise green and blue ecological corridors in Penang, Bintulu, Kuala Kubu Bharu, Kuala Lumpur, Petaling Jaya, Shah Alam and Alor Gajah. Community-

managed sites such as Bukit Dinding, Pulau Trail, and Shah Alam Community Forest, though not formally protected, contribute to ecological connectivity, provide habitat, function as climate and hydrological buffers, and offer social, health, and educational value.

Private Sector and Civil Society Engagement

Private sector participation has grown through voluntary and ESG-driven efforts. Major developers such as Sime Darby Property Bhd, Gamuda Bhd, UEM Sunrise Bhd, and Sunway Group are embedding biodiversity into project design. The Urban Biodiversity Conference 2025, organised by Sime Darby Property Bhd with 487 attendees, illustrates private sector leadership.

Civil society engagement has expanded through advocacy for urban green lungs and community forests. In the Klang Valley, groups such as the Shah Alam Community Forest Society, Friends of Bukit Dinding and Friends of Bukit Kiara advocate for protection from development pressure. Broader organisations including WWF-Malaysia, Think City, the Malaysian Nature Society and Alliance of River Three (ART!) support urban biodiversity through complementary roles.

Key Indicator:

By 2030, biodiversity is being actively enhanced in all local authorities and townships

There are strong indications that biodiversity is being progressively embedded into local planning and development, with local plans increasingly advocating for the protection of green spaces and the integration of ecological corridors. Such approaches are reflected in local plans such as Penang, Bintulu, Kuala Kubu Bharu, Kuala Lumpur, Petaling Jaya, Shah Alam and Alor Gajah. Beyond local authorities, major developers such as Sime Darby Property Bhd, Eco World Development Group Bhd, Gamuda Bhd, and Sunway Group are embedding biodiversity into project design and township planning, signaling a broader shift in how biodiversity is valued in the built environment.

EXAMPLES OF INITIATIVES DRIVING CHANGE

Beyond policy frameworks, several initiatives across Malaysia illustrate how spatial planning instruments are being translated into practice at different stages, from strategic planning and pilot programmes to on-the-ground implementation. The following examples reflect efforts across three areas: terrestrial connectivity, marine conservation, and urban biodiversity enrichment.

(a) Tabin–Kulamba Wildlife Corridor, Sabah: The corridor is identified in spatial planning and involves reforesting approximately 50 hectares of former plantation land between Tabin and Kulamba Wildlife Reserves to reconnect fragmented habitats. Around 8,250 native seedlings from more than 36 tree species have been planted to rebuild forest structure, improving connectivity for wildlife such as Bornean elephants and orangutans.

(b) Kuala Terengganu–Kuala Nerus Marine Spatial Plan: The first pilot MSP initiative is a collaboration between Universiti Malaysia Terengganu, Kuala Terengganu City Council and the Fujian Institute for Sustainable Oceans, Xiamen University. This initiative aims to address the multiple and competing uses in coastal and marine areas, including developing a blueprint for turtle conservation and exploring sustainable financing options for marine conservation in Terengganu.

(c) Rangkaian Urban Green Spaces (RUGS): RUGS is an initiative led by the Malaysian Nature Society (MNS), aiming to reconnect fragmented green spaces across the Klang Valley by establishing ecological corridors to enhance urban biodiversity and support wildlife movement through multi-stakeholder collaboration and community engagement. Supported by the GEF Small Grants Programme and UNDP, RUGS has set targets to restore 400 hectares of degraded land and implement improved practices over 9,000 hectares by 2026. As of 2025, the project has identified 19 ecological linkages in areas such as the Damansara–Pantai Arc and Kuala Lumpur city centre, focusing on connecting parks, riparian corridors and green buffers.

(d) Promoting Nature-based Solutions Approach for River Landscapes and Urban Resilience, WWF-Malaysia: The Nature-based Solutions programme for river landscapes and urban resilience is being undertaken by WWF-Malaysia through community flood preparedness training, municipal capacity building, stakeholder knowledge workshops and NbS case study documentation across key river basins in the Klang Valley. Training was conducted across at least 10 community groups, 9 local councils, 14 government agencies and other stakeholders involving academia and NGOs.

(e) Alliance of River Three (ART!): Founded in 2018, ART! is a community-led initiative that conserves, protects, and rehabilitates urban riverine ecosystems along the Klang River. Through its weekly GREduAction programme, over 5,200 volunteers have helped transform riverbank sites

at Taman Melawati and Mid Valley into publicly accessible, biodiverse riverine parks, with the goal of a fully operational rehabilitated riverine park by 2030.

- (f) Persatuan Sahabat Rimba Bukit Dinding (FoBD):** FoBD is a community-led initiative dedicated to protecting Bukit Dinding, one of Kuala Lumpur's last urban green lungs. Through volunteer-driven trail maintenance, slope restoration, tree planting, and citizen-led biodiversity surveys, which have identified at least 175 tree species, 88 butterfly species, and 43 bird species, FoBD advocates for the conservation of this urban forest against development pressure.

(g) Kuala Lumpur's Green Connector Network:

This initiative, launched in 2025 by Kuala Lumpur City Hall (DBKL), aims to link the city's parks, river reserves, and public spaces into a continuous green network to boost ecological connectivity and active mobility. The network is divided into six zones. Under the Warisan KL heritage initiative, three priority corridors totalling 33.7 km connect the Perdana Botanical Garden to TRX, Merdeka 118 to TRX Park, and Jalan Raja Laut to Titiwangsa Lake Gardens. The full network targets 290 km of green connectors by 2040. On the ground, work is underway along Jalan Ampang, Jalan Raja Laut, and Jalan Tuanku Abdul Rahman, with upgraded walkways, bollards, green verges, and pocket parks.

PENANG AND BATU PAHAT NATURE-BASED CLIMATE ADAPTATION PROGRAMME

Led by Think City in partnership with the Penang State Government, the Penang Island City Council, and the Department of Irrigation and Drainage, with implementation support from UN-Habitat and USD 10 million in funding from the UNFCCC Adaptation Fund, the Penang Nature-Based Climate Adaptation Programme (PNBCAP) is Malaysia's first municipal climate adaptation programme. Initiated in 2019 and moving into execution in 2023, the programme embeds nature-based solutions into urban planning to address flooding and heat in two climate-vulnerable sub-districts: George Town and Bayan Lepas.

The programme is structured around four components: urban greening, stormwater management, social resilience, and institutional capacity-building. On-the-ground interventions include pocket parks, green façades and rooftops, tree-lined streets using species identified through the Atlas of Climate Resilient Tree Species (ACReST), and blue-green corridors along the Sungai Keluang and Sungai Ara waterways that integrate rain gardens, bioretention swales, and retention ponds to manage stormwater naturally. An Urban Greening Grants programme, offering grants of up to RM100,000 with a minimum 50 per cent co-funding requirement, supports

community-led greening of existing buildings and public spaces. The social resilience component engages women, youth, low-income communities, and other vulnerable groups through localised climate hazard toolkits, training sessions, and school programmes, including a Youth Climate Summit in 2024 involving students from 38 schools across Penang. The programme won the Climathon Global Cities Award in 2020 and is designed to serve as a replicable municipal framework for other Malaysian cities.

In Batu Pahat, Johor, funded by Yayasan PETRONAS, Think City is conducting a climate baseline study alongside capacity-building with the Batu Pahat Municipal Council to integrate adaptation elements into local master planning. The programme engages stakeholders from the local councils of Batu Pahat and Yong Peng through focus group discussions to evaluate nature-based solutions for climate resilience and disaster risk reduction. Think City is also facilitating knowledge exchange across cities through the Malaysia Adaptation Sharing Hub, a virtual platform connecting civil society organisations, universities, and local authorities. The NbS model is now being extended to Shah Alam, Selangor and Kuala Kangsar, Perak.



Photo credit: Think City



Photo credit: Think City

GAMUDA BERHAD – LEVERAGING SATELLITE INTELLIGENCE AND EDNA FOR BIODIVERSITY MANAGEMENT

Gamuda Berhad has integrated satellite intelligence and environmental DNA (eDNA) analysis into its biodiversity management across its development portfolio, demonstrating how advanced technologies can embed biodiversity considerations into project planning and operations. These have enabled Gamuda to conduct pre-emptive ecological trend analysis by detecting environmental changes in near real-time. This supports evidence-based decision-making for proactive habitat protection. These tools are deployed across townships such as Gamuda Gardens and Gamuda Cove as well as infrastructure projects in Perak and Penang with plans to expand into future projects and regions.

Complementing satellite monitoring, Gamuda applies eDNA analysis, a non-invasive methodology that identifies species from genetic material naturally shed into the environment. Marine water and seabed sediment samples are collected, with DNA fragments extracted, amplified, and compared against reference databases. The process, typically completed within approximately eight weeks, provides a faster and more comprehensive assessment than conventional sampling methods. Prior to implementation, Gamuda obtained the Access and Benefit Sharing permit from the Competent Authority, in line with the Nagoya Protocol.

The integration of these tools has delivered measurable outcomes including the identification of protected species to prioritise conservation efforts, early detection of invasive species for timely intervention and cross-referencing species with the IUCN Red List. These insights enable more informed decision-making, enhance existing conservation approaches, and support the validation of initiatives such as fish restocking programmes. Collectively, Gamuda's approach illustrates how satellite intelligence and eDNA can serve as rapid, data-driven tools for ecological monitoring offering a replicable model for integrating biodiversity management into large-scale development.



Photo credit: Gamuda Bhd

TOWARDS RESILIENT COASTLINES: MALAYSIA'S SECOND NATIONAL COASTAL ZONE PHYSICAL PLAN

The Rancangan Fizikal Zon Persisiran Pantai Negara 2 (RFZPPN-2), or Second National Coastal Zone Physical Plan, is a strategic land use planning document prepared by the Department of Town and Country Planning (PLANMalaysia) under the Ministry of Housing and Local Government (KPKT). It was launched on 14 June 2022 at Laman Seri Rhu Sepuluh, Setiu, Terengganu.

The plan covers over 3,800 km of coastline across Peninsular Malaysia and the Federal Territory of Labuan. Sabah and Sarawak are excluded as they are not bound by the relevant federal planning statutes. The coastal zone is defined as the area spanning 5 km inland from the shoreline and 3 nautical miles seaward and is divided into 175 Coastal Zone Planning Units (Unit Perancangan Zon Pantai, UPZP) for implementation purposes. The plan is structured around 4 thrusts, 16 strategies, 34 actions, and 84 initiatives.

The key feature of the RFZPPN-2 is the National Coastal Vulnerability Index (NCVI), which assesses the vulnerabilities of UPZPs across 18 parameters including geohazards such as coastal erosion, tsunamis, and sea level rise. The NCVI is made up of a subset of three CVIs which are physical, biodiversity and socio-economic. The NCVI serves as the basis for RFZPPN-2 to provide interventions that are more targeted including coastal projects, gazettement of ESAs, technical studies, development control and community programmes in order to build coastal resilience. This includes activities such as mangrove conservation and restoration, improving drainage and coastal protection structures and disaster risk reduction measures.

The RFZPPN-2 functions as a regional-level plan within the national development planning framework, complementing the National Physical Plan 4 (RPN-4), the National Urbanisation Policy, and the National Rural Physical Plan. It serves as the primary spatial planning reference for coastal development and is intended for adoption at regional, state, and local levels by local authorities and state governments in Peninsular Malaysia and the Federal Territory of Labuan.



Photo credit: APPGM-SDG



CHALLENGES AND CONSIDERATIONS FOR FUTURE IMPLEMENTATION

Malaysia has established robust policy and institutional frameworks to integrate biodiversity into spatial planning. However, to achieve full integration by 2030, six specific gaps must be addressed:

- Harmonising ESA frameworks across jurisdictions** – Application of the National Physical Plan's Environmentally Sensitive Area (ESA) framework to local contexts has led to uneven classification and varying strengths of management controls. *Considerations for future implementation: Accelerate harmonisation of all state and local plans with standardised ESA categories and management prescriptions. Complement this with capacity-building for local authorities to improve implementation consistency, closing the gap between policy and on-the-ground application.*
- Planning gaps and data constraints** – Formal recognition has not been extended to all environmentally critical zones. The absence of Local Plans in some jurisdictions creates a gap in development control at the critical implementation level. *Considerations for future implementation: Prioritise completion of Local Plans for all administrative divisions. Explore advanced geospatial technologies to generate high-resolution data for delineating and protecting watersheds and riparian corridors. Additionally, integrate human use data including visitor patterns, recreational pressure, and social value mapping into biodiversity assessments.*
- Development and fiscal pressures on conservation areas** – Aligning long-term conservation goals with sub-national fiscal frameworks remains a key challenge. States may face revenue pressures that incentivise land conversion. *Considerations for future implementation: Design and pilot alternative fiscal models, such as payments for ecosystem services and conservation trust funds, to create sustainable revenue streams for states that reduce reliance on land conversion (see Target 17).*
- Legacy land-use arrangements** – Protection of newly identified ESAs is often complicated by pre-existing landownership, including long-term leases or titled land on which important habitats are located. Reacquisition or regulatory adjustment is legally complex, politically sensitive, and costly. *Considerations for future implementation: Proactively engage with private landowners and developers. Promote voluntary solutions such as conservation easements, habitat banking, or Special Area Plans that provide legal, site-specific guidance for sustainable management.*
- Inclusive participatory planning** – While public consultation is a legal requirement, achieving deep and equitable participation remains a challenge due to low awareness, limited accessibility of technical documents, and resource constraints within local authorities. This disproportionately excludes rural communities, indigenous groups, and digitally disadvantaged populations. *Considerations for future implementation: Promote inclusive engagement protocols combining accessible digital platforms with in-person dialogues. Develop plain-language guides and community toolkits to demystify planning processes and build public capacity for informed advocacy. Enhance transparency mechanisms in development approval processes, particularly for projects affecting ESAs, to build public support and strengthen the overall credibility of Malaysia's biodiversity governance framework.*
- Governance in marine and coastal spaces** – Integrated management of marine and coastal areas requires an integrated institutional framework. The absence of a single coordinating authority for ocean governance prevents coherent ecosystem-based management. *Considerations for future implementation: Utilise the Malaysia Blue Economy Blueprint and National Marine Spatial Planning Framework (currently under development) to formally clarify and streamline institutional roles, mandates, and coordination mechanisms.*



Goal 2: Reducing Pressures**NPBD TARGET 4**

BY 2030, BIODIVERSITY CONSERVATION HAS BEEN EFFECTIVELY MAINSTREAMED INTO DEVELOPMENT FRAMEWORKS

INTRODUCTION

Malaysia's strategy for Target 4 mainstreams biodiversity into the national development agenda, sectoral policies and regulatory frameworks. This approach is anchored in ensuring green growth and the environment as core policy priorities within its five-year development plan. The Thirteenth Malaysia Plan positions planetary health as a cornerstone of national development, embedding it across development planning frameworks to address urgent global challenges, including climate change, biodiversity loss, and pollution. At the subnational level, policies such as the Sabah State Policy on the Environment, Sarawak Sustainability Blueprint 2030 and Polisi Pembangunan Hijau Johor 2030 further highlight the importance of biodiversity conservation. These have enabled the gradual mainstreaming of biodiversity considerations across sectoral policies, planning and public expenditure.

CURRENT LEVEL OF PROGRESS TOWARDS THE TARGET

On track to achieve target.

ACTION 4.1: STRENGTHEN SAFEGUARDS FOR BIODIVERSITY THROUGH THE FINANCIAL SECTOR

Malaysia has advanced efforts to value ecosystem services within economic planning. This includes developing the System of Environmental-Economic Accounting (SEEA), with energy and water accounts already in place and SEEA-Land under development, as part of efforts to link environmental accounts with the System of National Accounts. In parallel, the Ministry of Economy embarked on the Beyond GDP initiative in 2023, with the Department of Statistics Malaysia continuing to develop environmental and well-being indicators to complement the Gross Domestic Product as a measure of economic growth. This work is supported through collaboration with the Malaysian CSO-SDG Alliance to integrate citizen-generated data to supplement national indicators.

In the financial sector, Bank Negara introduced a climate taxonomy in 2021 that applies a “no significant harm to the environment” principle, protecting ecosystems and biodiversity. Financial institutions must disclose climate risks under IFRS S2, covering nature-related issues where they intersect with climate risk. While

adoption of the Taskforce on Nature-related Financial Disclosures (TNFD) remains voluntary, Bank Negara (with the World Bank and UNDP) has launched TNFD pilot studies in construction and agriculture to assess nature-related risks.

Key Indicator:

By 2030, biodiversity conservation has been embedded into the country's investment and financing frameworks

Malaysia has made considerable progress in public financing, where the Ecological Fiscal Transfer scheme has channeled over RM 800 million since 2019 to states for biodiversity conservation. In the private finance sector, the Securities Commission's Sustainable and Responsible Investment (SRI) Taxonomy and BNM's Climate Change and Principle-based Taxonomy provide entry-level frameworks for aligning financial flows with conservation objectives. However, systemic mainstreaming of biodiversity into private investment and lending decisions remains a work in progress with no dedicated biodiversity taxonomy, no mandatory nature-related disclosures and limited TNFD adoption.

ACTION 4.2: INCORPORATE BIODIVERSITY CONSERVATION PRINCIPLES INTO THE INFRASTRUCTURE, COMMERCIAL, INDUSTRIAL, ENERGY, AND HEALTH SECTORS

Mainstreaming biodiversity conservation principles across key productive sectors is achieved through policy, planning instruments, and regulatory requirements. Spatial plans and development guidelines direct infrastructure, industrial, mining, township, and commercial activities away from Environmentally Sensitive Areas (ESAs), while mandatory sustainability reporting requires the private sector to disclose biodiversity-related impacts. Progress has been more pronounced in certain sectors.

In the infrastructure sector, biodiversity considerations are progressively embedded into planning and project delivery. The Highway Network Development Plan 2030 directs new highways away from ESAs and mandates wildlife crossings in Peninsular Malaysia.

Major projects such as the East Coast Rail Link (ECRL) and the Sarawak–Sabah Link Road have incorporated wildlife-friendly design. The Sustainable Infrastructure Rating Tool (INFRASTAR), under the National Construction Policy 2030, assesses environmental and social impacts, with ecology and environment accounting for nearly 40% of the assessment weightage under 2023 guidelines.

In the energy sector, key policies such as the National Energy Transition Roadmap (NETR), Sarawak Energy Transition Policy, and Sabah Energy Roadmap and Master Plan 2040 focus on decarbonisation while addressing the energy trilemma. Major energy companies like PETRONAS, Tenaga Nasional Berhad, and Sarawak Energy have adopted internal biodiversity frameworks. At the community level, local and indigenous communities are engaged as delivery partners, for example through TONIBUNG's micro-hydro projects in Sabah.

In the health sector, the Ministry of Health has adopted the One Health approach to address zoonoses, antimicrobial resistance, and other risks at the human-animal-environment interface. The National One Health Committee was established in 2024 for strategic oversight. Additionally, the National Planetary Health Action Plan (NPHAP), introduced in 2024 by the Academy of Sciences Malaysia, provides a whole-of-nation framework aligning national policies with planetary boundaries, recognising that public health and economic stability depend on the integrity of natural systems.

Key Indicator:

By 2030, relevant and effective biodiversity safeguards have been embedded into the infrastructure, commercial, industrial, energy, and health sectors

At this stage, assessing progress against this indicator is complex, given that biodiversity mainstreaming manifests differently across sectors and at varying speeds. However, notable progress has been observed in some sectors. In the infrastructure sector, biodiversity considerations are increasingly embedded into planning and project delivery, with wildlife-friendly road design continuing to be emphasised. The energy sector is progressing through growing corporate biodiversity commitments among major national energy companies. In the health sector, policy developments increasingly recognise the interdependence between ecosystem integrity and public health outcomes through approaches such as One Health and Planetary Health.

ACTION 4.3: STRENGTHEN BIODIVERSITY ASSESSMENT AND MONITORING PROCESSES DURING PROJECT DEVELOPMENT PLANNING

Strengthening biodiversity assessment and monitoring within project development frameworks is achieved through mandatory Environmental Impact Assessment (EIA) requirements for projects with significant environmental impacts, particularly those in or near Environmentally Sensitive Areas. In Peninsular Malaysia, EIAs are regulated under the Environmental Quality Act 1974 by the Department of Environment, while Sabah and Sarawak implement state-level EIA under their own enactments. The EIA process serves as the primary mechanism for integrating biodiversity into project approval decisions.

Efforts since 2021 have focused on strengthening the EIA regulatory framework. The Environmental Quality (Amendment) Act 2024 (Act A1712) substantially increased fines and introduced mandatory imprisonment of up to five years for non-compliance with EIA conditions. The Amendment also empowers the Director General to issue stop-work and prohibition orders. In Sarawak, the Natural Resources and Environment Ordinance (2024) provides greater autonomy on environmental management, including directing environmental audits, which strengthens post-approval monitoring.

Additional measures are imposed as EIA approval conditions. Wildlife Impact Studies are required in selected cases under the "Guidance Document on Wildlife Impact Study for Environmental Impact Assessment" issued by the Department of Wildlife and National Parks. Some projects, such as the Penang South Islands project, require biodiversity offset measures including an Ecology Offset Master Plan encompassing mangrove planting, artificial reef deployment, fish fry release, and funding for marine ecology research. These represent initial steps towards applying no net loss principles as highlighted in the NPBD and the National Physical Plan 4.

Key Indicator:

By 2030, biodiversity regulatory frameworks are in place and implemented within project development frameworks

Malaysia's progress in strengthening regulatory frameworks has focused more on enforcement and compliance within the EIA system under the EQA, with less specific attention to biodiversity requirements, although additional measures such as Wildlife Impact Studies and certain form of compensatory measures have been imposed for projects with significant environmental impacts. Nevertheless, stringent biodiversity assessment and monitoring requirements are not yet fully made mandatory and institutionalised within project development frameworks or consistently implemented, especially at the state level.

ACTION 4.4: STRENGTHEN POLLUTION MONITORING AND REGULATION TO PROTECT FRESHWATER AND MARINE ECOSYSTEMS

Improving regulations and enhancing enforcement to minimise pollution impacts on freshwater and marine ecosystems is anchored by the Environmental Quality Act 1974, complemented by state-level laws, river basin management approaches, and planning controls. Since 2021, Malaysia's actions have focused on three areas: regulatory reform, institutional coordination, and evidence-based management.

On the regulatory side, the Environmental Quality (Amendment) Act 2024 increased penalties under the polluter-pays principle and strengthened sanctions for EIA non-compliance. Sarawak enacted the Natural Resources and Environment Ordinance 2024, while Selangor introduced a Zero Discharge Policy in 2024 requiring industrial wastewater recycling and buffer zones along river reserves. To strengthen coordination, the Special Committee to Address the Deterioration of National River Water Quality was established in 2024, bringing together federal and state governments, local authorities, and stakeholders to accelerate river rehabilitation.

For evidence-based management, the government has tracked emerging pollutants (microplastics and antimicrobial resistance) in pilot catchments since 2021, expanding coverage from 2026. Findings inform the National Emerging Pollutants Control Programme and water quality standards, with a shared database under development. Complementing this, Total Maximum Daily Load (TMDL) studies have assessed pollution carrying capacity since 2018, with 10 basins piloted and 15 more planned to inform development planning.

Key Indicator:

By 2030, freshwater and marine pollution levels have improved compared to 2024 levels

Based on the Department of Environment's Environmental Quality Report, river water quality improved steadily between 2020 to 2024, with clean rivers increasing from 66% to 71% of monitored stations and polluted rivers declining from 5% to 4%. Marine water quality showed similar positive trends across three monitored zones. Coastal and island waters recorded the most notable gains, with Excellent-rated stations rising from 29% to 55% and 48% to 64% respectively, and Poor stations eliminated entirely in both zones by 2024. Estuarine quality remains predominantly Moderate, reflecting the inherently dynamic nature of estuaries as freshwater-marine transition zones, though Poor stations declined from 15% in 2020 to 6% in 2024.

ACTION 4.5: STRENGTHEN SAFEGUARDS TO MINIMISE PRESSURES FROM MINING DEVELOPMENTS

Managing the impacts of mining and extractive industries on biodiversity is critical, as without proper planning they can cause habitat clearance, soil disturbance, and water contamination. These pressures are acute in Malaysia, where mineral-rich areas often overlap with ESAs, water catchments, and indigenous territories. With rising global demand for critical minerals and Malaysia's ambition to become a key node in supply chains, managing mining's biodiversity impacts is a growing national priority.

Mining policies are increasingly shaped by sustainability and ESG principles. The National Mineral Policy 3 is under development (initial framework completed 2025) and will institutionalise sustainability alongside economic goals. In Sarawak, the 'Policy and Guidelines for the Development of the Mineral Industry' requires zero net loss of critical biodiversity through an avoid-minimise-restore hierarchy. In Sabah, the Mineral Development Blueprint 2026–2030 embeds ESG, introducing an ESG ranking system for investors and amendments to the Sabah Mining Ordinance 1960.

Consistent with the NPBD and National Physical Plan, Malaysia maintains that new rare earth element (REE) mining in Permanent Reserved Forests and ESAs will not proceed until detailed risk studies and a legal framework are in place. Since 2021, federal agencies have undertaken pilot NR-REE projects in Perak, informing a national Standard Operating Procedure for NR-REE Mining covering pre-mining assessment, operational controls, and rehabilitation. Separately, the Minerals and Geoscience Department has introduced the Malaysia Sustainable Mining Initiative (MySMI), an ESG-based certification framework for more sustainable mining operations.

Key Indicator:

By 2030, biodiversity conservation principles have been translated into implementable actions within mining projects

Progress towards this indicator can be seen advancing at the policy and framework level. Biodiversity conservation principles are increasingly being translated into mining governance frameworks, including through sustainability policies at both national and sub-national levels that are cognizant of ESG requirements and risks. However, formal adoption and consistent implementation across all jurisdictions, particularly at the state level where mining licensing authority resides, remains work in progress. Overall, strengthening implementation mechanisms to ensure biodiversity safeguards are systematically applied across all mining cycles and projects remains a key priority going forward.

ACTION 4.6: STRENGTHEN SUSTAINABLE CONSUMPTION AND PRODUCTION TO SUPPORT BIODIVERSITY CONSERVATION

This action focuses on shifting national consumption and production patterns towards more sustainable and circular approaches to tackle biodiversity loss, climate change, and pollution. Since 2021, Malaysia has expanded its sustainable consumption and production (SCP) framework through sector-specific policies including the National Energy Transition Roadmap, Energy Efficiency and Conservation Act 2024, New Industrial Master Plan 2030, Circular Economy Blueprint for Solid Waste (2025-2035), and the Circular Economy Policy Framework for the Manufacturing Sector 2024.

The Government continues to expand the green market through Government Green Procurement (GGP), with national targets of 25% by 2025 and 50% by 2030. As of 2024, GGP uptake reached 40.5%, exceeding the 2025 target. The MyHIJAU programme, the national green recognition scheme, registered 15,022 products and services by 2023, exceeding its initial target of 15,000.

Malaysia is diversifying waste management strategies to reduce reliance on landfills, which are projected to reach capacity by 2050. The government is shifting towards sanitary landfills and waste-to-energy plants as part of an integrated waste management strategy. Active promotion of the 3R policy (Reduce, Reuse, Recycle) through incentives, mandatory household waste separation, public awareness campaigns, and improved recycling infrastructure has increased the national household waste recycling rate from 28.1% in 2019 to 37.9% in 2024.

Several economic instruments are being developed to steer behavioural change. Carbon pricing for the energy, steel, and iron sectors is scheduled for implementation in 2026, guided by the National Carbon Market Policy and the Climate Change Act. For waste and circular economy, instruments such as Extended Producer Responsibility, zero-waste-to-landfill certification, and pay-as-you-throw schemes are being explored for formalisation under the upcoming Circular Economy Act.

Key Indicator:

By 2025, the national consumption footprint has been established and by 2030, steps are in place to reduce excessive consumption levels

Available proxy indicators suggest improvements in certain aspects of consumption footprint. The national household waste recycling rate increased from 28.1% in 2019 to 37.9% in 2024, driven by active promotion of the 3R policy. Malaysia has also reduced its carbon intensity by 37.12% in 2021 compared to 2005 levels, reflecting shifts towards cleaner and lower-impact production systems. Domestic material consumption for fossil fuel production declined from 52,188 ktOE in 2019 to 43,277 ktOE in 2022, although this also partly attributed to slower economic activity in the post-pandemic period. However, Malaysia still lacks a comprehensive national material footprint dataset which limits the ability to assess overall resource efficiency. Work is ongoing to establish the national consumption footprint baseline, improve data availability, and strengthen measurement frameworks to support future reporting.

EXAMPLES OF INITIATIVES DRIVING CHANGE

The following cases illustrate how biodiversity mainstreaming is being applied in practice. They show how government agencies and private sectors have integrated biodiversity considerations into development planning and sectoral measures, such as infrastructure and energy, with support from civil society and technical partners.

(a) Sarawak–Sabah Link Road: The Sarawak–Sabah Link Road illustrates how biodiversity considerations can be incorporated into major transport infrastructure through early design choices. The project includes an eco-friendly tunnel in the Limbang area, reducing extensive hill cutting and surface disturbance. By tunnelling

through sensitive terrain, it minimises habitat fragmentation and ecological disruption and allows safer movement of wildlife while maintaining regional connectivity objectives.

(b) PETRONAS Biodiversity & Ecosystem Services Framework: Established alongside PETRONAS' Position on Nature and Biodiversity in 2022, the framework manages biodiversity risks across all assets through a structured Biodiversity and Ecosystem Services Risk Assessment (BESRA) process covering risk profiling, validation, and management. The framework is aligned with the CBD and Malaysia's NPBD 2022–2030, as well as international industry best practices. High-risk assets require detailed assessments and Biodiversity Action Plans that apply the mitigation hierarchy of avoid, minimise, restore, and offset.

SARAWAK BIODIVERSITY MASTER PLAN – A WHOLE-OF-GOVERNMENT APPROACH TO BIODIVERSITY MAINSTREAMING

Sarawak is home to over 6,000 flowering plant species, 600 bird species, and most of the 63 terrestrial mammal species endemic to Borneo. This rich biodiversity directly supports the welfare and livelihoods of all Sarawakians. Recognising that sector-specific policies were insufficient for holistic biodiversity management, the state set out to develop a dedicated Biodiversity Master Plan.

On Earth Day, 22 April 2025, the Sarawak Biodiversity Master Plan was officially launched by the Premier of Sarawak. Led by the Ministry of Natural Resources and Urban Development Sarawak (MUDeNR) in collaboration with the UNDP, the plan follows years of groundwork and extensive multi-stakeholder consultations involving government agencies, civil society, and research institutions.

The Master Plan is structured around six thematic areas: economic planning and approach; sustainable financing; effective communication on biodiversity; sectoral policy and legal reform; institutional collaboration; and biodiversity mainstreaming tools. Together, these ensure that biodiversity and ecosystem services are systematically integrated into policies, plans, and economic decisions across all sectors of Sarawak's economy. The Plan's outcomes align with the three pillars of Sarawak's Post COVID-19 Development Strategy 2030—economic growth, social inclusivity, and environmental sustainability—reflecting a

deliberate effort to embed biodiversity into the state's broader development agenda rather than treating it as a standalone concern.

The Master Plan also aligns with the Kunming-Montreal Global Biodiversity Framework and the National Policy on Biological Diversity, positioning Sarawak to achieve balanced, sustainable, and greener economic growth without compromising ecological integrity. As the first state in Malaysia to adopt a comprehensive strategy blending biodiversity mainstreaming with a whole-of-government approach, Sarawak offers a model for other jurisdictions seeking to embed biodiversity into development planning.



Photo credit: Sarawak Forestry Department

(c) Sarawak Energy Corporate Biodiversity Policy, Procedures and Guidelines: Sarawak Energy integrates biodiversity risk management into the planning, development, and operation of its hydropower and energy infrastructure through its Corporate Biodiversity Policy, Procedures and Guidelines, aligned with Sarawak's biodiversity priorities and international good practice. The company implements the Hydropower Sustainability Standard, with trained in-house certified assessors embedding sustainability requirements across project lifecycles, supported by internally funded biodiversity surveys, rare species monitoring, and ecological studies within its hydropower project areas.

(d) Tenaga Nasional Berhad Biodiversity Framework: Launched in 2024 and aligned with the KMGBF and Malaysia's NPBD 2022–2030, TNB's Biodiversity Framework applies the mitigation hierarchy across the full project

lifecycle through site-specific biodiversity action plans. Operational measures include mangrove planting, regular ecological assessments within a 5km radius of operations, aquatic species relocation, and native plant nurseries established at hydropower project sites to support habitat restoration and species conservation.

(e) Green Roads and Highways: Protecting Biodiversity: In 2022, WWF-Malaysia and Aurecon Lestari developed a training module and a Green Budgeting Biodiversity Checklist to integrate wildlife safeguards into road and highway planning and budgeting. Completed in December 2023 and reviewed by NRES, Ministry of Works, PERHILITAN and the Forestry Department of Peninsular Malaysia, the tools guide early design and budgeting for measures such as wildlife crossings and monitoring, supporting institutional uptake of biodiversity considerations in infrastructure development.

(f) The Sabah Renewable Energy Rural Electrification (Sabah RE2): Roadmap demonstrates how a bottom-up strategy and public-civic partnership can bring energy to the last mile while protecting natural resources. Sabah RE2 identified 400 unelectrified communities in rural Sabah, many situated within biodiverse forests and critical wetlands. With its focus on community-based renewable energy mini-grids, the program displaces fossil-fuel-driven development and avoids harmful grid infrastructure development in ecologically sensitive areas while enabling communities to thrive and safeguard their local ecosystems. Embedded in the State Energy Plan (SE-RAMP 2040) and implemented in close collaboration with the Sabah State Government, Sabah RE2 provides a replicable model for sustainable energy development balanced with ecological stewardship.

(g) Community-based clean energy initiatives by Tonibung in Sabah: This initiative provides an example of how renewable energy deployment can be aligned with nature and local ecosystems. Through small-scale solar and run-of-river micro-hydro systems, these projects deliver electricity to rural and Indigenous communities while avoiding large dams, extensive land clearing or significant alteration of river systems. Designed and managed with the local communities, the projects minimise ecological disturbance, reduce reliance on diesel generators, and demonstrate how decentralised energy solutions can support development needs while limiting pressure on forests, freshwater ecosystems and biodiversity.

EAST COAST RAIL LINK – SETTING A BENCHMARK FOR WILDLIFE-FRIENDLY INFRASTRUCTURE

The East Coast Rail Link (ECRL) is a nationally strategic infrastructure project, spanning over 665-kilometre double-track railway, connecting the east coast states of Kelantan, Terengganu, and Pahang with the Klang Valley. Beyond its economic significance, the ECRL has become a landmark case for integrating biodiversity safeguards into mega infrastructure projects in Malaysia, and was recognised by Malaysia's Book of Records in 2025 for constructing the most wildlife culvert crossings in a single railway project.

The project's alignment traverses sensitive ecosystems including the Central Forest Spine, and habitats critical to endangered species such as Malayan tigers, elephants, tapirs, and sun bears. Environmental assessments identified significant risks of habitat fragmentation and human-wildlife conflict. In response, the alignment was revised multiple times, and the decision to build more tunnels reduced the projected forest land loss by 90 per cent, from an initial estimate of over 2,000 hectares down to 276 hectares. The project now incorporates 28 wildlife crossings, including box culverts and specially designed underpasses, to facilitate safe animal passage across the alignment.

The project proponent, China Communications Construction (ECRL) Sdn Bhd signed a Memorandum of Agreement with the Department of Wildlife and National Parks (PERHILITAN), allocating RM9.1 million for the implementation of

a Wildlife Management Plan covering wildlife surveys, surveillance, conflict mitigation, habitat enrichment, and public awareness. In 2022, a supplementary agreement was signed to further enhance wildlife conservation and mitigation works along the alignment, with the agreement valid until 2027.

The ECRL demonstrates that large-scale infrastructure projects can substantially reduce ecological impacts through early planning and iterative stakeholder collaboration, backed by dedicated conservation funding that recognises long-term ecological benefits over short-term cost considerations. It reflects Malaysia's commitment to balancing economic growth with biodiversity conservation, and sets a benchmark for incorporating wildlife impact assessments into future development projects in Malaysia.



Photo credit: Malaysia Rail Link Sdn Bhd

CHALLENGES AND CONSIDERATIONS FOR FUTURE IMPLEMENTATION

The clear establishment of policy frameworks and sectoral inroads provides a critical foundation for mainstreaming biodiversity. However, to fully integrate biodiversity into development pathways by 2030, five specific gaps must be addressed:

- Valuing nature in economic and financial decision-making** – The economic value of biodiversity and ecosystem services is not systematically quantified and integrated into policy appraisal, project evaluation, and corporate accounts. This leads to biodiversity being undervalued or treated as a zero-cost asset in trade-offs against conventional development metrics. *Considerations for future implementation: Expedite official adoption and institutionalisation of the System of Environmental-Economic Accounting (SEEA) to produce standardised natural capital statistics.*
- Integrating nature-related risks into the financial sector** – Translating biodiversity impacts and dependencies into material financial risks remains nascent. TNFD adoption is voluntary, constrained by data gaps, methodological challenges, and limited technical capacity, particularly among MSMEs and financial institutions. *Considerations for future implementation: Develop official national guidance based on completed TNFD pilots. Conduct capacity-building for regulators, banks, and stock exchanges on nature-related disclosure and risk management.*
- Explicit biodiversity requirements in the EIA process** – While the EIA process provides an established mechanism for integrating biodiversity into project approvals, the depth and rigour of biodiversity assessments vary across projects and jurisdictions. Loopholes such as project fragmentation (dividing land into smaller parcels to circumvent EIA thresholds) remain. *Considerations for future implementation: Strengthen the EIA requirements by expanding prescribed activities, establishing minimum biodiversity survey standards, closing project fragmentation loopholes, and introducing legally binding post-construction monitoring requirements.*
- Overcoming Sector-Specific Implementation Hurdles** – There are challenges in mainstreaming within key sectors. In infrastructure, retrofitting existing roads to reduce wildlife mortality is costly and complex. In mining, rising demand for critical

minerals pressures ESAs, and the effectiveness of new safeguards depends on inconsistent state-level enforcement. *Considerations for Future Implementation: Scaling up the green roads and highways initiatives. Identifying high-priority segments of existing linear infrastructure for retrofitting with wildlife crossings. Upcoming National Mineral Policy 3 and state-level mineral policies will integrate ESG principles and sustainability requirements.*

- Cumulative impacts and strategic planning gaps** – The project-based EIA system is not designed to address cumulative and interactive impacts of multiple developments across a landscape or seascape. *Considerations for future implementation: Explore earlier-stage assessment tools such as Strategic Environmental Assessment (SEA) or pre-feasibility biodiversity screening for all major sectoral policies, regional development plans, land-use blueprints, and large-scale projects.*
- Legacy systems and incentive structures** – Current economic and governance systems often contain legacy incentives that inadvertently promote nature-negative outcomes, such as revenue models dependent on land conversion or subsidies that degrade ecosystems. Aligning these deep-seated structures with biodiversity goals is a complex, long-term challenge. *Considerations for future implementation: Conduct a review of fiscal policies, subsidies, and land-based revenue models to identify and reform incentives harmful to biodiversity. Develop and scale positive incentives, including conservation tax breaks, mandatory green public procurement, and payments for ecosystem services.*

Photo credit: WWF-Malaysia



Goal 2: Reducing Pressures**NPBD TARGET 5**

BY 2030, OUR FOREST GOVERNANCE AND MANAGEMENT HAS BEEN STRENGTHENED FOR BIODIVERSITY CONSERVATION

INTRODUCTION

Malaysia's approach to Target 5 is anchored in a comprehensive and multi-faceted strategy to strengthen forest governance and management for biodiversity conservation. This strategy encompasses the reforming the legal and policy framework, the securing of permanent forest reserves, the enforcement of sustainable production practices, the integration of climate and community objectives, and the deployment of technology for monitoring and restoration. Central to this effort is Malaysia's commitment to maintaining at least 50 per cent of its total land area under forest and tree cover, while ensuring that forests are managed to deliver their full ecological, social and economic functions.

CURRENT LEVEL OF PROGRESS TOWARDS THE TARGET

On track to achieve target.

ACTION 5.1: STRENGTHEN FOREST GOVERNANCE AND REGULATIONS

This action reinforces the legal and institutional foundations of forest governance, including policy renewal, legislative safeguards for Permanent Reserved Forests (PRFs), and regulatory frameworks for forest carbon.

National Forest Policy and Legislative Reform

The Malaysia Policy on Forestry (2021) incorporates the Forestry Policies of Peninsular Malaysia, Sabah and Sarawak, reinforcing commitments to forest cover, sustainable management, biodiversity conservation, and climate mitigation.

The National Forestry (Amendment) Act 2022 introduces key measures for Peninsular Malaysia: mandatory public inquiry before PRF degazettement, simultaneous replacement of degazetted areas, and substantially increased penalties (maximum fine from RM20,000 to RM5 million; imprisonment from 7 to 20 years). State

adoption is progressing: Perlis and the Federal Territories have fully adopted the amendments, while Negeri Sembilan and Kelantan have partially adopted.

Securing and Expanding Permanent Forest Reserves

As of 2024, Malaysia's forest cover stands at 54.3% of total land area (Sabah and Sarawak exceed 60%; Peninsular Malaysia approximately 43%). Gazettement of PRFs and Totally Protected Areas (TPAs) is prioritised, particularly for ecological corridors within the Central Forest Spine (CFS) and Environmentally Sensitive Areas (ESAs). In 2024, Cabinet and the National Land Council endorsed the gazettement of PRFs within the CFS.

Table 2-1: Forest cover in Malaysia (2022)

Type of Forest	Area (mill. ha)
Totally Protected Areas and Protected Areas	3.410
Permanent Reserved Forest/Estate	10.688
State land forest	3.900
Total Forested Area	17.998

Source: Ministry of Natural Resources and Environmental Sustainability (NRES)

Forest Carbon Governance

In response to growing interest in carbon markets in the forestry sector, the National Guidance on Forest Carbon Market was launched in 2021 to provide a common technical reference for states and project proponents. The Guidance addresses institutional roles, carbon accounting methodologies, reporting arrangements and coordination with national Reducing Emissions from Deforestation and Forest Degradation (REDD+) processes and United Nations Framework Convention on Climate Change (UNFCCC) reporting obligations, including the management of double-counting risks. Complementing this, the Malaysia Forest Fund was established to operationalise the REDD+ Finance Framework by mobilising and channelling financing for forest conservation and forest carbon activities [see also Target 17].

At the sub-national level, Sabah and Sarawak have introduced regulations governing carbon-related activities in the forestry sector. In Sarawak, the Forests Ordinance 2015 was amended in 2022, and the Forests (Forest Carbon Activity) Rules 2022 establish requirements for permits, licences, project validation, reporting and statutory fees and levies. In Sabah, amendments to the Forest Enactment 1968 introduce mandatory licensing for forest carbon activities, complemented by the Sabah Climate Change and Carbon Governance Enactment 2025, which provides a broader state-level framework for carbon governance, oversight and reporting.

Key Indicator:

By 2030, forestry laws and regulations have been reviewed to support biodiversity conservation and contribute to climate action

Progress on this indicator is advancing across all three jurisdictions. In Peninsular Malaysia, the National Forestry Act 1984 was amended in 2022 to introduce “state parks” as a new Permanent Reserved Forest (PRF) category, tighten degazettement procedures, require the simultaneous replacement of any degazetted PRF with an area of equal or greater size, and substantially increase penalties for forest offences. These amendments strengthen the legal protection of PRFs, safeguard biodiversity and preserve forest carbon functions. As the amendments take effect upon adoption by state legislatures, progress is ongoing; Perlis and the Federal Territories have fully adopted the amended Act, while Negeri Sembilan and Kelantan have done so partially. In Sabah and Sarawak, both jurisdictions have reviewed and updated their respective forestry laws to strengthen carbon governance, regulate forest carbon activities and facilitate carbon trading in support of climate mitigation objectives.

ACTION 5.2: ENHANCE SUSTAINABLE FOREST MANAGEMENT

This action strengthens sustainable forest management across multiple fronts: expanding certification coverage, tightening plantation regulations, scaling up restoration, and promoting social forestry.

Sustainable Forest Management and Certification

Malaysia implements Sustainable Forest Management (SFM) within PRFs through Forest Management Units (FMUs) and Forest Management Plans (FMPs) that regulate harvesting, environmental safeguards, and biodiversity considerations. Compliance is assured through the Malaysian Timber Certification Scheme (MTCS), aligned with PEFC and assessed against Malaysian Criteria and Indicators for SFM, complemented by FSC certification in selected areas.

To mitigate environmental impacts, a 15-year moratorium on new forest plantation approvals within PRFs was instituted in 2021 for Peninsular Malaysia states that have exceeded their quota, alongside strengthened replanting enforcement. Total planted areas increased from 113,040 hectares to 144,652 hectares between December 2021 and December 2023, while cleared but unplanted areas declined by 10,049 hectares.

Approximately 32.6% of Malaysia’s forest area is MTCS-PEFC certified. Peninsular Malaysia has 72.3% of its natural forest area certified, with seven states maintaining MTCS certification. The Sixth National Forest Inventory (2024) confirms that production forests can recover to primary forest condition after approximately 30 years.

Table 2-2: Forest Area Under MTCS-PEFC Sustainable Forest Management Certification

Region	Certified Natural Forest (ha)	Certified Forest Plantation (ha)	Total Certified Area (ha)
Peninsular Malaysia	4,140,134.70	–	4,140,134.70
Sarawak	1,526,074.00	127,311.00	1,653,385.00
Sabah	111,890.00	23,810.00	135,700.00
Total	5,778,098.70	151,121.00	5,929,219.70

Source: Malaysian Timber Certification Council and Forest Department Sarawak. Data as of 17 December 2025

FSC certification covers 222,499 hectares (primarily Sabah and Terengganu). The reduction in FSC-certified areas since 2020 was due to certifications expiring during COVID-19 travel restrictions; re-certification is now underway. More than 7,000 hectares are FSC-certified for non-timber products including rubber and bamboo.

Social Forestry and Sustainable Livelihoods

To complement the objectives under the Malaysia Forestry on Policy, the Social Forestry Strategic Plan 2021–2025 was introduced to provide a national framework for engaging Indigenous Peoples and Local Communities (IPLCs) in strengthening community participation in forest governance, enhancing livelihoods through forest-based activities and building local capacity to manage and restore forest areas. Currently, the Social Forestry Strategic Plan 2027-2032 is in development.

Various social forestry initiatives are being carried out through collaborative arrangements between the government, non-governmental organisations and local communities, and have demonstrated measurable livelihood outcomes. These include commercial agroforestry projects integrating agarwood leaf production, community fisheries systems, and forest-based honey production initiatives that support local income generation and food security. In Sabah, the community-based practice of “tagal hutan (forest)” continues to be applied as a customary system for protecting designated forest areas, drawing on principles analogous to the tagal system traditionally used for river management.

Key Indicator:

By 2030, 50% of the forestry sector has been certified under sustainable management schemes [e.g. Malaysian Timber Certification Scheme (MTCS) and Forest Stewardship Council (FSC)]

As of 2025, approximately 32.6 per cent of Malaysia’s forest area is certified under the MTCS-PEFC Sustainable Forest Management Certification Scheme, with 72.3 per cent of Peninsular Malaysia’s natural forest area certified and seven states maintaining valid MTCS certification. FSC certification covers an additional 222,499 hectares, primarily in Sabah and Terengganu, with re-certification underway following pandemic-related disruptions. More than 7,000 hectares are also FSC-certified for non-timber forest products. Malaysia remains on track to achieve the 50 per cent certification target by 2030.

ACTION 5.3: LEVERAGE TECHNOLOGY TO ENHANCE FOREST MONITORING AND REPORTING

Strengthening Malaysia’s capacity for forest monitoring, enforcement and reporting through digital and geospatial technologies, including AI and big data analytics, is organised around two areas: monitoring and surveillance, and forest resource management and databases.

Forest Monitoring and Surveillance

Since 2021, Malaysia has increased adoption of satellite monitoring, drone usage, and GIS to detect changes in Permanent Reserved Forests (PRFs), including encroachment, illegal logging, forest cover changes, and fire risks.

In Peninsular Malaysia, FDPM uses the Forest Monitoring Remote Sensing (FMRS) system, which was upgraded and integrated into e-Geospatial Forestry (e-GP) since 2021. This system generates pre-F, tree marking, and planting maps rapidly. FDPM has also established a War Room as a centralised hub, integrating e-GP, FMRS Plus, and Forest Fire Big Data Analytics.

In Sabah, iForSabah was developed with MYSA and uses GIS and high-resolution satellite imagery to monitor forest reserves, degradation, fire risks, restoration, and carbon stock. In Sarawak, the COMOS system integrates satellite imagery, hyperspectral remote sensing, and mobile platforms for early detection of forest changes.

National Forest Restoration and Replantation

Replantation efforts have been intensified through targeted measures, such as strengthened requirements for replanting in approved forest plantation areas, the Forest Restoration, Rehabilitation and Reclamation Programme (3RSM) focusing on degraded forest, and mangrove replanting in coastal zones. Replanting efforts are also complemented by social forestry initiatives and national awareness campaigns such as the Greening Malaysia Campaign, which targets the planting of 100 million trees between 2021 and 2025.

Forest Resource Management and Databases

Technology has also strengthened forest resource management. In Sabah, the Forest Resources Database and Geospatial Technology platform was established in 2023 under the 12th Malaysia Plan. In Sarawak, the Forest Resources Inventory supports management planning. The REV-LOG system enables end-to-end log tracking for timber governance transparency, and the Herbarium supports research and conservation.

Key Indicator:

By 2030, technological capacities for forest monitoring have significantly increased

Malaysia has made significant progress in deploying digital and geospatial technologies for forest monitoring across all three regions to support sustainable forest management including forest mapping, detection of forest cover changes, encroachment monitoring and fire risk detection. Three technological systems are now in operation; the Forest Monitoring Using Remote Sensing (FMRS) system in Peninsular Malaysia, the Continuous Monitoring of Surveillance (COMOS) system in Sarawak, and the iForSabah application in Sabah, which is equipped with Geographic Information System technology and high-resolution satellite imagery.

EXAMPLES OF INITIATIVES DRIVING CHANGE

The effectiveness of Malaysia's forest governance and management framework is demonstrated through practical, on-the-ground initiatives across the country. These examples showcase the translation of national policies into tangible conservation and sustainability outcomes.

(a) War Room@FDPM: FDPM established the War Room as a centralised forest resource monitoring centre operating on an “Eyes in the Sky” concept, integrating e-GP, FMRS Plus and Forest Fire Big Data Analytics with real-time satellite data from MYSA and JUPEM. The War Room channels detection outputs and public complaints to State Forestry Departments as Data Intel notices for immediate enforcement action. Since operationalisation, the War Room has detected forest clearings totalling 9,406.76 hectares and issued 200 Data Intel notices in 2024, with detections rising to 22,425.05 hectares and 168 notices issued as of October 2025. The SMART forestry application complements the War Room by equipping enforcement teams to identify high-risk areas and improve field patrol efficiency through evidence-based decision-making.

(b) Matang Mangrove Forest Reserve - Sustainable forestry practices in action: The Matang Mangrove Forest Reserve in Perak, Malaysia, is one of the largest and oldest managed mangrove forests, covering about 40,400 hectares. Managed under a Sustainable Forest Management system for over a century, the reserve operates on an approximately 30-year rotational harvesting cycle with designated production and conservation zones. Dominated by commercially valuable mangrove species, the reserve supports sustainable timber and charcoal production while maintaining ecosystem functions including coastal protection, fisheries support, carbon storage and biodiversity conservation, and supports local livelihoods and tourism.

(c) Sarawak Forest Carbon Activity Rules 2022: Sarawak introduced the Forests (Forest Carbon Activity) Rules 2022 and the Environment (Reduction of Greenhouse Gases Emission) Ordinance 2023 to regulate forest carbon activities through a formal permit, licensing and registry system to manage carbon issuance, transactions and retirement and to reduce double counting risks. In 2025, fiscal arrangements were refined through updated royalty and ecosystem fee structures by forest land category. As of November 2025, nine Forest Carbon Study Permits covering 231,983 hectares had been issued, seven applications

were under review, and one Forest Carbon Licence covering 25,675 hectares had been granted, with requirements for consultation, buffers and internationally recognised carbon standards.

(d) Sabah Forest Plantation and Industrial Tree Plantations programme: The Sabah Forest Plantation Development Action Plan (2022–2036) guides the establishment of industrial tree plantations in degraded forest areas within production forest reserves, with an overall target of 400,000 hectares by 2036. The plan aligns with SFM principles and aims to provide a reliable timber supply for downstream industries while reducing pressure on natural forests. As of 2024, approximately 183,634 hectares, about 41 per cent of the target, had been established, with continued efforts to scale up plantation establishment and employment opportunities.

(e) Scientific Biodiversity Expeditions in Permanent Reserved Forests in Peninsular Malaysia: The Forestry Department of Peninsular Malaysia has conducted systematic biodiversity expeditions within PRFs, engaging technical agencies, experts, researchers and NGOs to collect and document biological, physical and socio-economic data in support of sustainable forest management. Since 1999, 50 expeditions and 38 scientific seminars have been conducted, producing 34 published proceedings that form an expanding knowledge base for evidence-based forest management.

(f) Community Buy-Back Guarantee Programme: The programme by the Forestry Department of Peninsular Malaysia has been implemented since 2021 in Tasik Chini, Cameron Highlands and Janda Baik. This social forestry initiative draws on the expertise of Orang Asli communities in locating and raising forest species seedlings at community nursery sites. The seedlings produced are subsequently purchased by government agencies, the private sector and the public for forest restoration activities. The model reduces market risk for participating communities, provides more predictable income, and supports rehabilitation of degraded areas through the supply of planting materials.

(g) Lubok Antu Agroforestry project: The Lubok Antu Agroforestry Project is a multi-faceted initiative led by Sarawak's Social Forestry Division to promote commercial agroforestry and sustainable community development in Lubok Antu. The project supports sustainable land use and rural livelihoods through agroforestry practices, including gaharu (agarwood) leaf tea cultivation and community-based tagging systems.

- (h) Ba'Kelalan Salt, Lawas, Sarawak:** Ba'Kelalan Salt is a 100% natural salt traditionally produced by the Lun Bawang community in Lawas, Northern Sarawak, using firewood to boil underground brine for up to four days. In 2015, the Forest Department Sarawak upgraded the salt processing facilities at Buduk Bui, making the process more efficient while preserving traditional knowledge and practices. Output quadrupled from 10kg to 40kg per week. Since 2024, MeSTI certification and new barcoded packaging have enabled the community to retail at RM16.00 per 100g, opening access to supermarkets and potential export markets including Brunei, generating approximately RM20,000 monthly for the community.

MALAYSIA'S FIRST FSC-CERTIFIED BAMBOO – A MILESTONE FOR COMMUNITY FORESTRY AND SUSTAINABLE SOURCING



Photo credit: FSC

Malaysia achieved a significant milestone in sustainable forest management with its first-ever FSC-certified natural forest for bamboo harvesting, extending the country's growing portfolio of responsibly certified forest products beyond timber to include non-timber forest resources managed by indigenous communities.

The achievement was made possible through a collaboration between the Forest Stewardship Council® (FSC®) Malaysia, Stewards of Environmentally Aware Development (SEAD), and CMO Group, with the support of the Embassy of France in Malaysia. The initiative spans two sites in Perak covering approximately 1,200 hectares, where Orang Asli communities are engaged in sustainable bamboo harvesting practices developed through years of community-based forest management. The project has achieved Malaysia's first FSC-certified natural forest for bamboo harvesting under an FSC group certification approach.

The certification opens access to high-value markets for responsibly sourced bamboo, with applications in green construction, design innovation, and bamboo bio-

char—sectors with growing global demand for verified sustainable sourcing. To unlock these opportunities, the team is pursuing FSC Chain of Custody certification, enabling certified bamboo products to carry the FSC label throughout the supply chain. The initiative may also expand to verify ecosystem service impacts using the FSC Ecosystem Services Procedure, strengthening links between responsible sourcing, biodiversity conservation, and community benefits.

Beyond commercial value, this milestone shows how FSC certification can empower indigenous communities, offering formal recognition of sustainable land stewardship, improved market access, and livelihood support. The Orang Asli communities in Perak as certificate holders mark a step toward more inclusive forest governance in Malaysia.

The certification complements Malaysia's climate and biodiversity frameworks, reinforcing momentum for verified sustainable sourcing across timber and non-timber products and Malaysia's commitment to responsible forest management.

NATIONAL FOREST INVENTORY AND SELECTIVE MANAGEMENT SYSTEM: MEASURING FOREST RECOVERY IN PENINSULAR MALAYSIA



Photo credit: Forestry Department Peninsular Malaysia

The National Forest Inventory (NFI) is a systematic programme implemented by the Forestry Department Peninsular to collect qualitative and quantitative data on forest resources in Peninsular Malaysia. Conducted at approximately 10-year intervals since 1970, the NFI provides the information base for forest management decisions, national reporting, and long-term planning within the Permanent Reserved Forests (PRFs). The most recent iteration, the Sixth National Forest Inventory (NFI-6), was conducted from 2020 to 2023. The NFI-6 report was published in October 2024.

A key finding of NFI-6 concerns the Selective Management System (SMS), the forest harvesting regime applied to production forests in Peninsular Malaysia. Introduced in 1978 to replace the earlier Malayan Uniform System (MUS), the SMS is a polycyclic harvesting system that operates on cutting cycles of 25 to 30 years. Under the SMS, only trees above specified diameter limits are felled, with minimum cutting limits set at 50 cm diameter at breast height for dipterocarp species and 45 cm for non-dipterocarp species. Residual stands must retain a minimum of 32 sound commercial stems per hectare to ensure adequate regeneration for subsequent harvests. The maximum volume allowed to be harvested is capped at 85 cubic metres per hectare.

The NFI-6 findings confirm that the SMS has been effective. Production forests that have been harvested under the SMS are able to recover to conditions comparable to primary forest after a period of 30 years. This provides empirical evidence that sustainable forest management under the SMS supports long-term forest productivity and ecological recovery, supporting Malaysia's commitment to maintain 50% of its land area as forest and tree cover.

CONTINUOUS FOREST MONITORING AND SURVEILLANCE (COMOS) INITIATIVE, SARAWAK

The Forest Department Sarawak (FDS) has strengthened forest governance through the Continuous Monitoring and Surveillance (COMOS) initiative, an integrated forest monitoring system that combines satellite imagery, Geographic Information System technology, aerial surveillance, hyperspectral remote sensing, and mobile platforms to enable early detection of forest changes and faster enforcement response.

COMOS uses high-resolution satellite images to detect changes in Permanent Forest Reserve areas, providing patrol teams and enforcement officers with specific location information to guide ground operations. Aerial surveillance is conducted using the DA42-MPP aircraft, which is equipped with hyperspectral sensors capable of detecting forest openings and clearings associated with illegal logging activities. The system generates both hard copy and digital GPS maps to guide enforcement officers directly to areas where illegal activities have been identified. A compact airborne tactical system (CATS) mounted on a helicopter further extends the department's rapid aerial response capability.

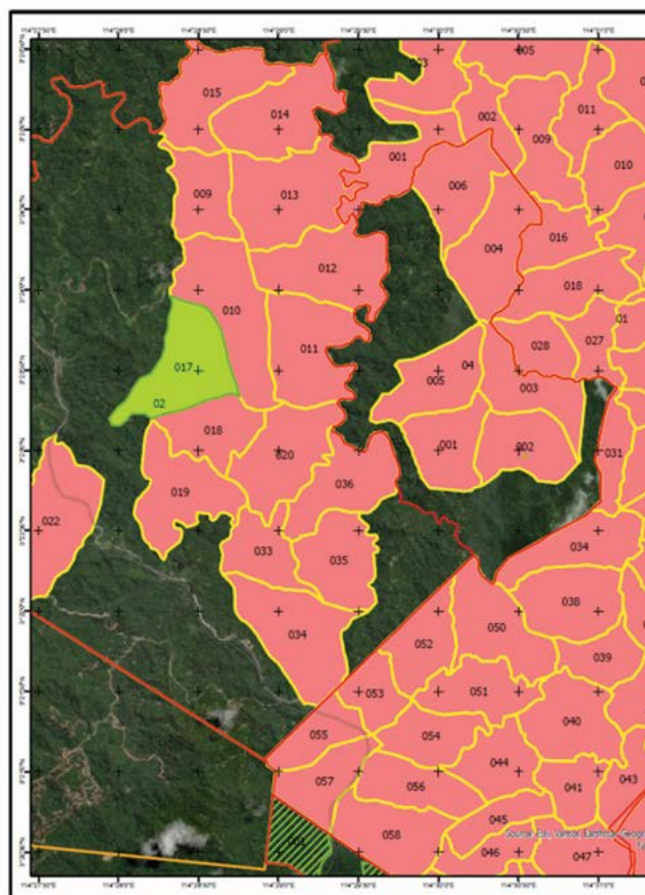




Photo credit: Forest Department Sarawak (FDS)

COMOS sits within a broader suite of digital tools deployed by FDS, alongside the Enterprise Forest Information Management System (EFIMS), the Sarawak Logs Tracking and Forest Revenue System (REVLOG), and the spatial monitoring and reporting tool EcoHub. Together, these systems promote transparency and accountability in forest management, and support real-time monitoring across Sarawak's extensive forest estate.

Originally developed for forestry enforcement, operational utility of the COMOS platform has extended beyond its original remit and now being applied to support disaster management and response, including for floods and wildfires.

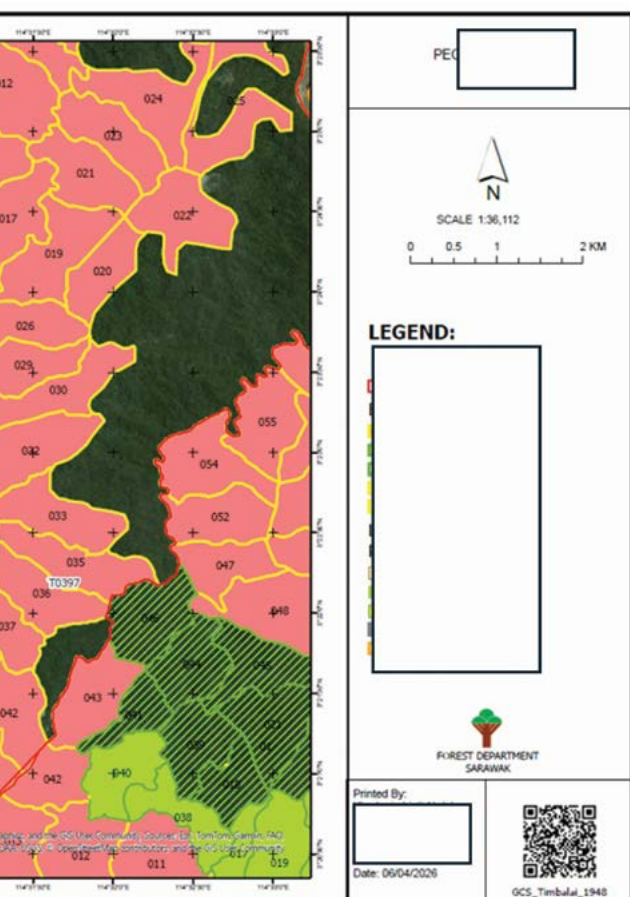


Photo credit: Forest Department Sarawak (FDS)

CHALLENGES AND CONSIDERATIONS FOR FUTURE IMPLEMENTATION

The progress achieved in policy reform, legal safeguards, and certification provides a strong foundation for forest governance. However, to secure enduring conservation outcomes across all forest landscapes by 2030, four specific gaps must be addressed:

- Maintaining forest cover amidst fiscal dependencies** – Malaysia's forest cover remains above the national commitment but continues to face pressure from land-use change, linked in part to the structural reliance of state governments on revenue from land conversion and extractive activities. The federal Ecological Fiscal Transfer (EFT) provides an incentive, but diversifying state revenue streams away from forest conversion remains a long-term challenge. *Considerations for future implementation: Expand and scale sustainable financing instruments, including payments for ecosystem services and conservation trust funds, to provide predictable, long-term revenue for states that prioritise forest conservation (see Target 17).*
- Federal-state alignment in forest governance** – Implementation of national forestry policy and law depends on adoption by state governments, where development priorities and capacities vary. In Peninsular Malaysia, gaps remain in the legal framework for forest carbon markets, creating uncertainty, while Sabah and Sarawak have advanced specific state legislation. *Considerations for future implementation: Intensify federal-state engagement through the National Land Council and technical committees to foster consensus and accelerate adoption of harmonised provisions.*
- Capacity and compliance in forest plantation management** – Challenges persist in the management of forest plantations within Permanent Reserved Forests, particularly regarding the timely replanting of cleared sites. Variations in performance across states indicate constraints in enforcement and monitoring capacity. *Considerations for future implementation: Enhance state-level monitoring and enforcement capacity through dedicated resources, training, and technology (e.g., drone monitoring of plantation sites).*
- Implementation gap in forest carbon governance** – While national guidance and state-level rules exist, operationalising transparent, equitable, and ecologically sound forest carbon projects is complex. Key challenges include establishing clear benefit-sharing mechanisms with IPLCs, ensuring environmental integrity to avoid leakage, and creating streamlined processes that balance due diligence with project viability. *Considerations for future implementation: Strengthen the technical capacity of regulators to validate projects and monitor their environmental and social impacts, ensuring they contribute to net biodiversity gains.*

Goal 2: Reducing Pressures**NPBD TARGET 6**

BY 2030, OUR AGROFOOD, AGRICOMMODITY, AND FISHERIES PRODUCTION ARE MANAGED AND HARVESTED SUSTAINABLY

INTRODUCTION

Malaysia's approach for progressing towards Target 6 is guided by the 13th Malaysia Plan and sectoral policies. Broadly, the strategy is centered on two mutually reinforcing thrusts: modernising production systems through advanced technologies and digitalisation, including artificial intelligence, smart farming and precision aquaculture; and mainstreaming sustainability across the sector to promote climate-resilient practices, reduce environmental footprint, and align with Malaysia's broader environmental commitments. These directions collectively aim to strengthen economic competitiveness, support national food security and boost rural livelihoods; and position Malaysian agricultural and commodity exports to meet rising global demand for sustainably sourced products.

CURRENT LEVEL OF PROGRESS TOWARDS THE TARGET

On track to achieve target.

ACTION 6.1: STRENGTHEN SUSTAINABLE AGROFOOD AND AGRICOMMODITY PRACTICES

Malaysia's approach on strengthening sustainability practices within the agrofood and agricommodity sectors combines policy mainstreaming, mandatory and voluntary certification and traceability systems, land use controls on agricultural expansion, and targeted capacity building to stakeholders.

Mainstreaming of Biodiversity into Policy

Biodiversity considerations are increasingly being embedded in national agriculture and agricommodity policy frameworks. The National Agrofood Policy 2021-2030 (NAP 2.0) recognises biodiversity as fundamental to long-term agrofood sustainability, with dedicated strategies to protect environmentally sensitive areas, conserve agricultural genetic resources, promote integrated pest management and address threats from invasive alien species. These are supported by the National Action Plan on Invasive Alien Species 2021-2025, which provides for prevention and management of species relevant to agriculture and food production systems. The National Agri-Commodity Policy 2021-2030 (DAKN 2030) similarly positions sustainability as a core thrust across eight commodities, providing a policy basis for integrating environmental considerations into commodity sector.

Sustainability Certification and Traceability

Across the agricommodity sector, Malaysia has developed mandatory and voluntary domestic certification standards to provide assurance on the sustainability and legality of production. In the palm oil sector, all growers and mills are required to hold certification under the Malaysian Sustainable Palm Oil (MSPO) scheme, which has achieved high national coverage. As of January 2026, 5.21 million hectares of Malaysia's oil palm planted area are MSPO-certified, representing almost 90 per cent coverage. Certification expansion supported through group-based arrangements has significantly increased the inclusion of independent smallholders within certified supply chains, with more than 80 per cent of independent smallholders planted area is MSPO-certified, equivalent to 714,469 hectares. The revised MSPO Standard MS2530:2022 (MSPO 2.0), effective 1 January 2025, introduced more stringent requirements on sustainability, traceability and social safeguards, including prohibiting the conversion of natural forests, protected areas and High Conservation Value (HCV) areas after 31 December 2019. In addition, Malaysia introduced the MSPO Trace in 2019 as a continuous certification monitoring platform to track the MSPO-certified supply chain from growers to customers, and has been updated in 2025 to comply with the MSPO 2022 standards and meet global sustainability standards.

The government is also introducing more sustainability certification standards for other crops including rubber, kenaf, cocoa and pepper. The Malaysian Sustainable Natural Rubber (MSNR) standard was introduced in 2024, setting requirements on no deforestation, land law compliance, environmental and social safeguards, and supply chain traceability. Enforcement began 1 January 2025, making MSNR compliance a condition for holders of Malaysian Rubber Board (MRB) licences and permits. Implementation is supported through MSNR Trace, a digital traceability system integrating licensing and transaction data. Malaysia has exported its first MSNR-compliant rubber to the European Union, and implementation is being extended to Sabah and Sarawak.

In the agrofood sector, the Malaysian Good Agricultural Practices (myGAP) certification scheme has been in place since 2002 as a voluntary national certification framework. It promotes responsible farm-level practices across multiple production categories such as food crops, non-food crops, apiculture and meliponiculture, with standards covering environmental management,

safe input use, traceability, food safety, worker welfare and biosecurity. myGAP is complemented by myOrganic for certified organic production. As of December 2025, a total of 11,234 farms had obtained myGAP certification, covering 39,368.70 hectares, while 133 farms were certified under myOrganic, covering 834.73 hectares.

Land Use and Expansion Controls

Malaysia has put in place a set of policies that limit agricultural and commodity area expansion to prevent encroachment into ESAs and biodiversity-rich landscapes. Since 2019, Malaysia has enforced a policy capping total palm oil cultivated area at 6.5 million hectares, with prohibitions on new cultivation on peatlands and a ban on converting Permanent Forest Reserves to oil palm. In Peninsular Malaysia, a 15-year moratorium on new forest plantation approvals within Permanent Reserved Forests has been in place since December 2021, including plantations using timber-latex clones.

Capacity Building and On-the-Ground Support

At the local level, targeted capacity-building and technical support are being provided to smallholders to promote biodiversity-friendly farming practices. This includes initiatives supported by the Malaysian Palm Oil Green Conservation Foundation (MPOGCF) with the palm oil industry on the application of HCV approaches and integrated pest management using natural predators. These efforts complement national sustainability frameworks and generate practical lessons for wider application.

In addition, a growing number of private sector initiatives actively fund and implement biodiversity conservation within plantation landscapes. This includes establishing wildlife corridors and conservation areas to reconnect fragmented habitats, conducting biodiversity assessments, and implementing landscape-level conservation partnerships. These efforts demonstrate a practical commitment to integrating environmental stewardship into business operations.

Key Indicator:

By 2030, the agrofood and agricommodity sectors are contributing towards positive conservation outcomes

The policy and regulatory foundations are in place and continue to be enhanced in line with global market requirements on sustainable and deforestation-free commodities. Oil palm cultivated area is capped at 6.5 million hectares with peatland and forest reserve conversion prohibited, 5.21 million hectares are MSPO-certified under strengthened standards that prohibit conversion of natural forests and HCV areas, mandatory sustainability certification has been extended to rubber, and biodiversity-friendly practices, including HCV management and integrated pest management are being scaled through smallholder capacity-building programmes.

ACTION 6.2: REDUCE THE IMPACT OF FISHERIES ON MARINE AND COASTAL BIODIVERSITY

This action focuses on recovering fish stocks by reducing pressure on wild fisheries and shifting towards sustainable aquaculture. Available data indicates a positive trajectory. According to FAO and World Bank assessments, 57.9 per cent of assessed fish stocks in Malaysia were within biologically sustainable levels in 2021. This indicates gradual progress toward more sustainable fisheries management.

Policy direction and regulatory reform

The National Agrofood Policy 2021-2030 (NAP 2.0) was updated and identifies sustainability of fisheries resources as a core policy priority, recognising that marine biodiversity and fisheries resources are under significant pressure, with demersal fish biomass reduced to 16 per cent of 1960s levels. The policy sets out strategies to enhance fisheries resource sustainability and strengthen governance, with targets to protect 10 per cent of national marine and coastal areas, implement Fisheries Management Plans, establish Zone B as a trawl-free zone by 2030, enhance fisheries resource and habitat restoration, and strengthen monitoring, control and surveillance.

A major step in strengthening the regulatory framework was the Fisheries (Amendment) Act 2025, which introduced 47 amendments to strengthen fisheries resource governance, management and enforcement, including increasing general penalties from a maximum of RM20,000 to up to RM1 million for offenses committed in marine parks, extending the Act's jurisdiction to all Federal Territories, and granting the Director-General of Fisheries enhanced powers over vessel supplies, contaminated fishing areas and data collection. These measures aim to curb illegal and unsustainable fishing and support the sector's shift towards sustainable fisheries and aquaculture, contributing to long-term sustainability and food security.

To support fish stock recovery, licensing controls have been implemented to restrict the issuance of new fishing licenses across Zone A (traditional and small-scale coastal fisheries), Zone B (near-shore commercial fisheries) and Zone C (offshore commercial fisheries), with replacement-only licensing to support the making Zone B a Trawl-Free Zone by 2030. Malaysia has also ratified the WTO Fisheries Subsidies Agreement to discipline harmful fisheries subsidies globally, supporting sustainable fisheries management, and eliminating IUU fishing.

Combating illegal, unreported and unregulated (IUU) fishing

Malaysia continues to strengthen action against IUU fishing through reinforced governance, enforcement and regional cooperation. Measures are coordinated under the National IUU Main Committee, with intensified patrols by the Malaysian Maritime Enforcement Agency under the National Plan of Action to Prevent, Deter and Eliminate IUU Fishing. At the regional level, Malaysia cooperates through the ASEAN Network for Combating IUU Fishing and the Regional Plan of Action to Prevent, Deter and Eliminate IUU Fishing, focusing on information sharing and joint responses. These efforts are supported by enhanced monitoring, control and surveillance measures such as Vessel Monitoring Systems, strengthened fish landing controls and mandatory logbook requirements to improve traceability and compliance.

Area-based management and habitat restoration measures

Malaysia applies area-based fisheries management and habitat restoration measures to support the recovery of fish stocks. Fisheries Management Plans (FMPs) have been developed by species and area to guide sustainable harvest levels, with 10 FMPs produced nationwide. The Ecosystem Approach to Fisheries Management (EAFM) has been adopted with coastal community participation throughout the process, including capacity-building, development of site-specific EAFM management plans, and the incorporation of EAFM principles into FMPs.

Malaysia has expanded its network of marine protected areas, refugia, fish nursery zones and no-catch zones to protect critical marine habitats and support stock recovery. Artificial reefs, including reef ball modules, are deployed annually in depleted fishing grounds to restore habitats, support fish stock recovery and reduce destructive and illegal practices, including along the coastlines of Terengganu, Sarawak and Sabah.

Community stewardship and livelihood diversification

In several parts of the country, Indigenous Peoples and local communities continue to lead stewardship in fisheries management. In Sabah, the tagal system remains an active community-based approach for managing river fisheries through customary rules on access and harvesting. In Sarawak, community freshwater fish conservation approaches such as tagang are implemented through partnerships between local communities and government agencies. In Peninsular Malaysia, community-based marine initiatives have expanded through local groups and partnerships supporting marine park stewardship and reef monitoring, including programmes facilitated by NGOs such as Reef Check Malaysia.

Key Indicator:

By 2030, dependence on capture fisheries is reduced while production is supported by aquaculture (60% capture fisheries; 40% aquaculture)

The ratio of capture fisheries to aquaculture production stood at 73:27 in 2024, compared to 75:25 in 2015. While capture fisheries production has declined from 1.48 million metric tonnes in 2015 to 1.39 million metric tonnes in 2024, aquaculture production has not grown at the pace needed to close the gap towards the 60:40 target by 2030. The strongest shift was recorded in 2022, when the ratio reached 69:31, driven largely by a surge in seaweed farming, but this has since eased to 73:27. Achieving the target will require sustained acceleration in aquaculture output alongside continued management of capture fisheries pressure.

ACTION 6.3: STRENGTHEN AQUACULTURE PLANNING AND MANAGEMENT

Government policy positions aquaculture as a key sector to meet domestic seafood demand, support export requirements, and reduce pressure on wild fish stocks, with a target to increase aquaculture's share of total fisheries production to 40 per cent by 2030.

Policy framework

NAP 2.0 sets out strategies to develop sustainable aquaculture inputs and value chains, promote safe practices during culturing and post-harvest stages, encourage certification and biosecurity compliance, and develop circular economy approaches. These are supported by measures to expand industrial aquaculture zones, increase productivity through technology adoption, and improve species performance. The Aquaculture Strategic Plan (2021-2030) focuses on restructuring zones, production growth, and sector modernisation.

Regulatory controls and standards

The regulatory framework is guided by the Fisheries (Inland Fisheries Aquaculture) Rules, gazetted by several states including Johor, Melaka, Pulau Pinang, Kelantan and Terengganu, with Negeri Sembilan adopting the rules in 2023. The Department of Fisheries has also developed Standard Operating Procedures and Codes of Good Aquaculture Practices (COP) covering marine shrimp and finfish farming, freshwater prawn and fish hatcheries, pond systems and marine fish hatcheries. The updated ESA framework under the National Coastal Physical Plan 2 classifies industrial aquaculture areas as ESA Rank 3, where only sustainable practices and myGAP certification are permitted. Environmental Impact Assessments (EIAs) are required for aquaculture activities and planned developments, including Aquaculture Industrial Zones (ZIA).

Certification and extension support

The government continues to promote Good Aquaculture Practice (GAqP) and Malaysian Good Agricultural Practices (myGAP) schemes, supported by the SPeKS Aquaculture scheme which provides financial and technical assistance. As of 2025, 950 myGAP certifications had been issued for aquaculture premises across pond culture, cage culture, tank culture, hatcheries and seaweed production.

Green technology and genetic improvement

To reduce environmental footprint, the government encourages adoption of green technologies such as biofloc technology, Recirculating Aquaculture Systems (RAS), and IoT-based monitoring for waste and effluent management. Sector sustainability is further supported through Nucleus Broodstock Centres for selective breeding and Broodstock Multiplication Centres to propagate quality broodstock, including the introduction of resilient species that can withstand environmental and disease challenges.

Key Indicator:

By 2030, the aquaculture sector is contributing towards positive conservation outcomes

At this stage, the governance framework for sustainable aquaculture continues to be strengthened. The Fisheries (Inland Fisheries Aquaculture) Rules have been gazetted in six states, Codes of Good Aquaculture Practices have been developed across major culture systems, 950 myGAP certifications have been issued, and green technology adoption is being promoted to reduce environmental impacts.

ACTION 6.4: STRENGTHEN GENETIC DIVERSITY CONSERVATION OF CULTIVATED PLANTS, FARMED AND DOMESTICATED ANIMALS, AND THEIR WILD RELATIVES

Malaysia operates integrated genetic conservation systems for crops, livestock and selected wildlife, combining ex-situ facilities with in-situ and on-farm conservation aligned with NPBD and CBD commitments. National agrobiodiversity conservation for crops is anchored in MARDI's National Agrofood Genebank network (MyGeneBank and the National Rice Genebank), operating across six stations (Serdang, Jerangau, Seberang Perai, Jelebu, Kemaman and Bintulu) and maintaining 19,351 documented plant accessions, predominantly rice. MARDI reports Malaysia's wider seed bank network holds over 90,000 crop accessions, including rice, traditional vegetables and rare fruits, with priority accessions now duplicated at the Svalbard Global Seed Vault.

Conservation of animal genetic resources is coordinated by the Department of Veterinary Services (DVS) through the National Institute of Veterinary Biodiversity (IBVK), the National Animal Embryo Centre and livestock breeding centres, applying both ex-situ and in-situ approaches. Around 40 breeds of cattle, goats, buffaloes, deer and sheep are maintained in nucleus herds across DVS centres. The Department of Wildlife and National Parks (PERHILITAN) supports these efforts through commercial wildlife breeding programmes engaging communities and private partners to strengthen alternative protein supply and food security. These initiatives have expanded to 104 programmes across various species including porcupines, deer and mouse-deer.

Key Indicator:

By 2030, all gene and seed banks, as well as in-situ farms, have been optimised to safeguard genetic diversity of cultivated plants, farmed and domesticated animals, and their wild relatives.

Malaysia maintains an integrated genetic resource conservation system combining ex-situ and in-situ approaches. The MARDI National Agrofood Genebank network holds 19,351 documented plant accessions, with over 90,000 crop accessions in the wider national seed bank network. Around 40 breeds of livestock are maintained in DVS nucleus herds, while PERHILITAN supports 104 commercial wildlife breeding programmes.

EXAMPLES OF INITIATIVES DRIVING CHANGE

The transition toward sustainable production systems is demonstrated by a range of successful on-the-ground initiatives across Malaysia's commodity, agrofood, and fisheries sectors. The following cases exemplify how multi-stakeholder collaboration, community-based management, and the application of sustainability standards are delivering tangible benefits for biodiversity conservation, ecosystem restoration, and local livelihoods.

(a) Sabah Jurisdictional Approach for Sustainable Palm Oil: The Sabah Jurisdictional Approach for Sustainable Palm Oil (JASPO) initiative is a Sabah State government-led multi-stakeholder initiative with the vision to achieving 100% RSPO and MSPO certification for oil palm across the entire state of Sabah by 2030. The initiative aligns government agencies, supply chain actors and smallholders to apply common sustainability standards to address deforestation, ecosystem protection, land legality and smallholder inclusion. About 25% of Sabah's palm oil area is already

RSPO certified. Sabah is one of the three official RSPO jurisdictional pilots globally, demonstrating how certification principles can be applied beyond individual estates to support large-scale sustainable production and biodiversity outcomes.

(b) Sapagaya Wildlife Corridor, Lahad Datu, Sabah:

The Sapagaya Wildlife Corridor, led by MPOB since 2015, restores habitat connectivity within an oil palm landscape by rehabilitating riparian zones and fragmented forest patches using native tree planting and riverbank restoration. The corridor links plantations to Tabin Wildlife Reserve and forests along the Segama River. Wildlife monitoring has recorded use by orangutans, elephants, pangolins, deer, civets and birds, showing improved movement across production landscapes and the importance of collaboration among neighbouring oil palm growers.

(c) Barn Owl For Smallholders Initiative for Smallholder Oil Palm Farmers (BOSI):

This initiative is spearheaded by the Malaysian Palm Oil Green Conservation Foundation (MPOGCF), in collaboration with Universiti Sains Malaysia's Barn Owl and Rodent Research Group (BORG) to promote sustainable pest control in oil palm plantations. Since 2023, the project has installed 20 artificial nesting boxes in smallholder plantations in Bandar Baharu and Serdang, Kedah. The initiative achieved a 95% occupancy rate of the nesting boxes and an 88.23% hatchling success rate, leading to a reduction in crop damage from 20% to 5% across 200 hectares. Following this success, MPOGCF plans to expand the initiative nationwide to support more smallholder farmers in adopting environmentally friendly agricultural practices.

(d) Lower Kawag Orangutan Habitat Restoration, Ulu Segama, Sabah:

The Lower Kawag project in Ulu Segama Forest Reserve, Lahad Datu, is rehabilitating degraded lowland forest through collaboration between the MPOGCF and the Sabah Forestry Department. Native food tree species are raised in on-site nurseries and planted with maintenance and monitoring to support canopy recovery. Permanent plots track forest growth and wildlife monitoring has recorded orangutan nests, hornbills and small mammals, showing early ecological recovery. Communities from nearby areas supported nursery work and seed collection, linking restoration with local livelihood.

(e) Contribution to the Svalbard Global Seed Vault:

Malaysia has contributed to the Svalbard Global Seed Vault, an international facility that provides secure duplicate storage for seed samples from genebanks worldwide. Malaysia has deposited 5,897 seed samples representing 111 species through contributions from 16 genebanks. In May 2024, MARDI deposited 207 rice accessions. A further 518 accessions covering *Oryza*, *Solanum*, and *Vigna* species were prepared for deposit in February 2025. These deposits provide secure duplicate storage of Malaysia's crop genetic resources outside the country, reducing the risk of permanent genetic loss.

(f) Bukit Leelau Peatland Rehabilitation and Community Initiative, Pahang:

This long-term landscape initiative by IOI Corporation Berhad, in partnership with the Global Environment Centre (GEC), the Pahang State Government, and local Indigenous communities, rehabilitates degraded peat swamp forest adjacent to its oil palm plantation to prevent fires and restore ecosystem function. Since 2019, actions have included building canal blocks to re-wet the peat, planting over 6,000 native trees via a community nursery, and conducting regular patrols. Key outcomes are zero peat fires in the project area for five consecutive years and increased native fish stocks, enhancing community food security. The project also introduces alternative livelihoods like vanilla farming, demonstrating integrated management of production, conservation, and community development.

(g) Community-Based Sustainable Pepper Farming, Batang Ai and Ulu Katibas, Sarawak:

In Batang Ai (Lubok Antu) and Ulu Katibas (Song), community-based pepper farming is implemented through collaboration between the Malaysian Pepper Board, WWF-Malaysia and Ulu Ai Conservancy. Since 2022, the initiative has supported 58 farmers from six longhouses in Batang Ai and 22 farmers from two longhouses in Ulu Katibas. The programme reduces pesticide use, improves productivity and market access, and links farming practices with forest and river conservation.

(h) Sabah Tagal System for Community Fisheries Management:

In Sabah, the traditional tagal fisheries management system, meaning "to prohibit" in the Dusun language, has expanded significantly as a locally led conservation approach to protect river ecosystems and rebuild fish stocks under customary rules. By 2025, the number of tagal sites in Sabah grew to 642 areas covering more than 232 rivers, up from around 40 areas in 2002. The tagal practice has become a social norm in Sabah, supporting fisheries conservation, ecotourism, and local livelihoods.

- (i) **Community-Based Sustainable Livelihoods through Orang Asli Organic Farming:** OA Organik is a community-based enterprise supporting Orang Asli communities in Malaysia through organic farming and fair-trade supply chains. Established by Yayasan Kajian dan Pembangunan Masyarakat (YPKM), it provides training, input, technology and market access to support sustainable agriculture. The model improves household income while promoting environmentally responsible farming practices, helping communities sustain livelihoods while maintaining forest stewardship and supporting broader sustainability outcomes.
- (j) **Community Farming (Kebun Komuniti) by APPGM-SDG:** The All-Party Parliamentary Group Malaysia on Sustainable Development Goals (APPGM-SDG) has implemented Parliamentary community farming initiatives to address food security and promote sustainable agriculture. In 2023, the program successfully executed 198 projects involving 2,153 participants, encompassing various farming methods such as modern farming, animal breeding, organic farming, conventional farming, and mushroom cultivation. Each project received grants of up to RM40,000 for establishment of community farms across the country. A notable example is the “Greening Sekinchan Project” at SMKJ Yoke Kuan in Selangor, which aims to plant 1,750 trees using bokashi composting and organic pesticides.

RAISING THE BAR: MSPO 2.0 AND MALAYSIA'S SUSTAINABLE PALM OIL PRODUCTION

The Malaysian Sustainable Palm Oil (MSPO) Certification Scheme is the main vehicle to operationalise Malaysia's palm oil sustainability commitments into auditable requirements for growers and mills. MSPO has been mandatory for all oil palm growers and mills since 31 December 2019, reinforced by licensing under the Malaysian Palm Oil Board (MPOB) Act and compliance with national and international ratified laws.

In 2022, Malaysia strengthened the scheme through MS 2530:2022 (MSPO 2.0), with full enforcement beginning 1 January 2025. The revised standard introduces enhanced requirements across environmental, social and governance (ESG) areas, including: prohibition of new plantings on land converted from natural forest after 31 December 2019; mandatory application of the High Conservation Value (HCV) approach; greenhouse gas (GHG) reporting; explicit prohibition of forced and trafficked labour; and compulsory Social Impact Assessments (SIA).

A key structural reform under MSPO 2.0 is the expansion of mandatory certification beyond upstream producers to include downstream processing facilities from 2025, and Fresh Fruit Bunch (FFB) dealers from 2026. This closes a critical traceability gap in the “middle mile” of the supply chain and strengthens overall system integrity.



Photo credit: MSPO

Traceability and assurance are reinforced through digital systems, including the e-MSPO platform for certification management and audit oversight. These are being integrated with national systems such as MPOB's Supply Chain Information Management System (SIMS) and GeoSawit under the National Traceability System to support end-to-end supply chain visibility.

To date, approximately 90% of Malaysia's planted area and over 85% of processing facilities are MSPO-certified. The transition to MSPO 2.0 reflects Malaysia's continued commitment to a credible, enforceable sustainability framework that balances environmental protection with the livelihoods of over 300,000 smallholders, while supporting increasing global expectations for traceable and deforestation-free supply chains.

REFORMING FISHERIES GOVERNANCE: THE FISHERIES (AMENDMENT) ACT 2025

The Fisheries Act 1985 governs Malaysia's marine and estuarine fisheries. Between 2020 and 2024, illegal, unreported and unregulated (IUU) fishing caused an estimated RM823 million in losses due to foreign vessel encroachment, habitat destruction, and stock depletion.

In response, Parliament passed the Fisheries (Amendment) Act 2025. This is the most comprehensive reform of the legislation to date. The amendment expands coverage to aquaculture, research, food safety, and all Federal Territories. Penalties have increased substantially: general fines rise from RM20,000 to RM100,000; marine park offences now carry fines up to RM1 million; destructive fishing using explosives or poisons incurs fines of RM250,000 or five years' imprisonment; and offences involving turtles (including possession and sale of their parts) increase from RM5,000 to RM250,000.

The amendment also strengthens governance. The Director-General of Fisheries can prohibit fishing in polluted areas, require data from any person to support planning, and issue binding directives. Marine park revocations now require a replacement area of equivalent size and ecosystem value. The National Advisory Council for Marine Parks is expanded to include environmental agencies, PERHILITAN (the Department of Wildlife and National Parks), universities, research institutes, and NGOs.

New regulatory powers cover community-based and ecosystem-based fisheries management, controls on fish release to prevent non-native species, and regulation of transshipment and landing. These reforms align Malaysia with FAO international standards, reinforcing the country's commitment to sustainable ocean governance.

THE SARAWAK REEF BALL PROJECT: RESTORING MARINE HABITATS AND FISH STOCKS THROUGH ARTIFICIAL REEFS

Sarawak has implemented one of Malaysia's most extensive artificial reef programmes through its Reef Ball Project, which deploys marine-friendly concrete structures along the state's coastline to enhance marine habitat and strengthen fisheries management.

The reef balls serve a dual purpose: they boost marine biodiversity by providing habitat for sea turtles, marine mammals, corals, invertebrates, and fish, while also acting as passive enforcement barriers against illegal trawling.

Managed by the Sarawak Forestry Corporation (SFC) as a state Projek Rakyat initiative, Phase 1 of the project received RM70 million in funding. From 2018 to 2022, approximately 16,800 reef ball units were deployed along 746 km of state waters stretching from Tanjung Datu to Lawas. In July 2023, the US-based Reef Ball Foundation recognised this as the world's longest artificial reef ball barrier. Each reef ball provides about 14 square metres of rough surface area suitable for marine organism colonisation.

Phase 2, with RM30 million allocated from 2023 to 2027, saw an additional 5,000 reef balls deployed in selected coastal waters. In this phase, the structures serve as Fish Aggregating Devices (FADs), diving attractions,

and potential sites for coral mariculture. The focus shifts toward transforming the socio-economic landscape of coastal communities by enhancing livelihoods, promoting ecotourism, and supporting sustainable fisheries.

Early results show improved livelihoods for coastal fishing communities, with artisanal fishermen reporting an increase in daily income of approximately RM400 following deployment. A biodiversity impact study using SCUBA surveys and environmental DNA (eDNA) analysis began in 2024 and is expected to conclude by 2027.



Photo credit: Sarawak Ministry of Natural Resources & Urban Development

(k) Kinabatangan–Segama Estuary Artisanal Fishing:

In Sabah, artisanal fishing communities within and near the Lower Kinabatangan–Segama Wetlands (LKSW) Ramsar site are strengthening sustainable small-scale fisheries through community monitoring and co-management of the site aligned with EAFM. Since 2020, community enumerators, including women and youth, have used digital catch and effort logbooks to track fishing activity, and apply local protocols to curb overfishing and report illegal bottom trawling. Several villages are piloting Locally Managed Marine Areas (LMMAs) to rebuild fish stocks and conserve marine biodiversity, including green turtles and painted terrapins (*Batagur bornensis*). This approach supports place-based implementation of national fisheries and marine conservation by improving data for decision-making, strengthening community rules and supporting gender-inclusive livelihoods.

CHALLENGES AND CONSIDERATIONS FOR FUTURE IMPLEMENTATION

Advancing sustainable production across Malaysia's agricultural and fisheries sectors involves navigating complex trade-offs between conservation goals, market demands, and socio-economic needs. However, to achieve the 2030 target, five specific gaps must be addressed:

- **Balancing land-use for production and conservation** – Despite robust land-use planning systems, agriculture remains inherently land-dependent, creating tension between meeting food and commodity production targets and safeguarding biodiverse ecosystems. The need to improve self-sufficiency in key foods can sometimes conflict with conservation priorities. *Considerations for future implementation: Prioritise productivity and efficiency gains, such as yield improvement for key crops, and promote land-sparing measures like mixed cropping, agroforestry, and urban farming.*
- **Smallholder constraints in sustainability certification** – Smallholders in agriculture and aquaculture face disproportionate barriers to obtaining sustainability certifications, including complex processes, high compliance costs, limited market recognition, and unresolved land tenure

issues. *Considerations for future implementation: Support smallholders through enhanced capacity-building, streamlined group certification schemes, and direct technical assistance. Market actors should develop stronger incentives and premiums for certified smallholder produce.*

- **Enforcement against illegal, unreported and unregulated (IUU) fishing** – IUU fishing remains a critical threat to national food security and fisheries sustainability, undermining stock management and placing compliant fishers at a disadvantage. While the Fisheries (Amendment) Act 2025 provides a stronger legal basis, enforcement is resource-intensive and operationally complex in Malaysia's vast maritime zones. *Considerations for future implementation: Bolster domestic enforcement capacity in monitoring, control, and surveillance assets and technology. Deepen regional cooperation within ASEAN frameworks for coordinated patrols, intelligence sharing, and port controls to disrupt IUU fishing networks.*
- **Long-term viability of community-based management systems** – Traditional systems like tagal and tagang are proven models for sustainable stewardship but face pressures from external market forces, environmental change, and generational shifts. Ensuring these systems are legally recognised, financially resilient, and adaptable is crucial. *Considerations for future implementation: Formalise recognition and support for community-based management areas within national and state policies. Develop livelihood diversification programmes to bolster economic viability and integrate them into conservation and tourism value chains.*
- **Environmental legacy of existing plantations on sensitive soils** – While new conversion of peatlands and forests is prohibited, a significant area of existing agriculture is located on peat soils. Managing these areas to minimise greenhouse gas emissions, subsidence, and fire risk while maintaining productivity is a complex, long-term technical and governance challenge. *Considerations for future implementation: Enhance implementation of the National Action Plan for Peatland, mandating best management practices for water table control and fertilisation on existing plantations.*

Goal 2: Reducing Pressures**NPBD TARGET 7**

BY 2030, THE SYNERGIES BETWEEN TOURISM AND CONSERVATION ARE FULLY REALISED

INTRODUCTION

Malaysia's tourism sector is highly dependent on intact and healthy ecosystems to sustain its premium ecotourism offering, while conservation efforts depend on tourism revenues and the economic incentives it creates for local communities to conserve ecosystems rather than exploit natural resources. To realise this mutual relationship, Malaysia has aligned this target with the national development agenda, integrating sustainability through destination and resource management, green standards, visitor impact management, product promotion, and community participation to attract investment, create jobs, and deliver conservation outcomes at the local level.

CURRENT LEVEL OF PROGRESS TOWARDS THE TARGET

On track to achieve target.

ACTION 7.1: PROMOTE TOURISM DEVELOPMENT THAT SUPPORTS BIODIVERSITY CONSERVATION

Embedding biodiversity conservation into tourism development spans policy integration, financing and destination-level monitoring, ensuring that tourism growth reinforces Malaysia's commitments under the NPBD 2022-2030 and the KMGBF.

Policy integration and framework

The government is strengthening tourism–conservation synergies through an integrated approach emphasising environmental, economic and socio-cultural sustainability. All national and sub-national tourism policies position ecotourism as a key growth sector and promote sustainable and responsible tourism, including the National Tourism Policy (NTP) 2020–2030, Sabah Tourism Master Plan, and Sarawak Tourism Master Plan 2021-2035. MOTAC is currently undertaking the NTP's mid-term review, considering current priorities including sustainability and inclusivity.

Mainstreaming sustainability and conservation is further supported by the Sayangi Malaysia: Strategic Framework for Sustainable Tourism, developed by the Tourism Productivity Nexus (TPN) under the Malaysia Productivity Corporation (MPC). This framework provides practical, industry-ready guidance for tourism businesses, especially MSMEs, accompanied by training modules, assessments, and certification.

At the planning level, spatial planning frameworks continue to restrict excessive development in Environmentally Sensitive Areas (ESAs) such as national parks, state parks, forest reserves and marine parks. At the site level, state park authorities enforce evidence-based management protocols including daily visitor caps, mandatory permit systems, and licensed guide requirements. For instance, Sabah Parks imposes a daily visitor limit of 250 people on Sipadan Island.

Fiscal incentives and instruments for sustainable tourism

Malaysia uses a dedicated fiscal instrument through Tourism Tax to support the tourism ecosystem. Total collections for 2018–2022 were RM308 million. A revenue-sharing mechanism returns a portion of proceeds to state governments to invest in destination upkeep, visitor services, asset interpretation, visitor education, data and statistics, and conservation-linked interventions. Additionally, states including Melaka, Pahang and Selangor have implemented tourism and conservation levies for maintenance and infrastructure upgrades at nature-based sites.

The Federal Government has introduced tax incentives administered by MIDA to promote private investment in sustainable tourism, targeting eco-resorts, eco-parks and green accommodation. As of December 2025, 51 nature-based tourism projects valued at RM2.4 billion have been approved, signalling strong private sector confidence and the potential to create over 4,200 jobs. Under the Thirteenth Malaysia Plan (RMK-13), Special Tourism Investment Zones are being developed in Johor, Melaka, Negeri Sembilan and Sarawak to catalyse tourism products based on natural, cultural and heritage assets.

Sustainable tourism monitoring and measurement

The Government is also focusing on measuring sustainable tourism to support evidence-based destination management. A key initiative is participation in the International Network of Sustainable Tourism Observatories (INSTO) under UN Tourism, which supports destination-level monitoring of environmental and community indicators. Mersing, Johor, is establishing Malaysia's first INSTO-recognised site. Under RMK-13, the Government is encouraging more destinations to join INSTO to institutionalise destination-level monitoring through structured indicators and regular reporting.

Key Indicator:

By 2030, tourism sites / resorts have been certified under the Global Sustainable Tourism Criteria (GSTC) or similar schemes that demonstrates effective biodiversity conservation in tourism

The policy and regulatory foundations are in place and continue to be enhanced in line with global market requirements on sustainable and deforestation-free commodities. Oil palm cultivated area is capped at 6.5 million hectares with peatland and forest reserve conversion prohibited, 5.21 million hectares are MSPO-certified under strengthened standards that prohibit conversion of natural forests and HCV areas, mandatory sustainability certification has been extended to rubber, and biodiversity-friendly practices, including HCV management and integrated pest management are being scaled through smallholder capacity-building programmes.

ACTION 7.2: FACILITATE SUSTAINABLE TOURISM CERTIFICATION

This action increases uptake of recognised sustainability certifications among accommodation providers and tourism sites, especially nature-based services, to link tourism with biodiversity conservation. Several certification schemes have been introduced and facilitated by the government:

- i. Malaysia Tourism Quality Assurance (MyTQA): National accreditation by MOTAC covering seven categories, updated under the National Tourism Policy 2020–2030. As of December 2025, 141 products are accredited, including 23 under Nature, Adventure & Eco-Tourism.
- ii. Malaysia Tourism Excellence (MaTEx): Industry-driven programme for MSMEs covering travel agencies, adventure operators, homestays, and aquatic sports. 219 companies certified between 2019 and 2025.
- iii. MOTAC Green Hotel Standard: Adapted from ASEAN Green Hotel Standard, covering waste, energy, water, and pollution. 19 premises certified as of December 2025.

Malaysia also promotes international schemes including ASEAN Green Hotel Award, ASEAN Ecotourism Standard, and GSTC-accredited programmes. As of December 2025, 20 sites hold GSTC-linked accreditation, and 8 hotels have ASEAN Green Hotel or Sustainable Tourism Awards.

At the industry level, the ESG Certification for Malaysian Hotels and Resorts launched in June 2024 through a partnership between the Malaysian Association of Hotels (MAH), SGS Malaysia, and Saimatrix Integrated, endorsed by MOTAC. It provides a measurable ESG checklist for hotels.

To empower tour guides, the Nature Guide Certification Programme (Green Badge) remains MOTAC's official licensing pathway, covering Malim Gunung, scuba diving, and geopark guides. Recognised under Malaysia's Technical and Vocational Education and Training (TVET) skills system (Sijil Kemahiran Malaysia Level 2), the programme trains guides in visitor impact reduction, safety, and conservation awareness, creating ecotourism livelihoods for local communities. The programme is supported by tour guide associations including the Malaysian Tourist Guides Council, the Sarawak Tourist Guides Association, Sabah Tourist Guides Association, and the Sabah Native Registered Tour Guides Association.

Key Indicator:

By 2030, all guides for nature-based attractions are certified through accredited schemes

As of January 2026, MOTAC's licensing system records a total of 383 active Nature Guides in Malaysia with Green Badge operating in major ecotourism sites. The certification requires renewal after two years. Through structured training in interpretation, minimum-impact techniques, safety and biodiversity knowledge, licensed Nature Guides help improve visitor behaviour and experience quality in sensitive ecosystems, contributing to more sustainable nature-based tourism and stronger destination management outcomes.

ACTION 7.3: PROMOTE COMMUNITY-BASED TOURISM AND VOLUNTOURISM

This action focuses on promoting community-based tourism (CBT) and conservation-linked voluntourism which is recognised by the government as pathways for inclusive development and stewardship, particularly for communities living in and around nature tourism sites. In Malaysia, CBT implementation is context-specific across regions and involves collaboration between government agencies and non-governmental organisations (NGOs) [see examples], with Peninsular Malaysia often linking CBT to forest and park tourism, Sabah frequently driven by community cooperatives within conservation landscapes, and Sarawak operating through longhouse and village-based tourism clusters that combine cultural and natural heritage under local ownership.

The Malaysia Homestay Experience Programme (PPHM) continues to provide a formal platform for community participation in CBT. As of 31 December 2025, PPHM comprises 251 clusters, 594 villages, 3,514 operators/houses, and 51 cooperatives. Assessing how much of PPHM is specifically linked to ecotourism is challenging, as existing data are not disaggregated by homestay type. However, existing data provides a useful proxy in assessing the impact of PPHM. During the same period, PPHM recorded close to one million tourist arrivals and generated RM62.4 million in income - the highest on record, compared to around 459,000 tourists and approximately RM30 million in revenue pre-pandemic. Faster growth in revenue than visitor numbers since COVID-19 suggests higher spending per visitor and stronger income potential for rural communities. These achievements demonstrate the strong potential of CBT to deliver tangible socio-economic benefits on a scale, while creating stronger local incentives to conserve the natural and cultural assets that form the foundation of the visitor experience. Under RMK-13, MOTAC is undertaking initiatives to transform PPHM into a more interactive, high-quality, and competitive CBT product through rebranding, repositioning PPHM as a flagship CBT offering, and redesigning experiences to encourage deeper and more meaningful engagement between visitors and local communities.

Beyond homestays, communities are increasingly integrated as essential service providers, including certified nature guides, boat operators and cultural interpreters, particularly in corridors adjacent to protected areas. This has created direct economic incentives for communities, with documented cases (see Section 5) showing tourism revenue used to fund local conservation actions and reducing reliance on extractive livelihoods, while also providing additional income opportunities, especially for youth.

Key Indicator:

By 2030, the number of IPLCs actively participating in tourism development has increased by 30% compared to 2024 levels

Community-based tourism (CBT) and community participation in tourism are expanding across Malaysia through government initiatives such as the Malaysia Homestay Experience Programme, as well as initiatives supported by non-governmental organisations (NGOs), civil society organisations (CSOs), and the private sector. Communities are increasingly engaged as certified guides, boat operators, and cultural interpreters in areas adjacent to protected areas, creating direct economic incentives that support conservation and reduce reliance on extractive livelihoods.

EXAMPLES OF INITIATIVES DRIVING CHANGE

Across Malaysia, a variety of destination-level initiatives demonstrate the effective integration of tourism development with biodiversity conservation and community benefit. These examples highlight practical models, from community cooperatives and private-sector stewardship to science-based marine management, that balance visitor experience with environmental protection and create tangible economic incentives for conservation.

(a) Sarawak National Homestay Programme:

Sarawak has 65 registered homestay clusters linked to natural and cultural landscapes. In 2024, homestays hosted about 56,000 visitors and generated RM6.7 million in revenue, supporting household incomes and local supply chains. Several homestays have achieved ASEAN Homestay Standard recognition, reflecting progress in community-based sustainable tourism.

(b) Gunung Tebu Community Ecotourism, Terengganu:

Nestled adjacent to the Gunung Tebu Forest Reserve, the community established a sustainable ecotourism model to protect their prized waterfall and surrounding habitat from unregulated visitors. They formalised guided trekking activities and trained local residents as certified nature guides. This initiative has directly linked conservation to local prosperity. Managed access and guided tours have generated over RM 380,000 in community revenue. The funds support local families and reinvest in habitat protection, demonstrating a powerful, replicable model where forest stewardship becomes a viable livelihood.

(c) Pulau Tengah Conservation Initiative, Johor:

Tengah Island Conservation manages marine and island biodiversity through research, protection and volunteer tourism. Since 2015, it has protected and released over 30,000 turtle hatchlings, conducted reef and seagrass monitoring, and removed marine debris. Conservation is integrated with education and low-impact tourism that aligns visitor activity with biodiversity protection.

(d) Wang Kelian Sustainable Destination Management, Perlis:

Wang Kelian is managed as a nature-based tourism destination within the Nakawan Range, promoting guided visits and low-impact activities around its limestone hills and forest biodiversity. Destination management efforts emphasise visitor control, community participation and site planning to balance tourism use with conservation and local livelihood benefits.

- (e) **Green Fins and Reef Check Malaysia:** Marine Tourism and Coral Protection: Reef Check Malaysia, as National Coordinator for Green Fins, is actively promoting environmentally responsible diving and snorkelling. As of 2025, 36 operators in sites such as Tioman, Perhentian, Redang and Semporna apply the Green Fins Code of Conduct, reducing anchor damage and harmful diver behaviour. More than 150 guides have been certified through Eco-Friendly Snorkelling Guide training, strengthening industry stewardship of coral reefs.
- (f) **Setiu Wetlands Discovery (EcoSwed):** Setiu Wetlands Discovery, established in 2018, is a community-led conservation and ecotourism initiative in Setiu, Terengganu that links wetland protection with sustainable local livelihoods. Operating as a social enterprise and NGO, it develops nature-based tourism, cultural experiences and environmental education that create income opportunities for local communities. Flagship community projects include Rumah Tok @ Setiu Wetlands as a cultural visitor hub, Mek Flora & Awang Kraf supporting local wetland-based crafts, and the Wetland School of Setiu which promotes conservation awareness among youth.
- (g) **KOPEL Kinabatangan, Sabah:** Koperasi Pelancongan Mukim Batu Puteh Kinabatangan (KOPEL) is a community-owned ecotourism cooperative operating along the Lower Kinabatangan floodplain. It manages wildlife cruises, lodges and homestays, with revenue reinvested into community development and conservation education. The model links tourism income to river and forest protection and is widely recognised as a leading community-based tourism example.
- (h) **Sukau Rainforest Lodge, Sabah:** Sukau Rainforest Lodge operates within a wildlife corridor in Kinabatangan using low-impact design, rainwater harvesting and visitor guidelines for wildlife viewing. It employs many local Orang Sungai and supports community and conservation activities. Beyond employment, the partnership co-created a shared stewardship model. A portion of revenue funds a community-managed corridor restoration fund. Locals are trained as specialist “wildlife spotter-guides,” adding unique value to the guest experience while monitoring key species. In 2025, it received regional recognition for community benefit and ecotourism promotion.

FRASER'S HILL INTERNATIONAL BIRD RACE: MALAYSIA'S LONGEST-RUNNING AVITOURISM EVENT

The Fraser's Hill International Bird Race (FHIBR) was inaugurated in 1988 by the Selangor Bird Group of the Malaysian Nature Society (MNS) and the Fraser's Hill Development Corporation, starting with just five teams. Now in its 36th year, it has grown into Malaysia's oldest and most established birdwatching event, drawing participants from across the region and internationally.

Divided into Advanced, Novice, and Student categories, participants record as many bird species as possible within Fraser's Hill over 24 hours. The 2,804-hectare montane forest supports over 299 recorded bird species, representing 88 percent of Peninsular Malaysia's highland birds, making it one of Southeast Asia's richest avian destinations. The area has been proposed as a state park due to its conservation significance.

Beyond competition, FHIBR functions as a conservation and community platform. MNS runs conservation booths, school outreach, and public education activities alongside the race, while government agencies including PERHILITAN participate with wildlife exhibits. Local community groups contribute through food and cultural stalls, integrating conservation with local economic participation.

The event promotes Fraser's Hill as a bird sanctuary, demonstrating how a well-organised, multi-stakeholder avitourism event can sustain conservation awareness and destination economies over decades. FHIBR is featured in the Tourism Malaysia calendar and supported by Tourism Pahang as a national model for biodiversity-linked tourism.



Photo credit: Tourism Pahang

- (i) **Sustainable Tourism Malaysia:** Sustainable Tourism Malaysia, co-chaired by The Habitat Foundation and Tengah Island Conservation, mobilises a network of partners to build capacity, provide policy input, and promote sustainable tourism practices across multiple Malaysian states. STM's initiatives support community engagement, enhance local livelihoods and strengthen stewardship of natural and cultural assets.
- (j) **Persatuan Sahabat Alam Tampik:** Persatuan Sahabat Alam Tampik (PSATJB) is a community-based environmental association in Kampung Janda Baik, Pahang. Supported by FRIM and other government agencies, the association was formed to manage eco-tourism activities in Ulu Tampik Forest Reserve under a joint forest management model. It empowers local villagers through training in nature guiding, forest conservation and sustainable tourism practices. The association oversees visitor control, eco-tourism packages, permit systems and forest protection efforts, ensuring both environmental sustainability and community income generation.

CHALLENGES AND CONSIDERATIONS FOR FUTURE IMPLEMENTATION

The path towards fully realising synergies between tourism and conservation requires navigating inherent tensions between sectoral growth and ecological limits. However, to achieve the 2030 target, five specific gaps must be addressed:

- **Balancing tourism growth with ecological integrity** – The tourism sector's ambitious growth targets, such as those for Visit Malaysia Year 2026, must be balanced with protecting the ecological integrity of sensitive, biodiversity-rich destinations. Rising demand for ecotourism, if unmanaged, risks degrading the very natural assets that attract visitors. *Considerations for future implementation: Promote a high-value, lower-volume tourism model at ecologically sensitive sites. Enforce visitor caps and permit systems at flagship sites, actively diversify and market alternative ecotourism destinations to ease pressure, and strengthen visitor awareness campaigns.*
- **Overcoming barriers to sustainability certification for small operators** – While international and regional sustainability standards provide clear benchmarks, uptake is uneven among businesses. Small-scale tourism operators, including many community-based enterprises, face barriers related to high costs, complex administrative requirements, and limited technical capacity. *Considerations for future implementation: Provide direct support for operators to achieve national standards such*

SUNGAI MENYALA ECO-FOREST PARK, PORT DICKSON

The Sungai Menyala Forest Reserve in Negeri Sembilan is one of the last remaining and largest patches of lowland dipterocarp forest on the west coast of Peninsular Malaysia, covering approximately 1,280 hectares near Port Dickson. Approximately 15% of its area is freshwater swamp forest, contributing significantly to its biodiversity. Notable features include a 300-year-old hollow tree and a 45-metre Jelutong tree, believed to be among the tallest in Malaysia. The name Sungai Menyala traces its origins to the Temuan Orang Asli community of Kampung Bukit Kepong, derived from the phrase “menyalo ikan,” referring to traditional fishing practices once carried out along the river.

The reserve was designated as an eco-edutourism destination by the Negeri Sembilan Forestry Department and opened to the public in 2010. In August 2020, it was rebranded as Sungai Menyala PD Forest following a state-level launch officiated by the Menteri Besar. Infrastructure upgrades supported by the Ecological Fiscal Transfer (EFT) mechanism have contributed to a significant increase in visitation, from 5,380 visitors in 2021 to 15,700 in 2024.

The park offers nature-based activities including jungle trekking along an 18 km trail network, a 23 km mountain bike track with seven checkpoints, archery, and All-Terrain Vehicle (ATV) experiences. Educational facilities include a lecture hall, a museum featuring Orang Asli

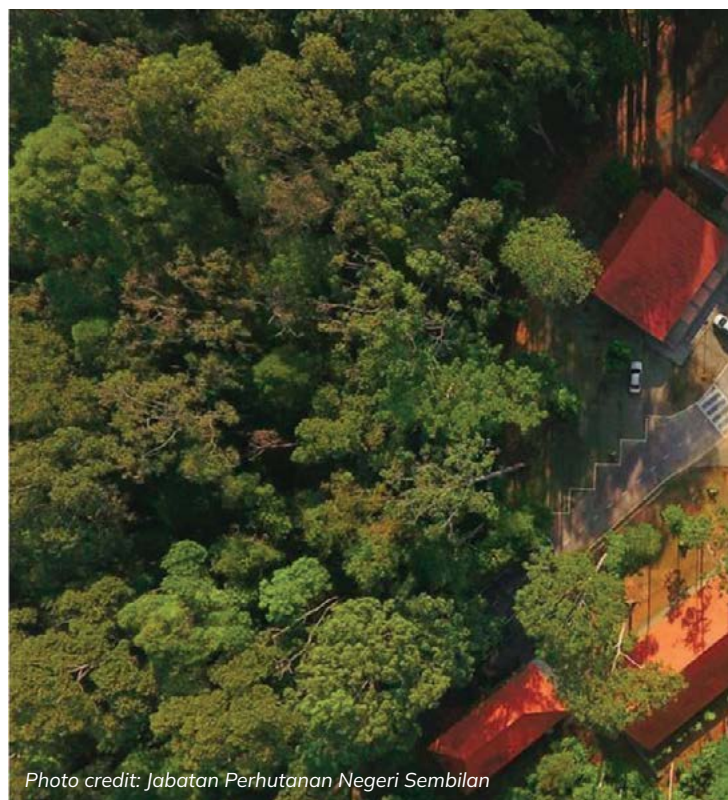


Photo credit: Jabatan Perhutanan Negeri Sembilan

culture and forestry specimens, and accommodation supporting research, school programmes, and corporate activities.

The park has also gained national recognition. In 2023, it received three Malaysia Book of Records titles: Largest Astronomy Square in a Reserved Forest (14,208 sq ft), Largest Sundial in a Reserved Forest (200 cm diameter), and Oldest Monitored Forest Ecological Plot (established 1947). In 2024, it received the Malaysia Tourism Quality Assurance (MyTQA) certification and the MyPark Award.

Photo credit: Jabatan Perhutanan Negeri Sembilan



as MyTQA and MOTAC Green Hotel Standard. Develop targeted training, technical assistance, and simplified group certification schemes. The Strategic Framework for Sustainable Tourism in Malaysia will guide industry players in improving sustainability practices.

- Long-term viability of community-based initiatives** – Many community-based tourism and homestay initiatives struggle with long-term viability once initial external project support ends. Challenges include equitable benefit-sharing, preventing cultural commodification, managing youth outmigration, and developing robust governance and business skills. *Considerations for future implementation: Strengthen the institutional foundation of community tourism by encouraging formal business structures like cooperatives or social enterprises for registered programmes. Provide continuous capacity-building to build resilient, community-owned tourism models.*
- Building sector resilience to economic and environmental shocks** – The tourism sector, particularly nature-based and community tourism, remains highly vulnerable to external shocks such as pandemics, climate change impacts (e.g., coral bleaching, forest degradation), and pollution events. This threatens both conservation incentives and local livelihoods, as communities may revert to extractive practices when tourism income collapses. *Considerations for future implementation: Integrate tourism planning into national and local climate adaptation strategies. Promote livelihood diversification for tourism-dependent communities. Invest in ecosystem restoration and climate-resilient infrastructure at key destinations to safeguard the natural capital underpinning the sector.*
- Developing a professional and skilled sustainable tourism workforce** – Long-term success depends on a skilled workforce of guides, interpreters, and managers who can deliver high-quality, conservation-positive visitor experiences. However, creating viable career pathways, ensuring fair wages, and providing continuous professional development beyond basic certification remain challenges, leading to high turnover and variable service quality. *Considerations for future implementation: Formalise career progression pathways and advanced specialty training (e.g., wildlife interpretation, climate change communication, first aid) for certified guides and community stewards. Develop public-private partnerships to fund these programmes and improve wage standards, making sustainable tourism a more attractive long-term career.*

Goal 3: Safeguarding Ecosystems**TARGET 8**

BY 2030, AT LEAST 20% OF TERRESTRIAL AREAS AND INLAND WATERS, AND 10% OF COASTAL AND MARINE AREAS ARE CONSERVED THROUGH AN EFFECTIVELY MANAGED AND ECOLOGICALLY REPRESENTATIVE SYSTEM OF PROTECTED AREAS AND OECMS

INTRODUCTION

Malaysia's expansion of protected areas is driven by a fundamental shift from quantity to quality. While current coverage stands at 14.83% of terrestrial areas and 5.34% of marine areas, the national strategy now prioritises ecological representativeness and management effectiveness over simple area targets. State leadership, particularly in Sabah and Sarawak, has been the engine of progress. Sabah aims for 30% terrestrial protection, while Sarawak has gazetted over 2.1 million hectares of Totally Protected Areas. At the federal level, the Protected Area Master List (2023) and the emerging OECM framework are creating the institutional architecture to recognise diverse governance models, from community-conserved areas to private conservation zones. The challenge ahead is not just adding hectares, but ensuring that every conserved area delivers measurable biodiversity outcomes through effective management.

CURRENT LEVEL OF PROGRESS TOWARDS THE TARGET

Progress made but at an insufficient rate.

ACTION 8.1: STRENGTHEN AND STREAMLINE GOVERNANCE OF OUR PROTECTED AREAS

Malaysia has strengthened protected area governance through improved policy coherence, legal reform, and institutional coordination. A key milestone is the finalisation of the Protected Area (PA) Master List in 2023, which consolidates official data into a single national reference baseline. The national definition of "protected area" has been aligned with CBD and UNFCCC reporting frameworks, ensuring consistency across biodiversity and climate reporting.

Governance has been further strengthened through the proposed amendment to the National Framework for Protected Areas (NFPA), tabled to the National Biodiversity Council in May 2024. This provides unified policy direction for protected areas, OECMs, and management effectiveness across jurisdictions, supporting Malaysia's commitment to maintaining at least 50% of its land area under forest cover.

Legal reforms have played a critical role. Amendments to the National Forestry Act (gazetted September 2022) reinforce conservation safeguards. State-level implementation is progressing, with Perlis having fully adopted the amended provisions. Terrestrial protection is further strengthened through gazettement of protection forests within Permanent Reserved Forests (Peninsular), Totally Protected Areas (Sarawak), Protection Forest Reserves (Sabah), and Water Catchment Forests. Complementary measures include a moratorium on forest plantation expansion and a prohibition on mining within forest reserves and Environmentally Sensitive Areas (ESAs), supporting long-term forest integrity.

The amended Fisheries Act 1985 received Royal Assent on 16 December 2025. It introduces a strengthened legal framework under revised Part IX for the establishment, governance, and management of marine parks and reserves. The amendments provide stricter penalties for offences within marine protected areas and require that any degazettement be accompanied by a replacement area of equivalent size and ecological value.

The MyMPA Study (2025) provides a national, science-based framework for implementing Large Marine Managed Areas, enabling seascape-scale conservation. A major structural advance is the development of the OECMs framework, which expands conservation tools in Malaysia. Developed through national workshops in November 2024 and June 2025, the framework establishes a common methodology for site identification, assessment, and reporting.

Institutional strengthening is supported by improved data systems. The Malaysian Fisheries Resource Management System (MyFiRSt), launched in 2025, is a centralised fisheries database managed by the Department of Fisheries (DOF). It supports science-based stock assessment, sustainable fisheries management, and improved enforcement, reducing pressures on marine biodiversity.



Key Indicator:**By 2030, The National Framework for Protected Areas Has Been Established And Operationalised**

Malaysia has made significant progress towards operationalising the National Framework for Protected Areas (NFPA). The proposed NFPA amendment, tabled to the National Biodiversity Council in May 2024, provides a unified policy framework integrating protected areas, OECMs, and management effectiveness across federal and state jurisdictions. Enabling systems are already in place, including the Protected Area Master List (2023) as a consolidated national baseline aligned with CBD definitions, and science-based tools such as the MyMPA Study, the national OECMs framework, and the Malaysian Fisheries Resource Management System (MyFiRSt). Malaysia has moved from framework development to early-stage implementation. Sustained efforts to standardise reporting, strengthen cross-sectoral coordination, and integrate federal and state systems will be essential for full operationalisation by 2030.

ACTION 8.2: ENHANCE MANAGEMENT EFFECTIVENESS OF OUR PROTECTED AREAS

Malaysia has shifted from designating protected areas to ensuring effective, performance-based management. This commitment moves beyond paper parks through structured national frameworks, targeted on-the-ground programmes, and supportive legal and financial enablers implemented across all states.

Management effectiveness in tiger conservation areas has been strengthened through Conservation Assured | Tiger Standards (CA|TS). At the national level, the PERHILITAN-led National CA|TS Committee institutionalises performance-based standards for the Malayan tiger, making Malaysia the fifth country to form such a body. The Royal Belum State Park is the first CA|TS site in Malaysia and Southeast Asia.

Complementing this, 16 Management Effectiveness Tracking Tool (METT) assessments were conducted across Peninsular Malaysia's protected areas between 2023 and 2025, providing evidence on governance, enforcement, and management capacity: Taman Negara Pahang, Taman Negara Terengganu, Taman Negara Kelantan, Tasik Bera Ramsar Site, Tengku Hassan Wildlife Reserve, Taman Negara Pulau Pinang, Pulau Tioman Wildlife Reserve, Tanjung Tuan Wildlife Reserve, Sungkai Wildlife Reserve, Sungai Dusun Wildlife Reserve, Al-Sultan Abdullah Royal Tiger Reserve, Rompin State Park, Tasik Chini Biosphere

Reserve, Gunung Machinchang Forest Reserve, Gunung Jerai State Park, and Ulu Muda State Park. At the state level, targeted interventions are improving operational effectiveness. For example, Terengganu has revitalised the Kenyir Rangers under the State Park Management Council, strengthening biodiversity monitoring, enforcement, and patrol systems.

Management effectiveness is further anchored in forward-looking plans. Key examples include the Endau Rompin Johor National Park Management Plan (2017–2026), Tengku Hassan Wildlife Reserve Management Plan (2023–2032), and plans for Bako and Lambir Hills National Parks (2024–2033). In Sarawak, over half (30 of 56) of Totally Protected Areas now operate under approved management plans, standardising zoning, enforcement, and visitor management. This approach extends to marine ecosystems, with Sustainable Management Plans developed for Pulau Kapas Marine Park (2025–2035), Melaka Marine Parks (2025–2030), and Labuan Marine Park (2023).

Legal and institutional enablers further support long-term effectiveness. Sabah's Parks Enactment (Amendment) 2024 enables multi-use parks and the appointment of Honorary Park Rangers, expanding stewardship and enforcement capacity. At the landscape scale, the 2025 designation of the Kinabatangan Biosphere Reserve introduces an integrated zonation framework linking protected areas, community lands, and potential OECMs.

Collaborative management approaches are expanding, with greater involvement of NGOs, the private sector, and local communities in conservation delivery. These partnerships are complemented by growing international recognition as elaborated under Action 8.5.

Key Indicator:**By 2030, All Protected Areas Are Effectively Managed and Regularly Assessed**

Formal nationwide measurement of management effectiveness is still being consolidated. However, substantial progress has been made in establishing the systems, tools, and institutional arrangements required to achieve this target. Key enabling actions include the adoption of CA|TS as a national standard for flagship conservation areas, the completion of 16 METT assessments across Peninsular Malaysia, and the increasing coverage of protected areas under formal management plans – particularly in Sarawak, where more than half of Totally Protected Areas are now guided by approved plans. These efforts demonstrate a clear transition towards systematic, performance-based management and position Malaysia strongly to achieve this indicator by 2030.

ACTION 8.3: EXPAND THE EXTENT AND ECOLOGICAL REPRESENTATIVENESS OF OUR PROTECTED AREA NETWORK

The expansion of Malaysia's protected area network has been driven primarily by strong state-level leadership, resulting in significant gains in coverage and improved ecological representation. Current coverage remains at 14.83% for terrestrial and inland waters and 5.34% for marine areas, indicating the need for accelerated expansion, particularly in marine ecosystems.

Sabah has positioned itself as a national leader by pursuing and exceeding ambitious benchmarks. 27.3% of its land area is now under gazetted protected areas, and State Cabinet approval has been secured to meet its higher state target of 30%. In the marine realm, Sabah has announced plans to nearly double its MPA coverage from a current baseline of approximately 7.4%, building on existing marine parks and strengthening protection across key seascapes.

Sarawak has made a substantial contribution to national progress, with approximately 2.1 million hectares of Totally Protected Areas gazetted as of 2025. This expansion is characterised by strategic ecological intent, including the protection of underrepresented ecosystems such as riparian corridors and mangrove-coastal interfaces through new designations like Tutoh–Apo and Bako National Parks. Connectivity has also been enhanced through extensions to existing protected areas, including Batang Ai National Park, while new marine protection opportunities are being explored in Puteh. Sarawak is in the process of identifying other potential protected areas such as special area gazetted under the Park and Green Ordinance, 1993, conservation area under the Natural Resource and Environment Board Ordinance and water catchment area gazetted under the Water Ordinance 2004.

As of 2024, the Peninsular retains 4,853,170 hectares of Permanent Reserved Forest (PRF), equivalent to 84.8% of its total forested land area. Within the PRF areas, 1,977,181 hectares (40.7%) are designated as protection forests and under 11 functional classes. These protection forest classes – such as Water Catchment Forests, Virgin Jungle Reserves, Wildlife Forest Sanctuaries, Forest State Parks, and Research Forests – provide legal and functional protection comparable to protected areas. Collectively, they constitute a major pillar of the Peninsular's terrestrial protected area system.

Progress in Peninsula includes targeted statutory additions and the exploration of innovative recognition mechanisms. Additional progress includes the gazetting of Perlis State Park to safeguard limestone karst ecosystems. Selected forest reserves

have received state-level “Royal Forest” (Hutan Diraja) proclamations (e.g., in Selangor and Perak), elevating their political and symbolic importance to support conservation stewardship.

An initiative led by the Department of Fisheries Malaysia identified seven potential Ecologically or Biologically Significant Marine Areas (EBSAs) through a dedicated national workshop in August 2025, providing a science-based foundation for future marine conservation planning. Science-based planning tools are increasingly informing expansion efforts. The MyMPA Study (2025) provides a national framework for Large Marine Managed Areas, supporting ecosystem-based management and marine conservation planning.

Key Indicator:

By 2030, At Least 20% Of Terrestrial Areas and 10% of Marine Areas Are Conserved

Current coverage stands at 14.83% for terrestrial and inland waters and 5.34% for marine areas, indicating steady progress but highlighting a significant gap, particularly in marine ecosystems. Progress is being driven by ambitious state-level targets, large-scale gazetting efforts in Sarawak, and expansion strategies in Sabah. Science-based initiatives such as MyMPA and EBSA identification provide a strong foundation for accelerating expansion. Achieving this indicator will require prioritised action in underrepresented ecosystems, particularly offshore marine areas and ecological corridors.

ACTION 8.4: IDENTIFY AND RECOGNISE OTHER EFFECTIVE AREA-BASED CONSERVATION MEASURES

Malaysia has made important progress in advancing Other Effective Area-Based Conservation Measures (OECMs), transitioning from conceptual recognition to operationalisation. A national OECM framework has been developed through workshops in 2024 and 2025, establishing a common methodology for site identification, assessment, and reporting.

This builds on earlier pilot initiatives, including the Nationally Coordinated OECMs Pilot Project (2020–2022), which demonstrated OECM applicability across multiple governance settings, with six sites meeting international criteria.

Implementation is progressing across regions. In Peninsular Malaysia, potential OECMs include private conservation areas such as Rimbun Dahan and The Habitat Penang, high conservation value areas within plantations, research stations, and water catchment areas managed by Lembaga Urus Air Selangor (LUAS).

In Sarawak, OECM potential is being explored through community engagement, including community-managed areas and green belts within plantations. In Sabah, at least seven potential marine OECM sites have been identified across Darvel Bay, Lahad Datu, and Kudat, supported by collaborations involving the Sabah Biodiversity Centre, WWF-Malaysia, Forever Sabah, Reef Check, and Project Ocean Five. These are complemented by fisheries-based spatial measures, including closures and no-take zones in areas critical for sharks and rays. These potential OECM sites are driven by Indigenous and local community stewardship, with communities leading participatory mapping, fisheries management, and site-level monitoring. The Kuamut Rainforest Conservation Project similarly applies long-term conservation agreements and FPIC-based community engagement to secure over 83,000 hectares outside the state-managed protected area system.

Community-conserved areas are emerging as a key component of the OECM landscape. Initiatives such as the Ulu Sungai Menyang project demonstrate how participatory mapping and community engagement strengthen local stewardship while contributing to long-term conservation outcomes.

Key Indicator:

By 2030, OECMs Are Formally Recognised and Contributing to National Conservation Targets

Malaysia has established a strong foundation through the development of a national framework and pilot assessments. Multiple potential sites have been identified across terrestrial and marine landscapes, including community-managed areas and fisheries-based spatial measures. Advancing this indicator will depend on formalising recognition pathways, standardising criteria, and integrating OECMs into national reporting systems. Current progress indicates strong potential for OECMs to significantly contribute to Malaysia's overall conservation targets.

ACTION 8.5: INCREASE AREAS OF GLOBAL IMPORTANCE FOR BIODIVERSITY CONSERVATION

Malaysia has strengthened its position in global biodiversity conservation through increased recognition of sites under international and regional frameworks. A growing number of protected areas have received international designations, including ASEAN Heritage Parks, Ramsar sites, UNESCO Biosphere Reserves, UNESCO World Heritage Sites, and IUCN Green List sites. These recognitions enhance both the visibility and management standards of conservation areas, serving as important benchmarks of quality and effectiveness.

Malaysia currently hosts 55 Important Bird and Biodiversity Areas (IBAs) and multiple Important Shark and Ray Areas (ISRAs), highlighting critical habitats across terrestrial and marine ecosystems. The country has also achieved significant milestones under the UNESCO Man and the Biosphere Programme, with biosphere reserves established in Penang Hill, Tasik Chini, Crocker Range, and Kinabatangan.

Efforts are ongoing to further expand international recognition. Several sites have been identified for nomination under various frameworks, including ASEAN Heritage Parks, Ramsar sites, UNESCO Global Geoparks, and UNESCO World Heritage Sites – which have increasingly reinforced both visibility and management standards, functioning as external quality signals that complement national reporting.

- ASEAN Heritage Parks: Tengku Hassan Wildlife Reserve, Bako National Park, and Lambir Hills National Park.
- CAJTS: Royal Belum State Park in Perak was accredited as the first site in Malaysia and Southeast Asia.
- Important Bird and Biodiversity Areas (IBAs): Malaysia hosts 55 IBAs identified under BirdLife International criteria, encompassing key habitats from coastal flyways to interior forests. While many overlap with formal protected areas, others highlight critical conservation gaps. <https://datazone.birdlife.org/country/factsheet/malaysia#Sites>
- Important Shark and Ray Areas (ISRAs) sites: Beluran, East Tun Mustapha, Layang-Layang, Lankayan, Si Amil, and Sipadan (Sabah); Mukah (Sarawak), and Chagar Hutang Bay, Kuala Pahang, and West Tioman (Peninsular).
- IUCN Green List: Sugud Islands Marine Conservation Area (Sabah) is the first site to be registered in Malaysia, followed by Pin Supu FR (Sabah).
- Ramsar: Tasek Bera (Pahang), Tanjung Piai (Johor), Pulau Kukup (Johor), Sungai Pulai (Johor), Kuching Wetlands National Park (Sarawak), Lower Kinabatangan-Segama Wetlands (Sabah) and Kota Kinabalu Wetland (Sabah)
- UNESCO Global Geopark: Kinabalu Park (Sabah), contributing to Sabah's "Triple Crown" conservation status.
- UNESCO Man and the Biosphere (MAB) Program: Penang Hill Biosphere Reserve (Penang) (designated in 2021), Tasik Chini Biosphere Reserve (Pahang) (designation maintained in 2023), Crocker Range Biosphere Reserve (Sabah) (designation maintained in 2025), Kinabatangan Biosphere Reserve (Sabah) (designated in 2025).

- UNESCO World Heritage Sites: FRIM (Peninsular) and Niah National Park (Sarawak).

There are ongoing efforts where potential sites have been identified:

- ASEAN Heritage Park: 4 candidate sites (Penang National Park, Kuala Lawas, Kuala Trusan and Limbang Mangroves)
- CA|TS - Taman Negara (across Perak, Terengganu and Kelantan states) and four forest reserves in Perak (Amanjaya, Banding, Gerik and Temengor)
- EAAFP flyway network sites: Teluk Air Tawar-Kuala Muda (Penang), North-Central Selangor Coast (Selangor)
- IUCN Green List: Sugud Islands Marine Conservation Area (Sabah) is the first site to be registered in Malaysia, followed by Pin Supu FR (Sabah).
- Ramsar: Klias Peninsula Wetland (Sabah), Loagan Bunut National Park (Sarawak) and Maludam National Park (Sarawak)
- UNESCO Global Geopark: Lenggong Geopark (Perak), Batu Caves (Selangor), Sarawak Delta (Sarawak)
- UNESCO World Heritage Site: Danum Valley–Maliau Basin–Imbak Canyon (DaMAI)

These efforts are supported by active engagement with state governments, research institutions, and other stakeholders, as well as ongoing knowledge exchange and collaboration at regional and global levels.

Key Indicator:

By 2030, Increase in Number and Quality of Internationally Recognised Biodiversity Sites

Malaysia has already secured multiple international recognitions, including new biosphere reserves and IUCN Green List sites. Additional candidate sites have been identified across various frameworks, indicating strong momentum. Continued progress will depend on strengthening nomination processes, enhancing site management standards, and fostering collaboration across stakeholders. These recognitions not only elevate Malaysia's global standing but also reinforce national conservation outcomes.

EXAMPLES OF INITIATIVES DRIVING CHANGE

This section highlights key case studies that demonstrate the principles and effectiveness of Malaysia's strategic approach to Target 8. These examples showcase the diversity of governance models, from formal state-led gazettement to innovative public-private-community partnerships, and the tangible biodiversity outcomes they achieve. They provide concrete evidence of progress in expanding coverage, improving management effectiveness, and piloting new conservation tools.

Expanding the Protected Area Network

The quantitative expansion of protected areas, driven by ambitious state policies, forms the foundation for achieving national coverage targets. The following cases exemplify how strategic gazettement consolidates landscapes and fills critical ecological gaps.

(a) Sabah Terrestrial Protected Area Network:

Terrestrial protected areas now cover 27.3% of Sabah, positioning the state as a national leader. Strategic gazettement has secured representation across key ecosystems. Flagship landscapes such as Kinabatangan Biosphere Reserve (413,866 hectares, designated 2025) and Imbak Canyon Conservation Area demonstrate integration of fully protected areas with community-managed lands and potential OECMs, enhancing connectivity, management coherence, and durability.

Demonstrating Effective Management

The initiatives below highlight the national commitment to performance-based management, showing how targeted planning, investment, and legal frameworks translate protected status into measurable conservation outcomes.

(b) Tun Mustapha Marine Park (Sabah) – Large-scale, multi-use marine spatial planning:

Covering 898,763 ha, Tun Mustapha Marine Park exemplifies science-based, participatory marine planning using systematic conservation tools to balance biodiversity protection and community use. Its ecosystem-based, co-managed zoning provides a blueprint for large, offshore, multi-use MPAs needed to close Malaysia's marine protection gap.



FIRST CONSERVATION ASSURED TIGER STANDARDS (CA|TS) SITE IN MALAYSIA – ROYAL BELUM STATE PARK

The designation of Royal Belum State Park as Malaysia's first site under the Conservation Assured | Tiger Standards (CA|TS) represents a major milestone in strengthening protected area management for tiger conservation. CA|TS, a globally recognised accreditation system, sets rigorous standards for effective management of tiger habitats.

Royal Belum's achievement reflects significant improvements in site governance, law enforcement, monitoring, and community engagement. The park, part of the larger Belum-Temengor forest complex, is one of the last strongholds for the critically endangered

Malayan tiger. Through the CA|TS process, management effectiveness was systematically assessed and strengthened, ensuring that conservation actions are measurable and aligned with international best practices.

The uniqueness of this initiative lies in its focus on management quality rather than just designation status. By meeting CA|TS standards, Royal Belum demonstrates that protected areas can be actively managed to deliver tangible outcomes for species recovery.

A key learning is that achieving CA|TS requires sustained investment in enforcement capacity, inter-agency coordination, and data-driven decision-making. Importantly, it highlights the need for long-term financing mechanisms to maintain standards.

The success of Royal Belum provides a strong model for scaling CA|TS across other tiger landscapes in Malaysia, particularly within the Central Forest Spine. Expanding CA|TS accreditation can significantly strengthen national efforts to recover tiger populations and improve overall protected area effectiveness.



Photo credit: Mazidi Abd Ghani_WWF-Malaysia

Pioneering New Conservation Models

Malaysia is operationalising innovative, complementary conservation instruments to build an ecologically representative and durable system. The cases below illustrate the development of frameworks and models that integrate community stewardship and science-based planning beyond traditional protected areas.

(c) Kinabatangan Biosphere Reserve (Sabah) – Landscape-scale integration of PAs and OECMs: Designated in 2025 (413,866 hectares), the Biosphere Reserve integrates protected areas, community-managed lands, and potential OECMs under a zoned framework, strengthening ecological representativeness, connectivity, and coordinated management at river-basin scale.

(d) Development of the Ulu Sungai Menyang Community Conserved Area Framework:

Community resource mapping in Ulu Sungai Menyang has laid a strong foundation for the establishment of a Community Conserved Area (CCA), empowering local communities to document and safeguard their customary land use, natural resources, culturally significant sites, and conservation practices. A collaborative effort between WWF-Malaysia, Ulu Ai Conservancy, Malaysian Pepper Board and Forest Department Sarawak, the initiative brought together 7 longhouses through community sharing sessions and participatory mapping activities. The resulting maps provide clear spatial and social evidence of community-led land stewardship that supports long-term conservation outcomes, while strengthening local ownership, reinforcing inclusive decision-making, and ensuring that community voices remain central to conservation planning.

THE PENANG HILL UNESCO BIOSPHERE RESERVE

The designation of the Penang Hill Biosphere Reserve under UNESCO's Man and the Biosphere Programme represents a pioneering model of conservation in an urban adjacent landscape. As one of the few biosphere reserves in the world located near a major city, it demonstrates how biodiversity conservation, sustainable development, and community engagement can coexist, reflecting the harmonious coexistence of humans and nature.

The reserve integrates core protected areas with buffer and transition zones, supporting both ecological integrity and local livelihoods. It safeguards rich biodiversity, including endemic and threatened species, while also promoting sustainable tourism, environmental education, and research.

What makes Penang Hill Biosphere Reserve unique is its role as a “living laboratory” for urban biodiversity conservation. It bridges the gap between conservation and development, showing how natural ecosystems can be embedded within rapidly developing contexts.

A key achievement is the strong multi-stakeholder governance model, involving state authorities, local communities, academia, and stakeholders. This has enabled coordinated management and long-term stewardship.

A key learning is that conservation success in urban settings depends on inclusive governance and sustained public engagement. Awareness and local ownership are critical to maintaining ecological values.

The Penang Hill Biosphere Reserve offers strong potential for scaling similar models in other urban and peri-urban landscapes across Malaysia, providing a pathway to integrate biodiversity into national development planning.



Photo credit: Penang Hill Corporation

AL-SULTAN ABDULLAH ROYAL TIGER RESERVE (PAHANG)



Photo credit: The Habitat Foundation

The establishment of the Al-Sultan Abdullah Royal Tiger Reserve in 2023 represents a landmark achievement in landscape-scale conservation. Covering 134,183 hectares, the Reserve consolidates multiple forest reserves within the Central Forest Spine into a single, contiguous area dedicated to Malaysian tiger recovery and ecological connectivity.

The first phase of the Reserve stands at 92,649.33 ha encompassing the entire Gunung Aais Forest Reserve and Gunung Aais Extension Forest Reserve. This combined area was gazetted under two designations: as a Forest Sanctuary for Wildlife under the National Forestry Act 1984 in May, 2023, and subsequently as a State Park under Section 29 of the Pahang State Parks Corporation Enactment 2021 in August 2023.

In addition to the Gunung Aais Reserves, a key component will be the inclusion of the second phase of the Reserve at 41,533.67 ha which includes part of the Tekai Tembeling Forest Reserve, which will provide opportunities to manage prey augmentation efforts. By reconfiguring existing reserves rather than creating new ones, the initiative demonstrates an innovative approach to maximise conservation impact within existing legal frameworks.



The unified status has significantly improved enforcement efficiency and enabled more coordinated management between federal and state authorities, supported by NGOs providing technical expertise. This has enhanced patrol effectiveness, habitat protection, prey augmentation efforts, and corridor restoration.

The uniqueness of this initiative lies in its scale and governance model—integrating multiple jurisdictions into a single conservation landscape focused on a flagship species.

A key learning is that political leadership and high-level commitment are critical to enabling such large-scale reconfigurations. Equally important is sustained inter-agency coordination to translate designation into effective management, alongside an openness to collaborate with non-state actors especially in the development and capacity building phase.

The Reserve provides a powerful model for scaling landscape-level conservation across the Central Forest Spine. By replicating this approach, Malaysia can strengthen ecological connectivity and accelerate recovery efforts for the Malayan tiger and other threatened species.

CHALLENGES & CONSIDERATIONS FOR FUTURE IMPLEMENTATION

Malaysia has strengthened protected area governance and expanded coverage, but progress towards the 20% terrestrial and 10% marine targets remains insufficient. To accelerate progress by 2030, five specific gaps must be addressed:

- **Closing critical coverage gaps** – Marine protected area coverage stands at only 5.34%, well below the 10% target, and protection remains concentrated in nearshore areas. Terrestrial ecosystems such as inland waters, lowland forests, and ecological corridors are under-represented. *Considerations for future implementation: Prioritise expansion into underrepresented ecosystems guided by strategic gap analyses and science-based tools like MyMPA and MyIMCA studies.*
- **Shifting from designation to management effectiveness** – Gazettement alone does not secure conservation outcomes. Progress is constrained by inadequate financing, staffing, and enforcement capacity that limit on-the-ground effectiveness. *Considerations for future implementation: Strengthen performance-based management by promoting systematic use of METT assessments and linking results to targeted capacity-building. Enhance federal-state coordination through dedicated technical forums.*
- **Operationalising OECMs beyond pilot stage** – While the National Framework for OECM exist, formalised pathways, standardised criteria, and reporting mechanisms remain underdeveloped, limiting recognition of diverse governance models. *Considerations for future implementation: Advance formalisation and operationalisation of the National Framework for OECM through targeted pilot assessments in priority landscapes – including community conservation areas and sustainably managed forest reserves.*
- **Securing sustainable long-term financing** – Expansion and effective management of the conservation estate are fundamentally constrained by inadequate, unpredictable, and short-term financing. *Considerations for future implementation: Develop a multi-faceted financing strategy including strategic allocation of long-term public financing for core management functions and pilot innovative mechanisms such as conservation trust funds and blended finance models.*
- **Ensuring ecological representativeness** – The current protected area network does not adequately represent the full range of Malaysia's ecosystems, leaving some habitat types and species populations vulnerable. *Considerations for future implementation: Conduct systematic gap analyses to identify under-represented ecosystems and prioritise their inclusion in expansion efforts, ensuring a truly representative conservation network.*

Goal 3: Safeguarding Ecosystems**TARGET 9**

BY 2030, THREATENED NATURAL ECOSYSTEMS ARE SUSTAINABLY MANAGED AND DEGRADED ECOSYSTEMS ARE RESTORED

INTRODUCTION

Malaysia treats ecosystem restoration as a long-term ecological investment, not a short-term planting exercise. The national strategy combines three elements: knowing what we have, fixing what is broken, and building resilience against future disturbance. The Red List of Ecosystems (RLE) assessment has mapped the country's terrestrial and transitional ecosystems for the first time, providing a baseline for prioritisation. Large-scale restoration programmes have exceeded targets, with over 1.03 million native trees planted under the 3RSM programme alone and more than 9 million mangroves restored across degraded coastlines. Peatland hydrological rehabilitation, coral reef restoration, and seagrass mapping are expanding the scope of intervention. The strategic shift now underway is from project-based restoration to systematic, landscape-scale recovery, supported by monitoring systems that track ecological outcomes rather than just counting trees planted.

CURRENT LEVEL OF PROGRESS TOWARDS THE TARGET

On track to achieve target.

ACTION 9.1: DEVELOP ECOSYSTEM MAPPING AND VULNERABILITY CLASSIFICATION CAPABILITIES

Central to this approach is the development of national and sub-national ecosystem mapping, condition assessments, and vulnerability analyses. These identify threatened and degraded ecosystems and guide prioritisation for restoration and sustainable management. The assessments have informed land-use planning, forest management decisions, and strategic targeting of public and private restoration investments.

Progress is guided by improved scientific assessment. A key achievement is the advancement of the Red List of Ecosystems (RLE) assessment, with the Forest Research Institute Malaysia (FRIM) having completed mapping terrestrial and transitional ecosystems nationwide. Malaysia Biodiversity Centre (MBC) coordinates inputs on degraded sites, establishing a platform for inter-agency information exchange.

The Forestry Department of Peninsular Malaysia (FDPM) has implemented Scientific Expeditions on Forest Biodiversity as systematic mapping exercises.

Between 2021 and 2025, 13 field expeditions were conducted across diverse forest ecosystems, engaging over 900 participants from universities, research institutions, and government agencies.

Yayasan PETRONAS is implementing a national seagrass mapping programme from 2025–2026 across shallow coastal waters, covering 1,846.1 hectares in western Sabah and Labuan, Negeri Sembilan, and Melaka. WWF-Malaysia led spatial analysis and community mapping at key sites in Sarawak, strengthening evidence-based decision-making and participatory planning.

Building on these advances, Malaysia will further strengthen its scientific foundation by developing a national standardised methodology for ecosystem vulnerability classification and ranking, enabling consistent, comparable, and policy-relevant assessments across ecosystems and jurisdictions.

In parallel, efforts will integrate ecosystem vulnerability mapping into formal land-use planning frameworks. This will ensure that spatial planning, development decisions, and restoration investments align with ecological risk, resilience, and long-term sustainability objectives.

Key Indicator:

By 2030, an ecosystem vulnerability map and ranking has been developed for utilisation

Nationwide mapping of terrestrial and transitional ecosystems is complete under the Red List of Ecosystems (RLE) assessment, providing a critical baseline for identifying threatened ecosystems. Complementary initiatives, including biodiversity expeditions and seagrass mapping, further strengthen spatial data coverage. Inter-agency coordination platforms led by the Malaysia Biodiversity Centre (MBC) are improving data consolidation and accessibility, while advances in spatial analysis and participatory mapping enhance site-level planning. However, a fully standardised national framework for ecosystem vulnerability classification and ranking, integrated into land-use planning, remains under development. Continued efforts to harmonise methodologies, integrate datasets, and operationalise vulnerability rankings into policy will be essential to fully achieve this indicator by 2030.

ACTION 9.2: RESTORE DEGRADED ECOSYSTEMS

Scaling ecosystem restoration across degraded landscapes is achieved through coordinated national programmes, science-based methodologies, and multi-stakeholder partnerships. Restoration approaches are increasingly climate-responsive and centred on native species, supported by institutions such as FRIM. Emerging innovations, including Sarawak's use of seedball techniques for hard-to-access areas, are strengthening restoration efficiency. Malaysia has demonstrated strong momentum across forests, peatlands, mangroves, freshwater systems, and ecological corridors.

Forest restoration has been implemented extensively across Permanent Reserved Forests and ecological corridors. Sarawak leads with a robust monitoring framework, reporting 137,179 hectares restored as of December 2025. Sabah has rehabilitated approximately 25,000 hectares of degraded lowland rainforest, including the Innoprise-IKEA project (14,009 hectares) and Bukit Piton Forest Reserve (11,612 hectares) for orangutan habitat connectivity. Peninsular Malaysia has restored 1,720 hectares (over 1 million trees) through the 3RSM programme, receiving ASEAN Green Initiative recognition.

Mangrove restoration has seen over 9 million trees planted across 3,822 hectares as of 2025, with a further 4,300 hectares targeted under the 13th Malaysia Plan. Sabah, hosting approximately 60% of Malaysia's mangroves, guides restoration through its Mangrove Action Plan (2024–2033). Two mangrove species listed on the IUCN Red List are found here: *Bruguiera hainesii* and *Campostemon philippinense*.

Peatland restoration under the SMPPEM project has reduced fire incidence through hydrological rehabilitation and community-based approaches.

Marine and coastal restoration includes 1,186 artificial reef units installed under the 12th Malaysia Plan across the east coast of Peninsular Malaysia and Sarawak. In Tun Mustapha Park, Sabah, restoration of 1,080 m² of reef habitat has increased live coral cover by 20.8% and fish biomass by 30-fold. Seagrass restoration at Merambong Shoal, Johor (2015–2025) achieved a 66% seedling survival rate using a multi-species planting approach.

Urban biodiversity restoration is gaining traction. Sime Darby Property's Hamilton Biodiversity Park in Negeri Sembilan achieved Ecosystem Restoration Verification under the Preferred by Nature Standard, the first such recognition for a private developer in Asia-Pacific.

Implementation is supported by diverse partnerships, including community-led initiatives, NGO programmes, and private-sector engagement, increasingly integrating restoration with local livelihoods.

Key Indicator:

By 2030, at least 200,000 ha of degraded sites are being actively restored

Malaysia has made substantial progress towards large-scale ecosystem restoration, with significant achievements across forests, peatlands, mangroves, and marine ecosystems. Restoration targets have been exceeded in several programmes, supported by coordinated government action, community participation, NGO implementation, and private-sector engagement. Increasingly, these efforts are underpinned by science-based methodologies and monitoring systems, enabling measurable ecological improvements. Achieving the 2030 target will require sustained financing, strengthened prioritisation of restoration areas, and enhanced systems to ensure long-term ecological recovery beyond initial interventions. Scaling integrated, partnership-driven restoration models will be essential to maintaining momentum and delivering resilient, long-term outcomes.

ACTION 9.3: MAINTAIN AND ENHANCE ECOSYSTEM RESILIENCE TO DISTURBANCE

This action focuses on strengthening the capacity of ecosystems to withstand, adapt to, and recover from disturbances through adaptive management, robust monitoring systems, and integration of resilience considerations into planning frameworks.

Progress has been driven by the increasing integration of monitoring, reporting, and adaptive management across restoration programmes. These systems combine remote sensing, field assessments, and community-level monitoring to track ecosystem conditions, detect changes, and inform timely management responses.

Targeted initiatives demonstrate the effectiveness of integrated resilience-building approaches. The Sustainable Management of Peatland Ecosystems in Malaysia (SMPPEM) project (2020–2026) has strengthened peatland management through hydrological rehabilitation, community-based fire prevention, and improved inter-agency coordination. This has contributed to a significant reduction in fire incidence in peat swamp forest reserves in Peninsular Malaysia, particularly in Pahang and Selangor.

Adaptive management is further reinforced through science-based restoration methodologies, including native species, climate-responsive techniques, and innovative restoration technologies. Participatory monitoring and digital tools are enhancing data collection, transparency, and local engagement, strengthening feedback loops between communities and management authorities.

Implementation is delivered through coordinated federal and state programmes, complemented by NGO-led initiatives, community-based projects, and private-sector engagement. These partnerships have embedded resilience-building efforts within local stewardship systems and corporate sustainability agendas, supporting more durable and inclusive outcomes.

Rights-based and community-centred models further illustrate this approach. Initiatives such as the Orang Asli Agroforestry Restoration Initiative in Johor link forest restoration with Indigenous land stewardship, livelihood diversification, and economic resilience through traditional agroforestry practices and fair-trade value chains.

Building on these advances, Malaysia will continue to strengthen its adaptive management framework by developing a fully institutionalised national system for resilience-based management, including standardised indicators for ecosystem resilience and systematic integration of these metrics into spatial planning and sectoral policies. This will ensure that resilience considerations are consistently embedded across planning, implementation, and monitoring, enabling ecosystems to better withstand future environmental and climate-related disturbances.

Key Indicator:

By 2030, adaptive management actions have been established and implemented to address disturbances in threatened natural ecosystems

Efforts such as peatland hydrological rehabilitation, coral reef restoration, and artificial reef deployment demonstrate adaptive, science-based interventions to address ecosystem disturbances. Monitoring systems are increasingly embedded within restoration programmes, combining remote sensing, field data, and community-based reporting to track ecological changes. These systems support more responsive management decisions, contributing to improved resilience across landscapes and seascapes. However, a fully institutionalised national framework for adaptive management, supported by standardised resilience indicators and integrated into planning and policy systems, remains under development.

EXAMPLES OF INITIATIVES DRIVING CHANGE

Implementation of Target 9 is supported by a portfolio of initiatives demonstrating how coordinated planning, science-based action, and stakeholder collaboration deliver ecological and social outcomes. The following cases illustrate diverse models, from long-term conservation programmes to innovative finance-ready projects. Large-scale, government-driven initiatives demonstrate how embedding restoration within formal development strategies and monitoring frameworks enables sustained, high-impact recovery.

(a) Community-Led Tree Planting and Ecosystem Restoration Programmes:

The Walk4Trees Programme (2021–2023), led by Yayasan PETRONAS in collaboration with the Global Environment Centre (GEC), implemented a three-year, community-based tree planting initiative across 14 sites in nine states – Kedah, Penang, Perak, Selangor, Pahang, Melaka, Terengganu, Sabah, and Sarawak, focusing on mangrove, lowland, and peat swamp forest ecosystems. The programme engaged 255 participants, planted 74,652 trees, and installed 20 camera traps to strengthen biodiversity monitoring.

(b) The One Million Trees (OMT) Programme (2023–2033):

This is a nationwide restoration initiative implemented by Yayasan PETRONAS with Universiti Teknologi PETRONAS (UTP), Universiti Malaya (UM), Pertubuhan Sahabat Hutan Bakau Pulau Tanjung Surat, and the Sabah Forestry Department, integrating community participation and CEPA activities. To date, the programme covers 268 hectares across Sabah, Perak, and Johor, with RM6,782,625 allocated, engaging 103 participants and planting 121,150 trees to support long-term ecosystem recovery and biodiversity conservation.

(c) Advancing Gelam Forest Conservation Through Science, Restoration and Community Partnership:

Between 2023 and 2025, WWF-Malaysia collaborated with the Terengganu State Park Management Council, Terengganu State Forestry Department, PERHILITAN, UNDP, Setiu Adventure Park, and Universiti Sultan Zainal Abidin (UniSZA) to conduct four scientific studies. These generated baseline data on wildlife and ecological connectivity within Malaysia's rare gelam (*Melaleuca cajuputi*) forests and riparian corridors in Terengganu, strengthening the evidence base for protection measures. Complementing this, community-based restoration under the



Photo credit: Cheah Yih Horng

ASSESSMENT OF ECOSYSTEM CONSERVATION STATUS IN MALAYSIA (2024–2026)

Malaysia is strengthening evidence-based environmental governance through the **Assessment of Ecosystem Conservation Status in Malaysia**, conducted by FRIM and NRES. This initiative establishes a national framework to evaluate ecosystem risks and support strategic planning and policy decisions.

This effort builds on the earlier study, ‘Identification of Vulnerable Ecosystems in Malaysia’ (2021–2023), funded by the ASEAN Centre for Biodiversity and implemented by FRIM and the Ministry of Natural Resources, Environment and Climate Change. The study marked a critical first step in systematically identifying ecosystem types in Malaysia and in developing a suitable framework to assess the risk to Malaysia’s ecosystems, which provided the foundation for the current national assessment.

At its core is the development of the Malaysia Red List of Ecosystems (RLE), which applies the IUCN RLE framework, science-based criteria for assessing ecosystem status — considering factors such as extent, degradation, fragmentation, and the risk of collapse. This framework enables consistent and comparable evaluation across Malaysia’s ecosystems.

A key milestone was the National Ecosystem Typology Workshop in July 2025, which brought together 57 experts from government, academia, and civil society. The workshop focused on refining the typology of terrestrial and transitional ecosystem units and determining the appropriate assessment unit. Other discussion topics included ecosystem classification, definition and spatial distributions.

The project supports policy and planning by identifying ecosystems requiring protection, restoration, or sustainable management. It informs land-use planning, forest management, and environmental impact assessments, and contributes to national reporting under the Global Biodiversity Framework.

By linking earlier identification work with a standardised assessment framework, Malaysia is strengthening ecosystem-based management, improving cross-sector coordination, and supporting progress toward its 2030 biodiversity targets.

REBUILDING THE RAINFOREST – ORANGUTAN HABITAT RESTORATION AT LOWER KAWAG, ULU SEGAMA FOREST RESERVE

The restoration of orangutan habitat at Lower Kawag, Ulu Segama Forest Reserve, Lahad Datu, began as a mission to revive a degraded lowland forest once heavily impacted by logging. Through a strategic collaboration between the Malaysian Palm Oil Green Conservation Foundation (MPOGCF) and the Sabah Forestry Department, nurseries were established, and thousands of native food tree species, such as ketapang, durians, and langsung hutan, were propagated and planted to accelerate natural forest recovery for the Bornean orangutan.

Field teams continue to replant, maintain, and monitor growth to ensure young trees survive and slowly rebuild canopy connectivity essential for orangutan movement. Permanent monitoring plots track forest structure and growth, while wildlife observations have recorded encouraging signs, including orangutan nests, hornbill presence, and returning small mammals, evidence that the ecosystem is healing.

Beyond ecological gains, the project builds capacity among local workers and strengthens collaboration with on-ground forest managers, making conservation a shared responsibility. A key component of the project is the active participation of smallholders in oil palm communities, who are directly involved in operating and managing native tree nurseries that supply seedlings for the rehabilitation site. Their role in seed collection, propagation, and maintenance demonstrates meaningful community engagement while creating alternative livelihood opportunities. This initiative now stands as a model of how strong partnerships between MPOGCF and Sabah Forestry Department can restore critical habitats, enhance biodiversity resilience, and secure a safe future for orangutans in Sabah's forests.



Photo credit: Malaysian Palm Oil Green Conservation Foundation

Malaysia–UN SDG Trust Fund engaged the Gelam Cure community of Setiu, resulting in 1,000 gelam trees planted, a community nursery established, and training in seedling production and digital monitoring. Approximately 20 local women and youth were involved in restoration and sustainable gelam-based enterprises aligned with GMP standards, culminating in the Gelam Cure Centre established in 2025.

(d) Orang Asli Agroforestry Restoration Initiative (Johor):

This initiative demonstrates a rights-based restoration model linking forest recovery with Indigenous land stewardship and economic resilience. In partnership with Jabatan Kemajuan Orang Asli, Orang Asli communities in Kota Tinggi, Johor restore degraded customary forest areas using traditional agroforestry systems and native species. Restoration is coupled with a fair-trade and market-linked business model, ensuring direct economic benefits to communities and strengthening incentives for long-term stewardship. The initiative illustrates how secure tenure, Indigenous knowledge, and livelihood integration can deliver durable ecological restoration outcomes beyond conventional tree-planting approaches.

(e) Restoring Degraded Coastal Forests in the Silam Coast Conservation Area (Sabah):

The Silam Coast Conservation Area (SCCA) on Sabah's east coast is the focus of a long-term forest restoration initiative. Implemented as a Corporate Social Responsibility (CSR) initiative by Preferred by Nature and formalised through a Memorandum of Understanding signed on 22 August 2024, the project is fully funded by Preferred by Nature and guided by an approved Project Operation Plan. It targets restoration of approximately 100 hectares over eight years, with implementation supervised by Yayasan Sabah's Conservation and Environmental Management Division (CEMD). Restoration activities are verified against Preferred by Nature's Ecosystem Restoration Standard, ensuring alignment with international best practices. The project also strengthens CEMD's technical capacity by building on experience from earlier initiatives such as INFAPRO and INIKEA, supporting sustained ecosystem recovery, climate mitigation, and coastal landscape resilience.

(f) Site-Level NGO-Led Spatial and Community Mapping for Conservation Action:

WWF-Malaysia led spatial analysis and community mapping at Batang Ai–Lubok Antu and Gunung Lesong–Lingga to support site-level conservation and restoration planning in Sarawak. A 2023 Priority Conservation Areas analysis generated multi-scenario outputs that informed the Sarawak Biodiversity Masterplan and guided restoration activities across Lemanak, Belawai, Ulu Sungai Menyang, Gunung Lesong–Ulu Sebuyau, and Long Semadoh. At the site level, communities participated in mapping and monitoring tree survival rates, strengthening local ownership and improving data reliability. These initiatives were supported by an NGO-developed Key Ecological Attribute web application and dashboard to consolidate spatial data and enable evidence-based decision-making, alongside multi-stakeholder engagement to advance High Conservation Value (HCV) screening and community zonation mapping.

(g) SD-PAT Damai Estate, Sarawak:

The latest initiative under the SDG-Plant-A-Tree (SD-PAT) Programme, under the Yayasan Sime Darby (YSD) Environment Pillar. The SD-PAT Damai project is located within an ex-oil palm area designated as a Conservation Set-Aside (CSA). This initiative aims to plant 60,000 native trees to establish ecological stepping stones that enhance landscape connectivity and support wildlife movement. The project spans 95 hectares, divided into 4 planting plots. Planting activities commenced in March 2025. As of 30 November 2025, a total of 30,992 saplings representing 81 species, primarily rare, threatened, and endangered (RTE) species have been planted across the plots.

(h) Coral restoration and sea patrolling initiatives

from the Department of Fisheries Malaysia, Universiti Malaysia Terengganu and Coralku in Terengganu complement these efforts, though consolidated reef monitoring data remains pending. In 2025, coral reef restoration at Pulau Lang Tengah, Terengganu was implemented through a collaboration between the Department of Fisheries Malaysia and Coralku, focusing on active reef rehabilitation using science-based methods. The initiative involved the planting of 9,191 coral fragments representing 69 coral species, supported by the installation of 217 coral frames, contributing to the recovery of reef structure, species diversity, and ecosystem function at this key East Coast reef site.



RESTORATION, RECLAMATION & REHABILITATION OF DEGRADED FOREST AREAS IN PENINSULAR MALAYSIA (3RSM)

The 3RSM programme, implemented by the Forestry Department of Peninsular Malaysia, has exceeded its restoration targets under the 11th and 12th Malaysia Plans. Against a target of 1,640 hectares, the programme successfully restored 1,720 hectares and planted over 1.03 million native trees.

This achievement highlights the effectiveness of structured, government-led restoration programmes that combine silvicultural expertise with operational scale. The programme addresses degraded forests both within and outside Permanent Reserved Forests, ensuring a comprehensive landscape approach.

Its uniqueness lies in its integration of restoration with capacity building. By strengthening nursery systems and silvicultural practices, 3RSM ensures that restoration efforts are supported by a sustainable supply of quality planting materials and technical expertise.

A key learning point is the importance of institutional capacity in delivering restoration outcomes. Strong technical foundations and consistent funding enable programmes to exceed targets and maintain quality.

The 3RSM model is scalable across other states and forest landscapes, particularly where degraded forests require systematic rehabilitation supported by government leadership and technical standardisation.



Photo credit: Forestry Department Peninsular Malaysia

- (i) **Seagrass Mapping and Community-Based Conservation Programme:** A national seagrass mapping programme led by Yayasan PETRONAS is being implemented from 2025–2026 across shallow coastal waters, covering 1,846.1 hectares in western Sabah and Labuan, Negeri Sembilan, and Melaka. Implemented with Universiti Putra Malaysia (UPM), Universiti Malaya (UM), and Universiti Malaysia Sabah (UMS), the programme maps seagrass distribution, species diversity, cover, and carbon stocks. Community engagement is integrated through Communication, Education, and Public Awareness (CEPA) activities involving 235 participants across Sabah, Terengganu, Negeri Sembilan, and Johor. The programme supports national priorities through collaboration with the Department of Fisheries Malaysia (DOF), contributing to the National Plan of Action for Seagrass (NPOA Rumput Laut), MyFIRST, and informing Sabah's biodiversity planning.

CHALLENGES & CONSIDERATIONS FOR FUTURE IMPLEMENTATION

Malaysia has made significant progress in ecosystem restoration, with large-scale programmes exceeding planting targets. However, to secure durable recovery by 2030, six specific gaps must be addressed:

- **Shifting from outputs to long-term ecological outcomes** – Current reporting focuses on outputs (e.g., trees planted) rather than verified ecological outcomes such as canopy closure, species return, and ecosystem function recovery. *Considerations for future implementation:* Invest in robust, site-specific monitoring protocols across major restoration programmes to track long-term ecological recovery indicators.
- **Elevating under-recognised and fragile ecosystems** – Certain ecologically significant ecosystems, such as gelam (*Melaleuca cajuputi*) forests, remain under-prioritised in national planning and financing frameworks despite their biodiversity and hydrological importance. *Considerations for future implementation:* Strengthen policy recognition, targeted financing, and long-term ecological monitoring for under-represented ecosystems, building on existing initiatives.

- **Establishing sustainable and scalable financing** – Restoration needs far exceed available long-term funding. Reliance on short-term, project-based financing weakens continuity, post-restoration maintenance, and multi-decadal recovery. *Considerations for future implementation: Explore transition towards programmatic and sustainable financing models, including blended and results-based finance mechanisms to attract climate, biodiversity, and private-sector investment.*
- **Navigating land tenure complexity and fragmented governance** – Overlapping mandates, competing land uses, and unclear tenure delay restoration, reduce investment certainty, and constrain implementation in priority landscapes. *Considerations for future implementation: Improve governance for restoration by clarifying institutional roles, enhancing cross-sectoral coordination, and supporting pilot initiatives for formalised co-management in complex multi-use areas.*
- **Integrating restoration into sectoral development and spatial planning** – Restoration objectives are not consistently embedded within agriculture, infrastructure, water, and coastal development planning, allowing development pressures to erode restoration gains. *Considerations for future implementation: Strengthen integration of ecosystem recovery and resilience criteria into national and state spatial plans, sectoral policies, and development approval processes.*
- **Strengthening identification and protection of rare, threatened, and endangered ecosystems** – No systematic national framework exists to identify and classify rare, threatened, and endangered ecosystems, resulting in their under-recognition and increased vulnerability. *Considerations for future implementation: Establish a standardised national assessment and classification system, integrate findings into land-use planning, and institutionalise long-term monitoring and legal safeguards.*
- **Building Technical Capacity and Knowledge for Climate-Resilient Restoration** – Uneven technical capacity and knowledge transfer—particularly for degraded forest recovery, peatland hydrological rehabilitation, and climate-resilient practices—constrain the scaling and replication of best practices across implementing agencies and states. *Considerations for Future Implementation: Systematising capacity development and knowledge exchange by strengthening applied research partnerships, expanding technical guidance, and facilitating the documentation and sharing of proven, context-specific restoration methodologies.*

Photo credit: Tourism Malaysia



Goal 3: Safeguarding Ecosystems**TARGET 10**

BY 2030, IMPORTANT ECOLOGICAL CORRIDORS HAVE BEEN SECURED AND ECOSYSTEM RESILIENCE IS ENHANCED ACROSS TERRESTRIAL, FRESHWATER, AND MARINE REALMS

INTRODUCTION

Ecological connectivity is the circulatory system of biodiversity. Without it, protected areas become isolated islands unable to sustain viable populations. Malaysia's approach to Target 10 is anchored in three flagship frameworks: the Central Forest Spine (CFS) Initiative in Peninsular Malaysia, the Heart of Borneo (HoB) Initiative in Sabah and Sarawak, and the Important Marine and Coastal Areas (IMCA) framework. Together, these cover approximately 6.6 million hectares of connected landscapes and 27.5% of national waters identified as priority seascapes. On the ground, 39 CFS linkages are under active restoration, eco-viaducts are reducing roadkill on major highways, and transboundary cooperation under the HoB is securing forest connectivity across three nations. The remaining challenge is translating mapped corridors into legally protected, functionally connected landscapes—a task that requires land-use planning, private sector engagement, and community stewardship to succeed.

CURRENT LEVEL OF PROGRESS TOWARDS THE TARGET

On track to achieve target.

ACTION 10.1: STRENGTHEN THE IMPLEMENTATION OF THE CENTRAL FOREST SPINE (CFS) MASTER PLAN IN PENINSULAR MALAYSIA

The Central Forest Spine (CFS) Initiative enhances terrestrial ecological connectivity across Peninsular Malaysia. Under the CFS Ecological Corridor Master Plan 2022 (PIRECFS), the 6.71-million-hectare CFS landscape identifies 39 priority ecological linkages (20 primary, 19 secondary) to reconnect fragmented forests and secure landscape-scale connectivity.

The strategic objective: restore degraded areas and safeguard habitat connectivity for key species like the Malayan tiger and Asian elephant. Connectivity is increasingly mainstreamed into national and spatial plans, including the 4th National Physical Plan (NPP 4). Implementation follows a “Living Landscape Approach” – integrating Protect, Produce, and Restore principles – through statutory district and local plans, plus dedicated wildlife crossings (eco-viaducts).

Progress in securing corridors is notable: by 2022, 37,613 hectares of 133,036 hectares within the CFS were gazetted as Permanent Reserved Forests (PRF). An additional 111,122 hectares were approved for future gazette by the 81st National Land Council (September 2024). Efforts are supported by 14 multidisciplinary research projects with local universities.

Flagship projects drive implementation. The GEF-UNDP-funded ICCFS project (USD 10.86 million), implemented by FDPM, PERHILITAN, and FRIM with state agencies in Perak, Pahang, and Johor, complements the TESSA project (SEARRP, Yayasan Hasanah), which strengthens ecosystem service valuation and evidence-based planning.

Tangible fragmentation reduction includes: 839 hectares of degraded corridors restored via tree planting, riparian rehabilitation, and community stewardship; three eco-viaducts; 42 artificial saltlicks; 10 km of electric fencing; and road signage at key crossings. Rehabilitation is now active across all 39 linkages.

Multi-stakeholder partnerships, including corporate-NGO collaborations, are accelerating implementation and scaling restoration. A dedicated CFS Monitoring and Evaluation (M&E) system, being developed by PLANMalaysia (operational from 2026), will enhance outcome-based reporting and adaptive management.

Key Indicator:

By 2030, 10 primary corridors under the CFS initiative are being actively protected and managed

Progress towards this indicator is supported by the identification of 20 Primary Linkages under the CFS Master Plan and ongoing implementation across all 39 linkages. Legal gazette, restoration of degraded habitats, and infrastructure mitigation measures (e.g., eco-viaducts and fencing) demonstrate tangible steps towards active protection and management. Continued scaling of gazette, enforcement, and monitoring systems will be critical to ensure that at least 10 primary corridors achieve functional ecological connectivity by 2030.

ACTION 10.2: STRENGTHEN TERRESTRIAL ECOLOGICAL CONNECTIVITY IN SABAH AND SARAWAK

The transboundary cooperation between Malaysia, Indonesia, and Brunei aims to conserve Borneo's last expanse of contiguous forest. The Heart of Borneo (HoB) consists of 3.9 million hectares in Sabah and 2.7 million hectares in Sarawak, managed under five pillars that balance conservation with sustainable land use and community welfare. Key objectives directly supporting this target are to maximise transboundary linkages, promote protected area expansion, and maintain forest connectivity. Implementation is executed through state-level plans, such as the Strategic Management Plan for Sabah's Maliau Basin, and collaborative projects to restore and protect corridors.

Approximately 6.6 million hectares within Malaysia's HoB territory are under formal protection or sustainable management. The Heart of Borneo Strategic Plan of Action outlines a trilateral commitment by Brunei Darussalam, Indonesia, and Malaysia to conserve approximately 20 million hectares of contiguous rainforest while promoting sustainable development. It focuses on five core programmes – transboundary management, protected areas management, sustainable natural resource management, ecotourism development, and capacity building – to balance biodiversity conservation with socio-economic development across the island.

This framework is operationalised through long-term plans like the 2025–2034 Strategic Management Plan for the Maliau Basin Conservation Area in Sabah. Key projects focus on reconnecting fragmented forest blocks. For instance, in Sabah, the Tabin–Lambak–Silabukan Forest Reserve landscape initiative involves acquiring private lands formerly under oil palm cultivation to gazette them as Forest Reserves.

The Heart of Borneo National Committee and Trilateral Working Groups provide implementation mechanisms. The initiative has also mobilised multilateral support, as evidenced by events like the International Conference on Borneo's Green Heart in October 2025.

Key Indicator:

By 2030, there is a 10% increase of protected areas within the HoB

Malaysia has already secured approximately 6.6 million hectares within the HoB under protection or sustainable management. Ongoing expansion of protected areas through gazettment, restoration of degraded corridors, and transboundary coordination provides a strong foundation for achieving a 10% increase by 2030. Continued alignment of state-level planning and trilateral cooperation will be essential to realise this target.

ACTION 10.3: STRENGTHEN MARINE ECOLOGICAL CONNECTIVITY

This action aims to maintain natural movement and migratory patterns of marine species. Progress in freshwater and marine realms includes planning and some on-ground management, but large-scale, effective connectivity networks remain under development.

Malaysia is advancing this through the Important Marine and Coastal Areas (IMCA) framework. To date, 24 IMCAs covering ~27.5% of national waters provide a scientific basis for planning. Additionally, 84 Marine Protected Areas (MPAs) span 29,844.08 km² (5.34% of national waters).

A seascape approach increasingly guides efforts, notably through the National Forum (November 2025), which launched a 2030 vision for expanding Marine Protected and Conserved Areas. On-ground actions include coral reef restoration (e.g., reef structures, community-based conservation) in areas like Tun Mustapha Park.

Freshwater connectivity efforts—such as conservation of the Kinabatangan and Tasik Bera Ramsar sites—complement marine work but remain fragmented and lack integration into a national freshwater corridor network.

Realm	Progress	Key Outcomes and Remaining Gaps
Freshwater	Conservation of key riverine corridors.	Between 2020–2025, connectivity has been reinforced through the management of Ramsar sites (e.g., Kinabatangan, Tasik Bera). However, these efforts often operate in isolation and are not yet part of a comprehensive national freshwater corridor network.
Marine (Planning & Assessment)	Science-based identification of priority areas.	24 Important Marine and Coastal Areas (IMCAs) have been identified, covering ~27.5% of national waters, providing a critical baseline for planning.

Realm	Progress	Key Outcomes and Remaining Gaps
Marine (Area-Based Conservation)	Gazettement of Marine Protected Areas (MPAs).	84 MPAs have been gazetted, covering 29,844.08 sq km (5.34%) of national waters, a foundational step toward Target 10.
Marine (Governance & Strategy)	Multi-stakeholder collaboration for a ‘seascape’ approach.	A landmark National Forum in November 2025 launched a 2030 vision for expanding Marine Protected and Conserved Areas, emphasising stronger governance and a holistic “seascape” approach.

Key Indicator:
By 2030, marine ecological corridors are actively protected and managed at the national and transboundary levels

Malaysia has established a strong scientific and governance foundation for marine connectivity through IMCAs and MPAs. The identification of priority areas covering 27.5% of national waters and the expansion of protected areas demonstrate significant progress. However, achieving active protection and management of marine corridors will require formal designation of ecological corridors, strengthened enforcement, and integration of national and transboundary governance frameworks.

EXAMPLES OF INITIATIVES DRIVING CHANGE

The effectiveness of Malaysia’s corridor strategy is demonstrated through tangible, on-the-ground interventions across different realms, showcasing models for replication and scaling.

- (a) Applied Green Infrastructure – Eco-viaducts and Underpasses:** Practical implementation is evidenced by dedicated eco-viaducts and underpasses at known road-conflict hotspots. The construction of viaducts on the Aring-Kenyir Road and the critical Sungai Yu corridor physically reconnect the fragmented Titiwangsa Range and Taman Negara, enabling safe wildlife movement. This approach, combined with habitat rehabilitation and monitoring, serves as the national technical template for mitigating infrastructure-related fragmentation. Projects like the Gerik viaduct demonstrate reduced barrier effects and roadkill, proving the effectiveness of integrating wildlife-sensitive design into linear development.
- (b) Lower Kinabatangan – Community-Centered Freshwater Corridor Stewardship:** The Regrow Borneo Initiative in the Lower Kinabatangan River Corridor addresses fragmentation in this Ramsar site and UNESCO Biosphere Reserve. This community-scientist partnership directly tackles habitat loss by actively restoring and reconnecting isolated forest patches through strategic native species planting. Its multi-dimensional effectiveness is proven by a monitoring programme that tracks forest regrowth, carbon sequestration, and biodiversity recovery using indicator species like dung beetles, measuring true ecological functionality in a multi-use landscape.
- (c) Sarawak Ecological Connectivity Plan:** The Sarawak Statewide Ecological Connectivity Plan (developed by Universiti Malaysia Sarawak and WWF Malaysia) provides a science-based blueprint to translate policy into action. The plan’s priority linkages, such as those connecting the Hose Mountains and Mulu National Parks, informed the recent gazettement of new protected areas, including Baleh National Park, strategically located to consolidate a vital corridor for wide-ranging species like the Sunda clouded leopard. This exemplifies the critical transition from strategic planning to formal protection.





Photo credit: Eric Madeja

IMPORTANT MARINE AND COASTAL AREAS

The Blueprint MyMPA study is a strategic initiative led by the Department of Fisheries Malaysia (DOF), in collaboration with Universiti Malaysia Terengganu (UMT), to guide the identification of potential areas for designation as Malaysia's Marine Protected Areas (MyMPA) using scientific evidence and spatial analysis. Conducted in phases across 2023 (West Coast of Peninsular Malaysia) and 2024 (East Coast of Peninsular Malaysia), the study was supported by extensive engagement with state governments, technical agencies, stakeholders, and fishing communities.

Malaysia currently has 84 gazetted MPAs covering approximately 5.54% of national waters (estimated 29,844 km²), based on the national EEZ area of 538,987 km² (JUPEM, 2023), highlighting the need for a strategic expansion of MPA coverage and recognition of OECMs.

Using GIS overlay and thematic datasets (including Malaysia Marine Ecological Gap Assessment Report, MMEGA by DOF; Malaysia Important Marine Conservation Area MyIMCA by WWF-MSMS, IUCN Important Marine Mammal Area, IMMA and RFZPPN-2 by PlanMalaysia), the Blueprint pinpoints biodiversity and fisheries-resource hotspots and generates preliminary boundaries to streamline consultation, technical validation, and gazettment. The study also provides site-level guidance on instrument options (MPA/OECM), zoning approaches aligned with marine spatial planning, and joint management frameworks with communities thus supporting more effective implementation on the ground.

From this study a total of 10 MyMPA areas have now been identified, covering an estimated ~79,000 km² (about ~14% of Malaysia's national waters, 538,987 km²; JUPEM, 2023), strengthening Malaysia's pathway towards national biodiversity targets and KMGBF commitments.

CENTRAL FOREST SPINE MASTER PLAN 2022

The implementation of the Central Forest Spine (CFS) Master Plan was significantly strengthened through the Pelan Induk Rangkaian Ekologi Central Forest Spine (PIRECFS) 2022, led by PLANMalaysia with technical input from the Forestry Department of Peninsular Malaysia. The plan represents a shift towards a more structured, spatially explicit, and implementation-oriented approach to ecological connectivity across Peninsular Malaysia.

PIRECFS 2022 identifies priority ecological corridors linking fragmented forest landscapes, enabling wildlife movement and supporting ecological processes such as genetic exchange. It also introduces a refined corridor naming system aligned with state vehicle registration codes, improving clarity and coordination across jurisdictions.

Importantly, the plan outlines a comprehensive implementation framework comprising 5 objectives, 14 strategies, 38 actions, and 228 initiatives, providing clear direction for coordinated, multi-sectoral implementation.

The plan has received high-level national endorsement,



Photo credit: Perak State Forestry Department

having been approved by the National Physical Planning Council (MPFN), chaired by the Prime Minister, and formally adopted as a guiding framework for integrating ecological connectivity into physical development planning. This is further reinforced through state-level plans, strengthening ownership and implementation across jurisdictions.

By embedding ecological connectivity into land-use and infrastructure planning, PIRECFS 2022 serves as a critical roadmap to ensure that forest landscapes remain connected, resilient, and capable of sustaining biodiversity amid increasing land-use pressures.

CHALLENGES & CONSIDERATIONS FOR FUTURE IMPLEMENTATION

Malaysia has established strategic frameworks for ecological connectivity across terrestrial, freshwater, and marine realms. However, to secure functional ecological networks by 2030, five specific gaps must be addressed:

- **Closing the gap between strategic plans and secured corridors** – Many priority corridors, especially on terrestrial State Land and in critical coastal zones, lack permanent legal protection or effective management, leaving them vulnerable to conversion and fragmentation. *Considerations for future implementation: Accelerate gazettement of critical State Land linkages and develop effective management instruments for riparian and coastal corridors.*
- **Establishing sustainable and scalable financing for long-term stewardship** – The scale of investment required to secure, restore, and manage corridors far exceeds current public-sector allocations. Short-term funding undermines continuity for maintenance, enforcement, and community engagement. *Considerations for future implementation: Transition towards programmatic and blended finance models. Integrate corridor priorities into public budgeting cycles and explore results-based finance mechanisms such as biodiversity credits.*
- **Strengthening governance and cross-boundary coordination** – Corridor implementation spans multiple federal and state agencies, sectoral mandates, and international borders. Divergent priorities and planning cycles hinder integrated landscape and seascape management. *Considerations for future implementation: Formalise coordination mechanisms for corridor management and fully integrate ecological connectivity criteria into spatial planning, infrastructure approval, and sectoral licensing processes.*
- **Building robust monitoring systems for ecological functionality** – Progress tracking relies on output metrics (e.g., area gazetted, trees planted) rather than outcome-based indicators of corridor functionality and ecological resilience. Fragmented data limits adaptive management. *Considerations for future implementation: Operationalise a national corridor monitoring, reporting, and verification system using standardised ecological indicators, remote sensing, and citizen science to track species movement and habitat quality.*
- **Integrating connectivity across terrestrial, freshwater, and marine realms** – Planning and implementation have advanced furthest in terrestrial systems. Freshwater corridors (riparian zones) and coastal-marine linkages are not yet fully integrated into a unified operational framework. *Considerations for future implementation: Adopt integrated “ridge-to-reef” planning frameworks that explicitly link terrestrial, freshwater, and marine corridor objectives, ensuring protection of ecological flows across all realms.*

Goal 3: Safeguarding Ecosystems**TARGET 11****BY 2030, TARGETED MANAGEMENT ACTIONS ARE IN PLACE TO ENABLE THE RECOVERY OF THREATENED SPECIES****INTRODUCTION**

Species recovery is a long game. For long-lived megafauna and slow-maturing trees, population recovery will take decades. What Malaysia has built is the enabling architecture: science-based action plans, coordinated enforcement, and community-embedded stewardship. The country now has action plans for tigers, elephants, orangutans, marine turtles, and threatened dipterocarps, among others. Recovery interventions are increasingly landscape-scale, linking habitat protection, corridor restoration, and anti-poaching patrols. The recognition of the Bornean elephant as a distinct subspecies and the uplisting of the Bornean banteng to Critically Endangered have sharpened conservation priorities. At the same time, ex-situ facilities – from wildlife rescue centres to seed banks – provide safety nets for the most vulnerable species. The path forward requires moving from single-species interventions to integrated metapopulation management, where genetic flow and habitat connectivity are managed across entire landscapes.

CURRENT LEVEL OF PROGRESS TOWARDS THE TARGET

On track to achieve target.

ACTION 11.1: IMPLEMENT TARGETED, SCIENCE-LED ACTIONS FOR SPECIES CONSERVATION

This action is anchored in systematic national and subnational Red List assessments for flora and fauna, which identify priority species, quantify threats, and guide resource allocation. This taxonomic foundation is complemented by ecosystem-level diagnostics and applied research from national institutions (e.g. Forest Research Institute Malaysia), ensuring that recovery actions are ecologically informed, spatially targeted, and evidence-based.

A systematic national approach is now firmly established, supported by a growing suite of federally and state-endorsed, time-bound action plans that provide structured blueprints for species recovery across terrestrial, freshwater, and marine ecosystems. Implementation is driven through dedicated agencies and multi-agency coordination platforms (e.g. the National Tiger Conservation Task Force – MyTTF), ensuring alignment across authorities, researchers, NGOs, and local communities.

Malaysia has concurrently strengthened legal safeguards through a proactive, two-pronged strategy. First, uplisting and recognition of threatened species at state and national levels is enhancing protection status. For example, Sarawak has upgraded key species such as the sun bear (*Helarctos malayanus*), pangolin (*Manis javanica*), and colugos (*Galeopterus variegatus*) to 'Totally Protected'. Scientific advancements are also being formalised, including recognition of the Bornean Asian elephant (*Elephas maximus borneensis*) as a distinct subspecies and the uplisting of the Bornean banteng (*Bos javanicus lowi*) to Critically Endangered, sharpening priorities for urgent action. Second, expansion of national protected lists is underway, particularly for marine taxa. The Department of Fisheries Malaysia is advancing proposals to grant 'Protected' status to all seven species of giant clams, as well as hammerhead sharks, bowmouth guitarfish, and all wedgefish species, with finalisation targeted by 2027. Additional proposals include selected dolphin species and the Napoleon wrasse. A summary of action and recovery plans are listed in Table 11-1.



Table 2-3: Status of Key Species Action and Recovery Plans

Peninsular	Sabah	Sarawak
Available		
Terrestrial		
Flora - Malaysia Red List: Plants of Peninsular, Volume 1 (1 & 2) - Red List of Dipterocarpaceae (2022) Fauna - Malayan Tiger Crisis Action Plan (2021–2030) - National Elephant Conservation Action Plan (2023–2030) - Malayan Tapir Conservation Action Plan 2021–2030 - Action Plan on Conserving the Firefly of Selangor River 2022–2030	Flora - Red List of Sabah Endemic Trees (2023) - The Sabah Plant Red List of Dipterocarpaceae (2022) Fauna - Proboscis Monkey Action Plan for Sabah (2019–2028) - Sunda Clouded Leopard Action Plan (2019–2028) - Bornean Banteng Action Plan (2019–2028) - Orangutan Action Plan for Sabah (2020–2029) - Bornean Elephant Action Plan (2020–2029)	Flora - Red List for Dipterocarps - List of Protected Plants of Sarawak (link here) Fauna - Proboscis Monkey Action Plan for Sarawak (2021–2025) - Bornean Sun Bear Action Plan (2025–2034) - Species Conservation Action Plan (SCAP) for Marine Turtles in Sarawak (2023–2027)
Marine		
3rd National Plan of Action (NPOA) for Shark Plan 2024–2030		
In Progress		
Terrestrial		
- Revised Conservation Action Plan for Threatened Agarwood Species (<i>Aquilaria malaccensis</i>) (Thymelaeaceae) - Peninsular Wildlife Policy - Seladang National Action Plan - Primates National Action Plan	- Sabah Wildlife Policy - Hornbill Action Plan 2026–2036 - Sea Turtle Action Plan - Bornean Fungi Action Plan - Human-Crocodile Conflict Mitigation Action Plan	- Revision of Red List for Dipterocarps - Red List for Fauna in Sarawak - Revision of Wild Life Protection Ordinance - Orang Utan Action Plan
Marine		
- National Plan of Action for Coral Reef - National Plan of Action for Marine Mammal 2nd National Plan of Action for Sea Turtle 2nd National Plan of Action for Dugong - National Marine Mammal Stranding Response's SOP		

Robust monitoring systems – including camera trapping, telemetry, and genetic studies – support adaptive management and the continuous refinement of conservation strategies. Between 2023 and 2025, PERHILITAN strengthened these efforts through large-scale camera trap deployments and a national data analysis workshop focusing on tigers, prey species, and other endangered wildlife, further enhancing evidence-based decision-making.

In-situ conservation remains central, focusing on securing and restoring viable populations within natural habitats. Key interventions include strengthening protected area management; securing critical habitats and ecological corridors; enhancing enforcement against poaching and illegal trade; and implementing species-specific recovery programmes

for flagship taxa such as the Malayan tiger, Asian elephant, orangutan, marine turtles, and threatened plant species.

Sustainable Forest Management (SFM) frameworks and certification schemes (e.g. MTCS, FSC) further reinforce biodiversity protection within production landscapes. Over 300 Endangered, Rare, and Threatened (ERT) species are safeguarded through High Conservation Value (HCV) assessments, habitat retention measures, and reduced-impact logging practices.

Targeted, science-led interventions are already delivering measurable outcomes, including stabilisation of key species populations and improved ecological connectivity across priority landscapes.

Key Indicator:**By 2030, conservation and recovery plans for critically endangered plants and wildlife are in place**

Malaysia has established a robust and science-based foundation for achieving this indicator, anchored in comprehensive Red List assessments, national and subnational species action plans, and strengthened legal and policy frameworks. A broad portfolio of conservation and recovery plans is already being implemented across Peninsular Malaysia, Sabah, and Sarawak, encompassing terrestrial, freshwater, and marine taxa. Moving forward, systematic updates to the National Red Data List, integration of climate risk and vulnerability assessments, and the expansion of coordinated monitoring and evaluation systems will be critical to ensuring that these plans remain adaptive, evidence-based, and effective in delivering measurable recovery outcomes.

ACTION 11.2: ADOPT A METAPOPULATION APPROACH FOR OUR MOST THREATENED SPECIES

Malaysia's approach increasingly recognises the need to manage fragmented and isolated populations of threatened species as components of larger, connected ecological systems. While a fully operational, nationwide metapopulation framework is not yet in place, current conservation practice is steadily evolving in this direction through landscape-scale planning, ecosystem-based management, and species recovery interventions.

Existing efforts already reflect key elements of metapopulation thinking, including habitat corridor restoration, ecological connectivity planning, and targeted translocations to support genetic flow and reduce inbreeding risks. Initiatives such as orangutan corridor restoration in Sabah and landscape-level tiger conservation in the Banjaran Titiwangsa–Greater

Taman Negara complex demonstrate early and practical applications of these principles.

Implementation remains grounded in ecosystem-level strategies, where species conservation is embedded within broader habitat protection, restoration, and land-use planning frameworks. This includes integrating protected areas, production forests, and other managed landscapes into functional ecological networks that support species movement and long-term viability. Table 11-2 below highlights targeted, evidence-based conservation actions for priority threatened species and habitats, demonstrating measurable gains in protection, population stability, and ecological connectivity across the Peninsular, Sabah, and Sarawak.

Table 2-4: Key Management Interventions and Effectiveness for Priority Threatened Species

Species (Common & Scientific Name)	Key Management Actions Taken	Observed Outcome / Effectiveness
Malayan Tiger (<i>Panthera tigris jacksoni</i>)	- Central coordination via the MyTTF. - Intelligence-led enforcement & intensified patrolling. - Financial instrument for tiger habitat conservation such as EFT & the encouragement on habitat preservation compliant to international accreditation such as CA TS. - Prey-base management & habitat protection. - Consolidation of multi-year datasets through the Malayan Tiger Data Analysis Workshop. - Formation of the CA TS National Committee.	Reduced poaching indicators in priority landscapes. Repeated tiger detections and improved prey availability show the effectiveness of integrated strategies.
Asian Elephant (Peninsular) (<i>Elephas maximus</i>)	- Deployment of rapid-response conflict mitigation teams. - Installation of strategic electric fencing. - Installation of elephant collar satellite to monitor herd movement. - Implementation of early-warning systems.	Improved response times and reduction in crop loss incidents in selected high-conflict districts.
Asian Elephant (Borneo) (<i>Elephas maximus borneensis</i>)	- Implementation of the state-level Sabah Action Plan. - Integrated land-use planning & conflict mitigation. - Enhanced monitoring in shared landscapes.	Strengthened frameworks for human-elephant coexistence in key agricultural and forest-edge landscapes.

Species (Common & Scientific Name)	Key Management Actions Taken	Observed Outcome / Effectiveness
Malayan Tapir (<i>Tapirus indicus</i>)	- Roadkill mitigation measures on major corridors. - Habitat connectivity projects. - Camera-trap monitoring & public awareness campaigns.	Increased data on tapir movements informs mitigation planning and raises public engagement.
Bornean Sun Bear (<i>Helarctos malayanus euryspilus</i>)	- Habitat protection & anti-poaching patrols. - Rescue, rehabilitation, and release programmes. - Long-term ecological monitoring.	Supports both in-situ population stability and ex-situ recovery efforts through a complementary approach.
Bornean Banteng (<i>Bos javanicus lowi</i>)	- Protection of critical lowland forest habitats. - Strengthened enforcement against poaching. - Collaboration with adjacent plantation operators.	Supported the reported stabilisation of remnant populations in secure core areas.
Sunda Clouded Leopard (<i>Neofelis diardi</i>)	- Landscape-scale forest protection. - Systematic camera-trap monitoring across forest mosaics.	Data confirms the species' presence and highlights its role as an indicator of intact forest ecosystem health.
Proboscis Monkey (<i>Nasalis larvatus</i>)	- Riparian and mangrove restoration. - Long-term population monitoring. - Community engagement in habitat stewardship.	Supports the conservation of this endemic, habitat-specialist primate in key watersheds.
Orangutan (<i>Pongo pygmaeus</i>)	- Ecological corridor restoration. - Land-use planning with forestry/plantation sectors. - Protection of key forest patches.	Has maintained population connectivity and stability in managed forest landscapes of Sabah. The population in Sarawak has shown an increase.
River Terrapin (<i>Batagur affinis</i>)	- Nest protection & head-starting programmes. - Habitat rehabilitation in key river basins (e.g., Perak, Terengganu). - Controlled releases of hatchlings.	Sustains small but persistent wild populations through direct intervention and habitat improvement.
Hornbills (Various species)	- Cavity restoration in Sabah and Terengganu is gaining success. - Active protection of nesting trees. - Enforcement against illegal trade. - Community-based conservation engagement. 10 November has been identified as National Hornbill Day.	Strengthens recovery of these culturally and ecologically significant avian pollinators and seed dispersers.
Marine Turtles (Various species)	- Nesting beach protection & hatchery management. - Strengthened Marine Protected Area (MPA) governance. - Long-term monitoring at index sites. - Rescue rehabilitation and release, enforcement against illegal harvesting, long term population monitoring, community engagement	Stable or increasing nesting trends observed at several long-monitored beaches in Terengganu, Sabah, and Sarawak.
Sharks and Rays (Various species)	By-catch monitoring programme, community engagement through workshops and research.	Additional species legally full protected in 2017- the Great Hammerhead Shark (<i>Sphyrna mokarran</i>), Smooth Hammerhead Shark (<i>Sphyrna zygaena</i>), Winghead Shark (<i>Eusphyra blochii</i>) and Oceanic Whitetip Shark (<i>Carcharhinus longimanus</i>) as well as two ray species – the Giant Oceanic Manta (<i>Manta birostris</i>) and Reef Manta (<i>Manta alfredi</i>)
Threatened Flora (e.g., dipterocarps, limestone endemics)	- Forest restoration & enrichment planting. - Ex-situ conservation in botanical gardens & seed banks. - Enforcement against illegal harvesting.	Secures genetic resources, supports population recovery in situ, and provides material for large-scale restoration.

Across taxa, targeted interventions are already delivering measurable outcomes:

- Terrestrial species programmes are stabilising populations of key megafauna through coordinated enforcement, habitat protection, and recovery planning.
- Marine and coastal efforts are reversing declines through integrated protection, fisheries management tools (e.g. TEDs), and long-term monitoring.
- Freshwater and community-based systems (e.g. tagal/tagang) demonstrate how local stewardship contributes to maintaining population connectivity.
- Migratory species conservation is strengthening flyway-level connectivity through protection of critical stopover sites.
- Threatened flora initiatives are advancing both in-situ and ex-situ approaches, supporting genetic conservation and restoration at scale.

However, systematic integration of wild and captive populations under a formal metapopulation framework remains an area for further strengthening.

Looking ahead, Malaysia is actively positioned to transition towards a more explicit metapopulation-based approach through several enabling pathways. These include:

- strengthening national ecological network frameworks such as the Central Forest Spine (CFS), Heart of Borneo (HoB), and marine spatial planning initiatives;
- integrating genetic, demographic, and spatial data into national species recovery planning;
- enhancing the role of ex-situ conservation (e.g. captive breeding, seed banks, and botanical collections) as complementary reservoirs to support reintroductions and population reinforcement; and
- formalising cross-jurisdictional coordination mechanisms to manage species populations across state and landscape boundaries.

In this context, the development of a national metapopulation management framework or guidelines – potentially embedded within the NPBD 2022-2030 implementation roadmap or future revisions of species action plans – would provide a structured basis to link site-level conservation actions into coherent, population-level strategies. This would enable Malaysia to move from strong, site-based conservation towards fully integrated, landscape-scale population management, ensuring long-term genetic viability and resilience of its most threatened species.

Key Indicator:

By 2030, targeted actions to conserve threatened plants and wildlife have been established

Targeted actions are being implemented through species-specific recovery programmes, habitat restoration, strengthened legal protection, and enforcement measures across terrestrial, freshwater, and marine ecosystems. These efforts are increasingly guided by science-based prioritisation and supported by coordinated national and state action plans. While Malaysia has not yet fully operationalised a formal metapopulation framework, current approaches are progressively incorporating key elements of landscape-scale conservation, including ecological connectivity, corridor restoration, and population reinforcement. Scaling these efforts into coordinated, landscape-level metapopulation strategies – integrating translocations, genetic management, and the establishment of new viable populations, alongside stronger linkages between in-situ and ex-situ conservation – will be critical to ensuring long-term species viability and resilience by 2030.

ACTION 11.3: ENHANCE TECHNICAL CAPACITY FOR EX-SITU CONSERVATION

Ex-situ conservation serves as a critical safety net for threatened species, supporting recovery through captive breeding, rescue and rehabilitation (for fauna), as well as seed banking, arboreta, and propagation (for flora). These interventions are applied strategically and increasingly aligned with in-situ conservation objectives, particularly for population reinforcement, reintroduction, and genetic safeguarding.

Malaysia has established a robust and geographically distributed ex-situ network, anchored by 13 government-operated wildlife facilities, including 11 Conservation Centres and 2 Rescue Centres across Peninsular Malaysia. These facilities function as regional hubs for management, rehabilitation, and conservation breeding of confiscated, injured, or displaced wildlife, directly supporting enforcement against poaching, illegal trade, and human-wildlife conflict.

Specialised centres, such as the National Wildlife Rescue Centre (NWRC) in Sungkai, Perak, and PMHL Sungai Tenggi in Selangor, provide intensive care, quarantine, and triage services, strengthening national capacity to respond to wildlife emergencies and support structured rehabilitation and release programmes.

Ex-situ conservation of threatened flora is similarly well established, led by institutions such as the Malaysian Agricultural Research and Development Institute, which maintains extensive seed banks, gene banks, and living collections safeguarding over 20,000 accessions, including agricultural crops and threatened wild species. This effort is complemented by botanic gardens and targeted plant rescue initiatives – such as salvaging orchids from logging areas and conserving pitcher plants and gingers – ensuring preservation of genetic resources and providing planting material for large-scale restoration.

Building on this foundation, Malaysia is advancing towards formal designation and standardisation of its ex-situ network under a coordinated national framework. Key facilities are being positioned as integrated national nodes with defined roles, technical standards, and monitoring systems, enabling stronger coordination across agencies and jurisdictions. The nationwide distribution of these centres across Peninsular Malaysia, Sabah, and Sarawak provides a solid platform for scaling conservation breeding, genetic management, and reintroduction programmes in support of long-term species recovery.

Further strengthening will focus on advancing reproductive technologies, enhancing coordinated breeding programmes, and expanding regional and international collaboration for genetic exchange – ensuring that ex-situ systems can effectively complement in-situ conservation and contribute to future population resilience.

Key Indicator:

By 2030, 10 ex-situ conservation centres are actively contributing in species rescue and recovery programmes

Malaysia already operates an extensive network of wildlife rescue and conservation facilities, alongside well-established plant conservation infrastructure. By 2030, the formal designation, standardisation, and strengthened coordination of at least 10 ex-situ centres as national hubs will ensure measurable contributions to species rescue, conservation breeding, rehabilitation, reintroduction, and genetic conservation, supporting integrated, landscape-scale species recovery efforts.

ACTION 11.4: ADOPT SCIENTIFIC AND CO-EXISTENCE APPROACHES TO ADDRESS HUMAN-WILDLIFE CONFLICTS

Malaysia is progressively mainstreaming coexistence through integrated, science-based approaches to human-wildlife conflict (HWC), combining rapid response, prevention, and long-term landscape planning. Core measures include rapid-response teams, strategic electric fencing, early-warning systems, and financial assistance mechanisms such as the federal BKHT scheme.

The BKHT scheme has provided approximately RM2.5 million in assistance to 560 applicants, complemented by state-level task forces (e.g., Johor) and PERHILITAN's national HWC task force. At the landscape level, interventions include wildlife crossings, dedicated forage areas, ecological corridors, and behavioural change programmes. Community-based approaches are expanding, with participatory planning, community rangers, and innovative financing such as the LIFE scheme in Sabah.

A multi-stakeholder initiative in Sungai Ara, led by the Malaysian Palm Oil Green Conservation Foundation, Earthworm Foundation, and Malaysian Palm Oil Board, established a Human-Elephant Coexistence Committee. Mitigation measures including electric fencing, patrol teams, drones, and early warning systems have reduced conflicts and strengthened community response.

Wildlife road mortality is a growing concern, particularly along the Gerik-Jeli stretch of the East-West Highway. In response, NRES and PERHILITAN have elevated the issue at the Third National Biodiversity Council (May 2025), launched CEPA awareness programmes, convened a roundtable with WWF-Malaysia, and signed a Letter of Agreement with the East-West Highway Project Transport Association (EMPTA). Legislative and policy frameworks are also being strengthened to ensure humane management of human-wildlife interactions.

Key Indicator:

By 2030, human-wildlife conflict reduction approaches/strategies have been formulated

Malaysia has already established a diverse suite of HWC mitigation measures across species, landscapes, and sectors. Moving forward, the priority is to consolidate and standardise these approaches into a coherent national framework, scale up proven coexistence models, and embed HWC considerations into land-use planning, infrastructure development, and community-based management systems. This will enable more systematic, preventive, and adaptive responses to human-wildlife conflict nationwide.



ACTION 11.5: STRENGTHEN CONSERVATION OF MIGRATORY SPECIES

Malaysia plays an important role in regional migratory systems, particularly within the East Asian–Australasian Flyway for waterbirds and across marine corridors in the Coral Triangle. Securing ecological networks across breeding, stopover, foraging, and overwintering habitats is the primary focus.

National efforts prioritise the identification, protection, and management of critical migratory sites. Bako Buntal Bay in Sarawak has been recognised under international flyway networks, and additional priority sites are being nominated across Peninsular Malaysia, Sabah, and Sarawak, particularly in coastal wetlands and intertidal habitats. These efforts are underpinned by improved monitoring systems, including waterbird censuses, habitat assessments, and tracking technologies.

For marine migratory species, conservation focuses on maintaining seascape connectivity through marine spatial planning, strengthening MPA networks, and reducing pressures such as bycatch, habitat degradation, and vessel-related impacts. Regional cooperation remains central, with Malaysia engaging in flyway partnerships and marine conservation platforms to support data sharing and joint monitoring.

Malaysia is steadily expanding its network of migratory sites. Ecologically significant areas—including Kuala Gula, Pulau Kukup, Tanjung Piai, and key habitats in Sabah and Sarawak—are being assessed for national and international recognition. At the marine level, efforts are advancing to identify migratory corridors and aggregation areas. Collectively, these initiatives are building an interconnected network of sites and corridors, strengthening Malaysia's contribution to migratory species conservation.

Key Indicator:

By 2030, identification, establishment, and recognition of migratory sites for conservation has increased

Malaysia has made substantive progress in identifying and safeguarding key migratory sites, particularly for waterbirds within the East Asian–Australasian Flyway and for marine species across coastal and offshore ecosystems. Moving forward, the focus will be on expanding the designation and effective management of priority sites, strengthening ecological connectivity across landscapes and seascapes, and embedding migratory species considerations into land-use, coastal, and marine spatial planning frameworks. Enhanced regional cooperation and integration into international migratory networks will be essential to ensure protection across entire migratory pathways.

EXAMPLES OF INITIATIVES DRIVING CHANGE

The success of Malaysia's strategy is evidenced by tangible, on-the-ground results. Data from 2022–2025 confirms that targeted, evidence-led interventions are yielding measurable progress: stabilising key populations, reducing critical threats, and enhancing habitat resilience. The following examples demonstrate the direct cause-and-effect relationship between coordinated management actions and early signs of species recovery across ecosystems.

(a) Orangutan Population Monitoring and Community Engagement in Batang Ai–Lanjak–Entimau, Sarawak:

Systematic orangutan nest count surveys initiated in 2022 by WCS Malaysia in close collaboration with Sarawak Forestry Corporation covered Batang Ai National Park and the entire Lanjak–Entimau Wildlife Sanctuary, with field surveys completed by the end of 2025. The programme, costing RM800,000, engaged more than 75 village representatives from 10 longhouses, strengthening local stewardship alongside scientific monitoring. A total of 63 village representatives from 20 longhouses were also trained to lead community patrols, whilst patrol efforts doubled from about 400 km annually to about 1,000 km by the end of 2025. Updated population estimates are scheduled for release in 2026, providing a robust evidence base for long-term species management.

(b) Human–Elephant Conflict Mitigation through Innovative Financing in Sabah:

The Livelihood Insurance From Elephant (LIFE) project, led by Pertubuhan Pemuliharaan Biodiversiti Seratu Aatai Sabah, piloted a private insurance mechanism to address human–elephant conflict linked to the Pan-Borneo Highway. Implemented with technical partners and supported by USD 42,800, the project combined GPS-collaring of three elephants, deployment of 20 camera traps, and field surveys that produced spatial movement maps. The initiative informed road-impact mitigation policy outlines with state agencies, demonstrating an integrated, evidence-based approach to infrastructure-related conflict.

(c) Hornbill Guardians Programme in Perak:

Between 2022 and 2024, the Malaysian Nature Society implemented the Hornbill Guardians programme to protect hornbill nesting sites through community-based monitoring and awareness in key landscapes in the Peninsular. The programme trained 10 local guardians from nearby communities to monitor active nest trees, report threats such as logging and disturbance, and support seasonal breeding protection, contributing to improved nest security and

sustained community stewardship for hornbill conservation.

(d) Sustained Enforcement and Biodiversity Monitoring in Danum–Maliau–Imbak Landscape in Sabah: The Sabah Environmental Trust's Danum–Maliau–Imbak (DaMa-I) Initiative deploys one officer and six trained community rangers to conduct monthly patrols and biodiversity monitoring in collaboration with state agencies. These efforts have contributed to maintaining and showing early signs of increase in populations of Bornean elephants, orangutans, and banteng, while simultaneously supporting sustainable livelihoods for local communities.

(e) Community-Based Terrapin Conservation in Terengganu: Between 2023 and 2025, WWF-Malaysia implemented a comprehensive terrapin conservation programme in Setiu and Kerteh focusing on the Critically Endangered Painted Terrapin (*Batagur borneoensis*) and River Terrapin (*Batagur affinis*). The programme secured 374 nests containing 3,782 eggs and released 2,909 hatchlings, while population surveys recorded 128 Painted Terrapins and 14 River Terrapins in the Setiu River. Engagement of 49 local community members as rangers and hatchery workers significantly reduced egg poaching and strengthened long-term community stewardship.

(f) Marine Mammals Alive: Discovering, Monitoring and Conserving Whales, Dolphins, Porpoises, and Dugongs in Malaysia (2021–2026): Since August

2021, Marecet Research Organisation of Selangor has been implementing an ongoing marine mammal conservation programme throughout the coastal waters of Perlis, Kedah, Perak and eastern Johor. The project recorded Malaysia's first whale acoustic detections and documented 20 Bryde's whales, 790 finless porpoises, and 1,800 dolphins through systematic field surveys, strengthening the national evidence base for marine mammal conservation. It also supported policy development with the Department of Fisheries Malaysia through the formulation of a Boating Code of Conduct, conducted capacity-building workshops for 40 fisheries officers, engaged local fishers through guideline dissemination, and removed over 700 kg of marine debris and ghost nets, contributing to improved monitoring, stakeholder capacity, and long-term protection of Malaysia's marine biodiversity.

(g) Global Assessment of Threatened Dipterocarps in Sabah: The Sabah Forestry Department contributed to the global Red List of Dipterocarpaceae published by Botanic Gardens Conservation International (BGCI), assessing 535 species worldwide. Malaysia was identified as the global centre of dipterocarp diversity, with 340 species, of which 211 are threatened. Technical inputs led by the Forest Research Centre, Sepilok, strengthened the global evidence base for plant conservation while supporting sustainable forest management within Sabah's commercial timber sector.

SARAWAK RED LANGUR CONSERVATION PROJECT, MALUDAM NATIONAL PARK (2023–2026)

The Sarawak Red Langur Conservation Project, implemented by Sarawak Forestry Corporation since January 2023, targets the recovery of one of the world's rarest primates – the Critically Endangered Sarawak Red Langur, with fewer than 300 individuals remaining globally. Centred in Maludam National Park, the project aligns with NPBD Actions 1.1 and 1.2 and adopts a science-based and community-inclusive approach.

A key achievement is the development of a comprehensive Species Conservation Action Plan (SCAP), which provides a structured, long-term roadmap for population monitoring, habitat protection, and threat mitigation. The project integrates ecological research with conservation management, strengthening the evidence base for decision-making.

Equally important is its strong community engagement component. The initiative targets the involvement of at least 200 local community members and 200 students through environmental education, awareness programmes, and eco-tourism development. This approach links conservation outcomes with socio-

economic benefits, with an estimated 8,000 B40 individuals expected to benefit indirectly through livelihood opportunities and ecosystem services.

The project demonstrates how species recovery can be embedded within protected area management while generating local economic value, offering a scalable model for conservation of other range-restricted and endemic species.

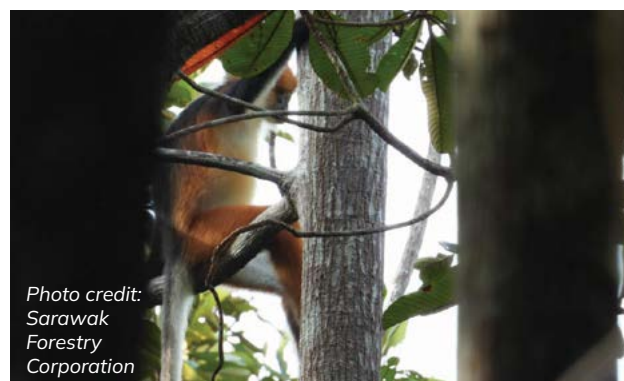


Photo credit:
Sarawak
Forestry
Corporation



Photo credit: Malaysian Agricultural Research and Development Institute

MARDI GENE BANK: SAFEGUARDING AGRICULTURAL BIODIVERSITY

MyGeneBank, managed by the Malaysian Agricultural Research and Development Institute (MARDI), is Malaysia's national genebank for plant genetic resources for food and agriculture (PGRFA). It serves as a central platform for conserving agricultural biodiversity, including traditional crop varieties, crop wild relatives, and underutilised species that are increasingly critical for climate resilience and food security.

Operating as a distributed national system, MyGeneBank integrates a central facility in Serdang with field genebanks and specialised collections across multiple research stations situated at MARDI Seberang Perai, MARDI Jelevu, MARDI Jerangau, MARDI Kemaman and MARDI Bintulu. It adopts a dual ex situ conservation approach: orthodox seeds are stored under controlled conditions (3–5°C and –20°C), while recalcitrant and vegetatively propagated species are conserved in living field genebank collections, ensuring comprehensive coverage across crop types.

Since its establishment in its current integrated form in 2014, MyGeneBank has developed advanced storage, processing, and laboratory facilities, with the capacity to conserve up to 200,000 accessions. It currently maintains approximately 18,315 accessions from 485 species, including rice, tropical fruits, herbs, and traditional vegetables.

Beyond conservation, MyGeneBank supports research, breeding, and innovation by enabling access to genetic materials with valuable traits such as drought tolerance, pest resistance, and improved nutritional quality. It also contributes to international commitments, including the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), supporting global efforts to conserve and sustainably use plant genetic diversity.

Guided by its vision to be a centre of excellence in the conservation and sustainable use of plant genetic resources, MyGeneBank's mission is to systematically collect, conserve, document, and facilitate the utilisation of Malaysia's genetic resources for present and future generations.

GREEN SEA TURTLE CONSERVATION PROJECT IN THE EAST COAST OF PENINSULAR MALAYSIA

Since January 2022, Yayasan Sime Darby, in collaboration with Fuze Ecoteer and the Department of Fisheries Malaysia, has implemented a comprehensive Green Sea Turtle conservation project in the Perhentian and Redang Islands. The initiative integrates science, technology, and public engagement to strengthen marine park management and species protection.

Key interventions include satellite tracking of sea turtles and vessel movement along the Terengganu coast, enabling identification of critical habitats and high-risk zones. Annual seagrass assessments provide essential data on feeding ground health, while systematic analysis of stranded turtles informs targeted threat mitigation measures, including reducing bycatch and vessel collisions.

A major milestone was the launch of the Malaysia Marine Parks website in June 2025—the country's first integrated public platform for marine conservation. The platform features interactive maps, species databases, ethical tourism guidance, and citizen science tools for

reporting turtle sightings and marine debris, significantly enhancing public participation and data collection.

By combining ecological monitoring with digital innovation and citizen engagement, the project demonstrates a scalable model for integrating science, governance, and public stewardship in marine conservation.



Photo credit: Fuze Ecoteer

CHALLENGES & CONSIDERATIONS FOR FUTURE IMPLEMENTATION

Malaysia has established systematic frameworks for species recovery, including science-based action plans and coordinated enforcement. However, to accelerate recovery rates by 2030, five specific gaps must be addressed:

- Low population viability and habitat fragmentation** – Several priority species continue to require urgent intervention due to low population viability. Ongoing habitat fragmentation driven by agricultural expansion, infrastructure development, and urbanisation further isolates populations and disrupts connectivity. *Considerations for future implementation: Prioritise recovery actions addressing minimum viable population thresholds and genetic resilience. Accelerate rehabilitation, legal gazettement, and effective management of ecological corridors under landscape-scale initiatives.*
- Persistent anthropogenic pressures and human-wildlife conflict** – Illegal wildlife trade, poaching, bycatch, and unsustainable harvesting continue to undermine recovery efforts. Escalating human-wildlife conflict weakens local support for conservation. *Considerations for future implementation: Further strengthen intelligence-led enforcement and inter-agency coordination to reduce direct offtake pressures. Scale up proven coexistence models including community rangers, rapid response teams, and traditional management systems.*
- Climate risks and institutional constraints** – Climate change is altering habitat suitability and disturbance regimes, increasing uncertainty in recovery outcomes. Complex federal-state governance arrangements and limited long-term financing constrain coordinated landscape-scale action. *Considerations for future implementation: Integrate climate risk and vulnerability assessments into species recovery and protected area management plans. Formalise cross-jurisdictional coordination through joint action plans and shared operational frameworks.*
- Fragmented monitoring and adaptive management** – Monitoring systems remain fragmented across programmes and institutions, limiting their effectiveness in guiding timely, adaptive interventions. *Considerations for future implementation: Integrate ecological monitoring and threat intelligence into unified decision-support systems. Institutionalise adaptive management cycles to continuously refine recovery actions based on evidence.*
- Transitioning to metapopulation management** – Current conservation efforts are largely site-based rather than managing fragmented populations as components of larger, connected ecological systems. Systematic integration of wild and captive populations remains underdeveloped. *Considerations for future implementation: Develop a national metapopulation management framework linking genetic, demographic, and spatial data into species recovery planning, integrating translocations, genetic management, and stronger linkages between in-situ and ex-situ conservation.*

Goal 3: Safeguarding Ecosystems**TARGET 12**

BY 2030, POACHING, ILLEGAL HARVESTING, AND ILLEGAL TRADE OF FLORA AND FAUNA ARE MINIMISED OR SIGNIFICANTLY REDUCED

INTRODUCTION

Wildlife crime is no longer opportunistic poaching; it is organised, transnational, and increasingly digital. Malaysia's response has evolved accordingly, shifting from reactive enforcement to intelligence-led, multi-agency operations. The results are measurable: between 2019 and 2024, cases under Operasi Bersepadu Khazanah increased by 539% and arrests by 706%, with cumulative seizures valued at RM413.1 million. Specialised units such as the Wildlife Crime Bureau, SPARTA, and INTAC now provide dedicated capacity for investigation and intelligence. Border enforcement has been strengthened with sniffer dogs at KLIA and enhanced inter-agency coordination at ports. Yet the challenge is accelerating. Illegal trade has migrated to encrypted platforms and dark web markets. Domestic demand for wildlife products persists, and regulatory gaps remain, particularly for marine species and online trade. The next phase requires sustained investment in digital forensics, financial investigations, and demand-reduction campaigns.

CURRENT LEVEL OF PROGRESS TOWARDS THE TARGET

On track to achieve target.

ACTION 12.1: COMBAT POACHING AND ILLEGAL HARVESTING OF WILD FLORA AND FAUNA

Malaysia has significantly strengthened enforcement through intelligence-led operations and multi-agency task forces to address wildlife crime, forest encroachment, and environmental offences. Led by PERHILITAN in collaboration with police, border control, and forestry departments, this effort is powered by dedicated units with clear mandates (see Table 12.1).

The Operasi Bersepadu Khazanah (OBK) programme reflects decisive improvement in effectiveness. Over five years, cases rose more than fivefold and arrests more than sevenfold, while patrol coverage expanded by over 300%. Annual OBK cases increased from 49 in 2019 to a peak of 313 in 2024, with arrests rising from 34 to 274. Cumulatively, 89 operations led to 1,198 arrests (904 Malaysian, 294 foreign nationals), dismantled 2,838 snares and 1,172 illegal camps, and resulted in seizures valued at RM413.1 million. Patrol coverage expanded from approximately 4,998 km² (2019) to 21,433 km² (2023). The Forestry Department of Peninsular Malaysia conducted 277 joint 'Operasi Bersepadu' patrols between 2021 and September 2025.

Operational outcomes demonstrate systematic disruption of poaching, including removal of snares, dismantling of encampments, and interception of poaching syndicates. The Intelligence & Tactical Centre (INTAC) produced 366 wildlife crime profiles, processed over 300 cybercrime complaints, and issued 130 enforcement alerts between 2022 and 2025.

Technological systems have strengthened detection capacity. Satellite-based monitoring through War Room@FDPM identified over 22,000 hectares of forest openings in 2025 (year-to-date), a 130% increase from 2024, reflecting enhanced detection sensitivity. In 2024, 9,407 hectares of openings and 2,537 hectares of encroachment were detected. In 2025 (up to October), detections increased to 22,425 hectares of openings and 10,117 hectares of encroachment. These functions are supported by FMRS Plus and e-GP systems.

Enforcement capacity has also been strengthened at transit points. Since 2023, two sniffer dogs at Kuala Lumpur International Airport (KLIA) have supported seizures valued at approximately RM5.4 million (January 2023–March 2025). In Sabah, the PROTECT Unit (2019) and Rapid Response Team (2022) further expand ranger capacity.

Complementing enforcement, Malaysia has expanded demand-reduction and awareness initiatives. In November 2025, PERHILITAN conducted a Wildlife Trafficking Awareness Campaign at KLIA. The Sarawak Forestry Corporation conducted awareness surveys on marine turtle conservation (846 respondents) and marine mammals (346 respondents). Since its 2021 launch, the Save the Malayan Tiger (SHM) Campaign has mobilised approximately RM2.5 million in public contributions.

Table 2-5: Specialised Enforcement Units and Capacity for Wildlife Crime Control

Enforcement Unit / Mechanism	Primary Function / Description	Key Metric (Capacity)
Wildlife Crime Bureau (WCB)	Leads intelligence-led investigations and digital surveillance.	50 approved posts (48 filled).
Wildlife Crime Unit (WCU)	Conducts field investigations and operations.	114 approved posts (90 filled).
Malayan Tiger Conflict Unit (UKHM)	Specialises in conflict mitigation and tiger-related crime.	57 approved posts (47 filled).
Special Tactical Team (SPARTA)	Rapid-deployment team for high-risk anti-poaching operations.	30 trained members (13 commissioned Feb 2022).
Intelligence & Tactical Centre (INTAC)	Centralised intelligence hub for the Peninsular.	N/A (Coordination function).

Key Indicator:
By 2030, collaborative efforts to combat poaching and illegal harvesting have increased by 50% compared to 2024 levels

Malaysia is on track to scale up coordinated enforcement, building on strong upward trends from 2019 to 2024—cases rose by ~539% (49 to 313) and arrests by over 700% (34 to 274). Joint operations like *Operasi Bersepadu Khazanah* (OBK) are expected to expand in frequency and coverage beyond the current >21,000 km² patrol footprint. Collaboration among PERHILITAN, Forestry Departments, Police, Customs, and specialised units will intensify, supported by intelligence platforms like INTAC, which has generated over 360 wildlife crime profiles. By 2030, this enhanced coordination aims to deliver more targeted operations, sustained presence in high-risk landscapes, and a significantly strengthened national enforcement network.

ACTION 12.2: COMBAT ILLEGAL TRADE OF WILD FLORA AND FAUNA

Malaysia has strengthened efforts to combat illegal wildlife trade through enhanced border enforcement, intelligence-led investigations, and international cooperation.

A major milestone was achieved in February 2025, when the CITES Standing Committee recognised Malaysia’s successful completion of the National Ivory Action Plan. The Cabinet has directed strengthened multi-agency enforcement at international airports, while Sabah launched a 10-year Action Plan to Combat Wildlife Crime (2024–2035).

Enforcement has intensified. Major seizures at KLIA and Port Klang have intercepted ivory, rhino horn, and pangolin scales. Intelligence-led operations, including Ops Taring, have expanded into digital marketplaces. In Sarawak, a landmark 2022 case resulted in a record RM27.8 million fine for illegal pangolin possession. As of September 2021, SFC had opened 174 investigation papers and seized over 3,500 live animals. Between April and November 2025, 59 new investigation papers led to 17 prosecutions, with 21 offenders fined and 13 custodial sentences.

However, illegal wildlife trade is increasingly diversified. TRAFFIC analysis recorded at least 5.25 million kg of shark and ray products traded over three months, valued at over RM326 million. Online monitoring identified over 1,800 listings, with 73% of shark listings involving CITES Appendix II species. Notably, 73% of shark products and 98% of ray products were locally sourced, while only 18–31% of listings included origin information. This indicates a shift from high-value luxury products to high-volume, lower-value products, complicating enforcement.

Malaysia is adapting through intelligence-led investigations, financial enforcement tools such as AMLA, and participation in INTERPOL’s Operation Thunder and the Global Wildlife Program. However, addressing the full scale of illegal trade will require a strategic shift to comprehensive supply chain regulation, including digital monitoring and traceability systems.

Key Indicator:
By 2030, illegal import and export of wild flora and fauna has reduced compared to 2024 levels

Malaysia is positioned to achieve measurable reductions in illegal wildlife trade through stronger interdiction and supply chain disruption. Building on recent enforcement successes—including

seizures valued at over RM413 million and major interceptions at Kuala Lumpur International Airport and Port Klang—efforts are expected to further reduce trafficking across key border points. Enforcement is also expanding beyond borders to address domestic and online trade, which currently accounts for substantial volumes, including at least 5.25 million kilograms of shark and ray products recorded in just three months. Enhanced intelligence-led investigations (e.g., Ops Taring) and increased use of financial tools under AMLA are expected to disrupt organised criminal networks and reduce both the scale and frequency of illegal trade.

ACTION 12.3: REDUCE DEMAND THROUGH PUBLIC OUTREACH AND BEHAVIOURAL CHANGE

Malaysia has expanded efforts to address the demand drivers of wildlife crime through public awareness campaigns, stakeholder engagement, and behavioural change initiatives. Programmes such as the Wildlife Trafficking Awareness Campaign at KLIA and public engagement initiatives under the Save the Malayan Tiger Campaign—which has mobilised approximately RM2.5 million in contributions—demonstrate increasing public participation and awareness.

However, trade data suggests that demand remains strong and is evolving. The high volume of shark and ray products recorded in domestic markets indicates sustained consumption, particularly for lower-cost products such as meat, which cater to broader segments of the population. This reflects a structural shift in demand, from luxury consumption to mass-market use, requiring a recalibration of behavioural interventions.

Current efforts have laid an important foundation, but demand reduction remains less developed relative to enforcement. Achieving sustained behavioural change will require more targeted, evidence-based approaches, including the application of behavioural science, segmentation of consumer groups, and engagement with private sector actors, particularly e-commerce platforms where trade is increasingly conducted.

Key Indicator:

By 2030, public awareness and understanding of poaching and illegal trade has increased by 20% from 2018 levels

Malaysia is expected to see sustained awareness gains through expanded national campaigns and targeted outreach. Initiatives such as the Save the Malayan Tiger Campaign have already

mobilised approximately RM2.5 million in public contributions, reflecting growing engagement. Efforts will be strengthened via campaigns at high-traffic locations like KLIA, and targeted engagement with communities and consumers. Increased awareness is expected to shift public attitudes and social norms, particularly regarding high-volume wildlife product consumption, including shark and ray trade. Collaboration with civil society, private sector actors, and digital platforms will amplify reach and reinforce behavioural change across key consumer groups.

ACTION 12.4: STRENGTHEN LEGISLATION AND INSTITUTIONAL ARRANGEMENTS FOR SPECIES PROTECTION

Malaysia's legislative and institutional frameworks provide a strong foundation for species protection, supported by continuous improvements to address emerging threats. Amendments to the Wildlife Conservation Act have strengthened penalties and deterrence, while updates to CITES-related legislation have enhanced regulatory control over international trade. The successful completion of the National Ivory Action Plan reflects international recognition of Malaysia's enforcement and legal progress.

At the subnational level, initiatives such as Sabah's 10-year Action Plan to Combat Wildlife Crime (2024–2035) and strengthened enforcement in Sarawak demonstrate ongoing institutional development. Prosecution outcomes, including landmark cases involving substantial financial penalties, reinforce the effectiveness of strengthened legal frameworks.

Notwithstanding these advances, evidence points to regulatory gaps, particularly for marine species and domestic trade. A significant proportion of shark and ray species in trade are not fully protected under existing legislation, despite their conservation status, and domestic trade remains insufficiently regulated and monitored. The lag between emerging trade trends and regulatory updates creates opportunities for exploitation and weakens enforcement effectiveness.

Key Indicator:

By 2030, relevant laws and regulations have been reviewed to eradicate poaching, illegal trade, and other related crimes

Malaysia is expected to achieve a strengthened and more responsive legal framework through systematic review and enhancement of existing legislation. This builds on recent progress, including amendments to the Wildlife Conservation Act and the successful completion of the National

Ivory Action Plan, as well as strengthened prosecution outcomes such as the RM27.8 million penalty imposed in Sarawak. By 2030, legal frameworks are expected to provide broader species coverage, including addressing gaps in marine species protection, and to incorporate emerging issues such as online wildlife trade. Greater alignment across Peninsular Malaysia, Sabah, and Sarawak is anticipated to improve consistency in enforcement, while strengthened penalties, forensic support, and inter-agency coordination will enhance deterrence and prosecution effectiveness.

EXAMPLES OF INITIATIVES DRIVING CHANGE

The progress detailed in Section 3 has been achieved through high-impact enforcement operations that demonstrate the effectiveness of Malaysia's intelligence-led, multi-agency strategy. Key successes since 2022 include:

(a) Major Seizures Demonstrating Interdiction Capacity

Enhanced multi-agency coordination at borders has disrupted significant international trafficking flows. Examples include:

- In July 2022, Royal Malaysian Customs Department (RMCD) intercepted one of the country's largest wildlife trafficking consignments at West Port, Port Klang, where a container holding 5,900 kg of elephant tusks, 29 kg of rhino horn, about 100 kg of pangolin scales, and 294 kg of lion bones hidden behind sawn timber. This marked Malaysia's largest recorded ivory seizure to date.

(b) Intelligence-Led Operations Disrupting Criminal Networks

Enforcement has shifted to proactive, intelligence-driven disruption. Key operations include:

- A June 2024 raid in the Al-Sultan Abdullah Royal Tiger Reserve, where a dedicated team acting on precise intelligence arrested seven foreign poachers, dismantling an active camp.
- The nationwide "Ops Taring" in 2023, led by the Wildlife Crime Bureau and PERHILITAN, which targeted online marketplaces, resulted in 13 raids, 19 arrests, and the seizure of over 200 live animals and products.

- Between April and July 2025, intelligence-led, multi-agency operations delivered major breakthroughs against illegal timber trafficking in Kelantan and Melaka, resulting in seizures exceeding RM137 million. Actions included confiscation of 5,537 logs, heavy machinery, and high-value agarwood products, with 42 suspects detained across both cases. These outcomes underscore the effectiveness of coordinated enforcement by the Royal Malaysian Police, Malaysian Timber Industry Board (MTIB), and forestry authorities in disrupting organised timber crime networks.

(c) Legislative Deterrence and Forensic Support in Action

Stronger laws and forensic science are strengthening prosecutions. This is evidenced by:

- The consistent application of heightened penalties under the amended Wildlife Conservation Act in cases like the 2020-2024 operations in Taman Negara National Park, which led to the removal of 447 snares and 43 arrests.

(d) International Recognition of Malaysia's Integrated Model

Malaysia's integrated enforcement and community-based model have gained significant international credibility:

- The Orang Asli Menraq Patrol Unit from Royal Belum State Park won the prestigious International Ranger Award 2023 from the IUCN, validating the integration of Indigenous knowledge and community stewardship into national enforcement.

(e) Stakeholder Engagement and Capacity Building to Address Illegal Wildlife Trade

Malaysia has strengthened prevention and enforcement against illegal wildlife trade through sustained stakeholder engagement and targeted capacity building:

- Between 2022 and 2025, the ministry, through the 12th Malaysia Plan project on strengthening the International Trade in Endangered Species Act 2008 (Act 686), supported the CITES Management Authorities in delivering over 12 public awareness and stakeholder engagement programmes targeting key actors involved in or affected by illegal wildlife trade.



- In parallel, collaboration with TRAFFIC under the CATALYSE (Catalysing Action in Malaysia to Strengthen Enforcement) project has strengthened Malaysia's capacity to prevent, detect, intercept, and prosecute wildlife trafficking, with a focus on coordinated enforcement across land, sea, and air borders.
- Since 2024, a series of targeted workshops for frontline officers have enhanced operational

skills, inter-agency coordination, and practical strategies for identifying and intercepting wildlife contraband.

These examples collectively illustrate a maturing enforcement ecosystem where intelligence, inter-agency cooperation, forensic science, and community partnership work in concert to disrupt wildlife crime, aligning with the strategic outcomes documented in Sections 3 and 4.



Photo credit: Jabatan PERHILITAN

OPS BERSEPADU KHAZANAH

Ops Bersepadu Khazanah (OBK), implemented under the Biodiversity Protection and Patrolling Programme (BP3), represents Malaysia's flagship model for integrated, intelligence-led enforcement against poaching and biodiversity crime. Launched as a coordinated, multi-agency initiative, OBK brings together PERHILITAN, the Royal Malaysia Police, State Forestry Departments, and other enforcement bodies to conduct targeted operations in high-risk landscapes, particularly within critical habitats such as the Central Forest Spine.

The programme reflects a strategic shift from fragmented enforcement to a unified operational framework, combining real-time intelligence, joint patrols, and rapid deployment capabilities. OBK operations have significantly expanded in scale and effectiveness, contributing to substantial increases in arrests, dismantling of illegal encampments, and large-scale

removal of snares. These efforts have directly reduced immediate threats to endangered species, including the Malayan tiger.

International recognition of OBK underscores its effectiveness. The programme received the UNEP Asia Environmental Enforcement Awards (AEEA) in 2021, highlighting its role as a regional best practice in combating wildlife crime. This recognition was further reinforced in 2023, when Community Rangers under BP3 were also acknowledged, reflecting the programme's inclusive approach that integrates local and Indigenous knowledge into enforcement strategies.

OBK demonstrates how sustained political commitment, inter-agency coordination, and community participation can deliver measurable conservation outcomes while strengthening national enforcement systems.

WILDLIFE DEPARTMENT FORENSIC LABORATORY (PENINSULAR MALAYSIA AND SABAH)

Wildlife forensic science has become an increasingly critical component of Malaysia's enforcement framework, strengthening the ability to investigate, prosecute, and secure convictions in wildlife crime cases. This capacity is anchored by the National Wildlife Forensic Laboratory (MFHLK) in Peninsular Malaysia, and the Sabah Wildlife Department

followed in its footsteps by developing forensic capability within its own Wildlife Health, Genetic and Forensic Laboratory (WHGFL).

In Peninsular Malaysia, forensic investigations are conducted by a team of five specialists at MFHLK. The integration of DNA-based techniques, including barcoding, environmental DNA (e-DNA), and invertebrate-derived DNA (i-DNA), has significantly enhanced the precision and reliability of evidence presented in court. These capabilities are supported by strengthened chain-of-custody protocols and standardised procedures, ensuring the admissibility of forensic evidence in legal proceedings. As a result, prosecutions are increasingly evidence-based, improving conviction rates and strengthening deterrence.

The SWD Wildlife Health, Genetic and Forensic Laboratory (WHGFL), originally constructed in 2005 as a wildlife rescue clinic, was later converted into a laboratory and became fully operational in 2013 to support wildlife disease surveillance and genetic research. WHGFL is the first Biosafety Level-2 (BSL-2) containment laboratory in Sabah and has maintained its BSL-2 certification for 12 consecutive years.



Photo credit: Jabatan PERHILITAN

PREVENTING WILDLIFE CRIME AT KLIA

Kuala Lumpur International Airport (KLIA) serves as one of Malaysia's most critical frontlines in the fight against transnational wildlife trafficking. Between 2023 and March 2025, enforcement agencies operating at KLIA successfully intercepted and rescued protected wildlife and wildlife products valued at approximately RM5.4 million, demonstrating a marked strengthening of border control effectiveness.

These interceptions involved thousands of live specimens, including turtles, snakes, birds, and other protected species, reflecting both the scale and diversity of trafficking attempts. The success of these operations is underpinned by close coordination among PERHILITAN, the Royal Malaysian Customs Department, airport authorities, and other border control agencies. This multi-agency approach enables real-time intelligence sharing, coordinated inspections, and rapid response to high-risk consignments.

A key innovation supporting enforcement at KLIA has been the deployment of specialised detection tools, including trained sniffer dogs introduced in 2023. These capabilities have significantly enhanced the detection of concealed wildlife shipments, particularly in complex cargo and passenger baggage environments.

Beyond enforcement, KLIA has also become a focal point for awareness and deterrence. Public outreach initiatives, including wildlife trafficking awareness campaigns, target travellers and logistics operators, reinforcing compliance and increasing detection through public vigilance.

KLIA exemplifies how strengthened border governance, combined with technology and inter-agency collaboration, can disrupt international wildlife trafficking networks at critical transit hubs.



Photo credit: Jabatan PERHILITAN



Photo credit: Jabatan PERHILITAN

In 2024, the laboratory achieved ISO/IEC 17025 accreditation, marking a significant milestone in institutional capacity. The Forensic Unit of WHGFL was established in 2019 and received its first wildlife crime case in 2021, subsequently producing forensic reports for court proceedings. To date, the unit has supported more than 100 wildlife crime cases, providing crucial forensic evidence, including species identification and genetic analysis of wildlife products and animal derivatives.

The expansion of forensic capacity reflects Malaysia's transition toward a more science-driven enforcement model, where advanced analytical tools play a central role in combating increasingly sophisticated wildlife crime.



Photo credit: Sabah Wildlife Department

CHALLENGES & CONSIDERATIONS FOR FUTURE IMPLEMENTATION

Malaysia has significantly strengthened enforcement against wildlife crime, with cases and arrests increasing substantially. However, to secure lasting reductions by 2030, five specific gaps must be addressed:

- Complex, technology-enabled, and transnational trafficking networks** – Criminal networks exploit encrypted communications, online markets, and fragmented logistics across multiple jurisdictions. Trade has migrated to digital spaces, outpacing dedicated cyber-investigation capacity. *Considerations for future implementation: Sustain investment in adaptive, intelligence-led enforcement. Prioritise advanced cyber-monitoring capabilities, digital forensics, and financial investigation tools to trace illicit profits and dismantle networks.*
- Multi-jurisdictional fragmentation and institutional capacity constraints** – Complex wildlife crime cases place sustained demands on investigative, prosecutorial, and forensic systems. Overlapping mandates and inconsistent safeguards across federal and state frameworks complicate coordinated action. *Considerations for future implementation: Enhance systemic capacity through formalised inter-agency protocols for complex case management, continuous forensic and investigative training, and harmonisation of key enforcement provisions across jurisdictions.*
- Regulatory grey areas and lagging species protections** – Regulatory ambiguity surrounds species not clearly listed as prohibited or controlled. Traffickers exploit these grey areas to launder illegally sourced wildlife through ostensibly legal channels. *Considerations for future implementation: Establish a dynamic, science-based regulatory update mechanism with proactive review and updating of protected species schedules based on trade monitoring and threat assessments.*
- Entrenched economic incentives and evolving trafficking modalities** – Economic incentives continue to drive local participation in illegal harvesting, especially where alternative livelihoods are limited. Insufficient integration of financial investigation tools limits ability to target organised crime's economic core. *Considerations for future implementation: Develop sustainable alternative livelihood programmes in high-pressure areas. Systematically embed financial investigation units within wildlife crime task forces to target proceeds of crime.*
- Uneven integration and sustainability of community-based enforcement** – While community engagement has improved local detection, its coverage and effectiveness remain inconsistent. Sustainability is linked to unaddressed socio-economic pressures driving participation in illegal harvesting. *Considerations for future implementation: Formalise and resource community-based strategies as a core enforcement pillar. Develop structured Community Ranger programmes with clear mandates, pairing enforcement roles with targeted sustainable livelihood initiatives.*

Goal 3: Safeguarding Ecosystems**TARGET 13**

BY 2030, MEASURES ARE IN PLACE FOR THE PREVENTION, ERADICATION, CONTAINMENT AND CONTROL INVASIVE ALIEN SPECIES

INTRODUCTION

Invasive alien species (IAS) are a major driver of biodiversity loss, degrading ecosystems, outcompeting native species, and imposing heavy costs on agriculture and fisheries. Malaysia's strategy is organised around three complementary actions: improving understanding and public awareness (13.1), initiating response plans for containment and eradication (13.2), and strengthening controls to prevent entry and release (13.3). Together, these actions form a coordinated biosecurity approach anchored in the National Action Plan on IAS 2021–2025.

CURRENT LEVEL OF PROGRESS TOWARDS THE TARGET

On track to achieve target.

ACTION 13.1: IMPROVE UNDERSTANDING AND PUBLIC AWARENESS OF IAS

Malaysia has made substantial progress in strengthening the scientific and societal foundations required for effective IAS management. National knowledge systems have been enhanced through applied research, baseline surveys, and risk assessments across multiple ecosystems, particularly in Sabah and Sarawak where extensive monitoring programmes have improved early detection and pathway identification.

The MyBIS/MyIAS platform plays a central role in consolidating species data and supporting decision-making. Complementary efforts include the identification of priority IAS affecting agriculture, deployment of Import Risk Assessment tools, and expanded surveillance of pests, pathogens, and invasive plants.

Public awareness and stakeholder engagement have also expanded significantly. Over 30 CEPA programmes conducted between 2021 and 2023 have increased awareness among high-risk groups, including aquaculture operators, horticulture industries, and pet traders. Community participation has grown through removal campaigns and citizen-led monitoring initiatives, reflecting a shift from passive awareness to active engagement. The community-based group, Skuad Pemburu Ikan Asing, for example, has removed approximately 75 tonnes of invasive suckermouth catfish from freshwater systems.

Key Indicator:

By 2030, public awareness levels regarding IAS has increased compared to 2024 levels

Malaysia is making strong progress toward this indicator through expanding CEPA programmes, increased stakeholder engagement, and growing public participation in IAS-related activities. Awareness efforts now extend beyond general campaigns to targeted outreach addressing key introduction pathways such as the pet trade, aquaculture, and horticulture. Community-driven initiatives, including invasive fish removal campaigns involving over 1,000 volunteers and the removal of approximately 75 tonnes of invasive biomass, reflect increased public ownership of IAS management. By 2030, this indicator should capture measurable increases in: public recognition of IAS risks, participation rates in IAS-related activities, compliance with species release and trade regulations, and engagement of high-risk stakeholder groups. Establishing a national baseline and integrating awareness metrics into MyBIS will be critical to tracking progress.

ACTION 13.2: INITIATE RESPONSE PLANS TO CONTAIN AND ERADICATE IAS

Malaysia has established a structured and coordinated approach to IAS response under the NAP IAS 2021–2025, supported by national governance mechanisms and expanding field-level interventions. The operationalisation of the NCIAS and its Technical Sub-Committees has strengthened coordination across sectors, enabling more systematic planning and response. Surveillance systems have been deployed at high-risk entry points and vulnerable ecosystems, including protected areas and freshwater catchments, supporting early detection and targeted interventions.

On-the-ground implementation has expanded significantly. More than 40 control and management programmes have been conducted between 2021 and 2023, including pilot eradication, biological control, and ecosystem-specific interventions. Large-scale removal campaigns and targeted management in wetlands, river systems, and agricultural landscapes demonstrate measurable progress, although sustained monitoring and follow-up remain critical.

Key Indicator:

By 2030, targeted IAS response plans have been established to guide containment and eradication activities

Malaysia has established the foundational components of a national response system through governance structures, surveillance programmes, and pilot interventions. Existing efforts demonstrate early-stage implementation of response planning, including ecosystem-specific management approaches and risk-based prioritisation of IAS. By 2030, this indicator should reflect the operationalisation of standardised, nationally coordinated response plans covering priority IAS across all ecosystems. This includes the establishment of rapid response protocols, clearly defined eradication and containment strategies, and integrated monitoring systems. Scaling pilot initiatives into nationwide programmes, supported by sustained financing and technical capacity, will be essential to achieving consistent and effective IAS response.

ACTION 13.3: CONTROL AND PREVENT THE ENTRY AND RELEASE OF IAS

Malaysia prioritises prevention as the most cost-effective strategy for IAS management, with significant progress in strengthening national biosecurity systems. Preventive measures focus on risk-based screening, quarantine, and enforcement at ports, airports, and border checkpoints, targeting high-risk pathways such as live plants, aquatic organisms, and ballast water.

The Malaysian Quarantine and Inspection Services (MAQIS), in collaboration with sectoral agencies, plays a central role in enforcing import controls and conducting inspections. These efforts are aligned with international obligations under the International Plant Protection Convention (IPPC) and the IMO Ballast Water Management Convention.

Operational outcomes include documented enforcement actions, including seizures of prohibited species, and improved compliance with phytosanitary regulations. Capacity building for border and enforcement personnel has enhanced detection capabilities, while efforts to harmonise IAS lists and regulations across Peninsular Malaysia, Sabah, and Sarawak are ongoing.

Key Indicator:

By 2030, control measures are in place to prevent entry of new IAS and plans are in place to minimise the spread of existing IAS in the country

Malaysia has established operational border

biosecurity systems, risk assessment protocols, and surveillance programmes, providing a strong foundation for this indicator. However, full achievement by 2030 depends on completing nationwide harmonisation of regulations across Peninsular Malaysia, Sabah, and Sarawak, finalising control plans for all priority IAS, and demonstrating measurable reductions in new introductions and containment of priority species. Strengthening inter-agency coordination, expanding monitoring coverage, and adopting advanced detection technologies will be essential to close remaining gaps and fully meet the indicator by 2030.

EXAMPLES OF INITIATIVES DRIVING CHANGE

The case examples below illustrate how priority measures under the National Action Plan on Invasive Alien Species (NAP IAS) 2021–2025 have been operationalised through specific projects and initiatives. Collectively, they demonstrate practical management actions and localised successes, while also underscoring the need for more systematic monitoring, sustained resourcing, and scaled-up implementation, as identified in Sections 3 and 4.

(a) Control of Water Hyacinth in Reservoirs and River Systems: Led by Department of Irrigation and Drainage (DID) coordinated water hyacinth (*Eichhornia crassipes*) control initiatives have been implemented across multiple reservoirs and river systems to address surface blockage, reduced water flow, and ecological degradation.

- These initiatives have combined mechanical removal, routine maintenance schedules, and community participation, supported by local reporting mechanisms.
- Implementation has resulted in measurable reductions in surface coverage in managed water bodies, improved hydraulic function, and reduced secondary impacts on water quality and biodiversity. Importantly, these field operations have informed the development and refinement of standard operating procedures (SOPs) for invasive aquatic plant management under the NAP IAS framework.
- Quantitative monitoring data on weed coverage reduction is currently being collated by state authorities to strengthen national reporting and guide future interventions.

(b) Application of the AS-ISK Capacity building initiative by the Department of Fisheries Malaysia on the AS-ISK Scientific Screening Tool:

The Department of Fisheries Malaysia has undertaken the capacity building efforts to strengthen the management of aquatic invasive alien species through specialized training on Aquatic Species Invasiveness Screening Risk (AS-ISK), a method developed by Centre for Environment Fisheries and Aquaculture Science (CEFAS).

- This initiative enhances officer's technical competency in applying standardized, science-based risk assessment tools to evaluate risk of species invasiveness of proposed marine or freshwater aquatic alien species to be imported into Malaysia.

(c) Management of *Mimosa pigra* in Wetland and Riparian Landscapes:

Targeted management of *Mimosa pigra*, a high-risk invasive shrub in wetlands and floodplains, has been carried out in selected priority sites identified through national IAS risk assessments. This initiative is led by the Department of Drainage and Irrigation (DID).

- Interventions have focused on physical removal and site-level containment to prevent further spread into sensitive habitats.

- Post-treatment monitoring has shown immediate reductions in local encroachment, while also highlighting the high risk of reinvasion in the absence of sustained follow-up management. These lessons have been incorporated into updated regional operational plans, reinforcing the need for long-term maintenance and repeat interventions in wetland IAS control.

(d) Integrated Management of Golden Apple Snail in Paddy Landscapes:

Integrated management programmes by Department of Agriculture (DOA) targeting Golden Apple Snail (*Pomacea canaliculata* and *Pomacea insularum*) have been implemented in rice-growing landscapes to reduce crop damage and economic losses.

- These initiatives apply Integrated Pest Management (IPM) approaches that combine cultural practices, mechanical removal, biological controls, and limited chemical application.
- Field implementation has demonstrated reduced seedling damage and lower reliance on chemical molluscicides, supporting both food security objectives and environmentally responsible IAS management. These efforts are aligned with national quarantine controls and contribute to broader agricultural biosecurity goals.

COMMUNITY-BASED INVASIVE FISH REMOVAL

The suckermouth catfish (*Pterygoplichthys spp.*), introduced through the ornamental fish trade, has become one of Peninsular Malaysia's most damaging freshwater invaders. It destabilises riverbanks, disrupts benthic communities, and displaces native fish across rivers, reservoirs, and wetlands.

In response, the Skwad Pemburu Ikan Asing (SPIA) was established in late 2023 as a volunteer-driven removal initiative. With over 1,000 members nationwide, SPIA has extracted approximately 75 tonnes of suckermouth catfish from affected waterways using electrofishing, net trapping, and manual extraction. The removed biomass is repurposed as fertiliser or animal feed.

SPIA operates in formal collaboration with the Department of Fisheries Malaysia and Municipal Councils, receiving technical support, permitting, and equipment. Equally important is its role in shifting public consciousness: through social media, school outreach, and media engagement, SPIA has turned invasive species from a specialist concern into a mainstream environmental issue.

These efforts are reinforced by the Program Memburu Ikan Asing Invasif Seluruh Malaysia 2025, community-governed tagal river systems in Sabah, and proposed legislative amendments in Sarawak targeting the trade and release of invasive species. Together, they affirm a critical lesson: durable invasive species management requires not only regulatory frameworks but also sustained, community-embedded participation as a frontline of ecological defence.



NATIONAL COMMITTEE ON INVASIVE ALIEN SPECIES (NCIAS)

Malaysia has significantly bolstered its institutional response to biological invasions through the National Committee on Invasive Alien Species (NCIAS). Chaired by the Secretary General of the Ministry of Agriculture and Food Security, this high-level platform oversees a specialized governance structure consisting of three dedicated technical committees: Plant IAS (Secretariat: Department of Agriculture), Aquatic IAS (Secretariat: Department of Fisheries), and Animal and Animal-Borne Disease IAS (Secretariat: Department of Veterinary Services). This hierarchy ensures expert-led management across a comprehensive Three Lines of Defence framework: Pre-Border risk mitigation,

At-Border compliance, and Post-Border domestic enforcement.

The committee's mandate is operationalized through four strategic pillars: Prevention, Eradication, Containment, and Control, which are carried out in strict alignment with the National Action Plan on Invasive Alien Species (NAP IAS) 2021–2025. Recognizing that biosecurity is a shared responsibility, the NCIAS emphasizes public awareness and stakeholder engagement. By educating students, travellers, importers, and local communities on the risks and identification of IAS, the committee aims to foster a culture of shared vigilance and cultivate a future generation of environmental stewards.



Photo credit: Ministry of Agriculture and Food Security

This social defence is critical as climate change acts as a threat multiplier, enabling IAS to colonize new habitats and facilitating rapid dispersal via extreme weather events. By integrating technical surveillance, policy alignment with the NAP IAS, and robust outreach, the NCIAS serves as a vital governance mechanism for achieving Target 13, ensuring a proactive and resilient national defence against the evolving threat of invasive species.

CHALLENGES & CONSIDERATIONS FOR FUTURE IMPLEMENTATION

Malaysia has established foundational governance, knowledge systems, and pilot interventions for invasive alien species management. However, to achieve comprehensive national capacity by 2030, five specific gaps must be addressed:

- Strengthening governance and system-wide implementation** – Implementation operates across multiple federal, state, and sectoral mandates, resulting in varied application of the National Action Plan, slower mobilisation for rapid response, and uneven management of cross-sectoral pathways such as the pet and aquarium trade. *Considerations for future implementation: Formalise and operationalise rapid-response protocols and integrated information-sharing mechanisms across all relevant agencies to enable timely, coordinated action.*
- Scaling security against diverse pathways** – The volume and diversity of introduction pathways—including legal trade, shipping (ballast water, biofouling), and tourism—create continuous biosecurity pressure. New introductions often outpace detection and response capacity. *Considerations for future implementation: Expand surveillance by integrating next-generation tools like environmental DNA and remote sensing. Enhance pre-border and border controls with stricter oversight of high-risk industries and ensure full implementation of international standards.*
- Securing long-term technical and financial capacity** – Surveillance and eradication are hindered by gaps in taxonomic expertise, particularly for cryptic species, and a lack of accessible diagnostic tools. Funding is often short-term and project-based, preventing long-term campaigns. *Considerations for future implementation: Transition from ad-hoc project funding to programmatic budgets within agency allocations. Develop innovative financing mechanisms such as levies on high-risk industries to secure dedicated, sustained resources.*
- Navigating ecological complexity and bridging the public awareness gap** – Eradication is technically complex in open, connected ecosystems like rivers and estuaries. Limited public awareness and compliance among pet hobbyists, traders, and gardeners lead to accidental or intentional releases, undermining regulatory measures. *Considerations for future implementation: Integrate IAS prevention explicitly into sectoral policies for agriculture, fisheries, forestry, and urban planning. Implement focused behaviour-change interventions for high-risk stakeholders using tailored messaging and community science programmes.*
- Building robust monitoring systems to track national outcomes** – Current reporting focuses on activities and outputs rather than measurable ecological outcomes. Nationally standardised indicators are not yet systematically consolidated. *Considerations for future implementation: Develop and operationalise a national IAS monitoring, reporting, and verification system with standardised outcome indicators aligned with the NAP IAS and global biodiversity frameworks, leveraging centralised data systems like MyBIS.*

Goal 4: Benefit-Sharing**NPBD TARGET 14**

BY 2030, MALAYSIA HAS ENHANCED ITS CAPACITY TO IMPLEMENT THE ACCESS AND BENEFIT-SHARING (ABS) FRAMEWORK TO REALISE THE FAIR AND EQUITABLE SHARING OF BENEFITS ARISING FROM THEIR UTILISATION

INTRODUCTION

Malaysia's strategy for Target 14 is to transition from a comprehensive legal architecture to a fully operational, equitable, and enforceable Access and Benefit-Sharing (ABS) system. This requires moving beyond law making to build the administrative capacity, stakeholder awareness, and inclusive governance needed to realise fair and equitable benefit sharing.

A multi-tiered legal framework is now in place, supported by designated Competent National Authorities. The work is organised around two interconnected strategic priorities: enhancing awareness and capacities to implement ABS (Action 14.1), and documenting and protecting traditional knowledge (Action 14.2).

This report details progress under these two strategic priorities, highlights key indicators of success, and outlines the challenges ahead.

CURRENT LEVEL OF PROGRESS TOWARDS THE TARGET

On track to achieve target.

ACTION 14.1 ENHANCE AWARENESS AND CAPACITIES TO IMPLEMENT ABS

A functioning ABS system requires more than just laws on paper—it demands robust administrative systems, knowledgeable stakeholders, and effective enforcement mechanisms. Malaysia has focused on building these foundational elements across federal and state levels, ensuring that the legal architecture translates into practical, day-to-day implementation.

Operational Legal and Administrative Systems

The Federal Access to Biological Resources and Benefit Sharing Act 2017 [Act 795] is in force, with the National Focal Point and Competent National Authorities (CNAs) designated. The system is supported by a compliance architecture that includes legally mandated checkpoints, such as the Intellectual Property Corporation of Malaysia (MyIPO), and user compliance measures under Section 34 of Act 795 to respect the ABS laws of other countries and ensure domestic compliance. The framework also incorporates integrated safeguards, including exclusions for resources under specialised international instruments like the FAO International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), and protections for small farmers' rights and the customary exchange of resources by Indigenous Peoples and Local Communities (IPLCs).

Administrative tools like the MyABS National Clearing-House Mechanism have been developed to provide public guidance and facilitate permit applications.

At the state level, Sabah's system is governed by the Sabah Biodiversity Enactment 2000. The state has recently upgraded its SaBAES (Sabah Biodiversity Access and Export Online Application Licence System) for biological resource access licence applications. The system facilitates applications for academic and commercial access and export licences for Sabah biological resources in accordance with state legislation, and serves as a database for research findings related to biodiversity in Sabah.

Sarawak operates under the Sarawak Biodiversity Centre Ordinance, 1997. The Sarawak Online Research Application System (SORAS), in place since 2019, facilitates permit applications involving biological resources as required under the Sarawak Biodiversity Regulations, 2016. The system supports coordinated review and monitoring of research activities, contributing to improved administrative governance in ABS implementation.

A key development across both states has been the operationalisation of Prior Informed Consent (PIC) protocols for ABS activities involving traditional knowledge, placing community rights at the centre of access governance. In Sarawak, for example, the procedures set out under Part V of the Sarawak Biodiversity Regulations, 2016 are implemented by the Sarawak Biodiversity Centre (SBC) and provide a clear legal process for obtaining community consent before accessing biological resources associated with their knowledge.

Multi-Stakeholder Engagement and Dialogue

Malaysia has established formal platforms for continuous dialogue among key actors. This includes creating technical committees to address emerging issues such as Digital Sequence Information (DSI) and pathogen access and benefit-sharing. The scientific and legal communities are regularly engaged in policy development, and direct exchanges between IPLCs, government agencies, researchers, and the private sector are facilitated to ensure ABS procedures are aligned with practical needs and traditional protocols.

Strategic Capacity Building and Awareness

Recognising that effective laws require an informed ecosystem, Malaysia has undertaken targeted, multi-layered capacity-building initiatives across all stakeholder groups. Programmes have been designed specifically for regulators and enforcement officers to strengthen compliance monitoring; for IPLCs to empower them in negotiations and documentation; for researchers and academia to integrate ABS principles into scientific practice; for legal and policy development to address emerging technical issues; and for broader professional sectors such as forestry and land management to mainstream ABS across governance. These initiatives, delivered through partnerships with state institutions like the SBC and the SaBC, have reached hundreds of participants nationwide and are detailed further in the Examples of Success section below.

Public understanding is further supported by the MyABS website and the User's Guide to Act 795. Malaysian regulators have also enhanced their skills by attending international conferences, while experts from FRIM have been invited to share Malaysia's experience with counterparts in the Philippines and Japan.

Key Indicator:

By 2030, the public awareness levels on ABS have increased compared to 2024 levels

Baseline pending. Assessment based on proxy indicators. Qualitative evidence demonstrates substantial progress. Since 2024, Malaysia has implemented a multi-layered strategy targeting regulators, IPLCs, researchers, and communities, as detailed in the Examples of Success section. Key initiatives include the Residential Workshop on Act 795 (Shah Alam, December 2024), the National Seminar for IPLC advocates (Kota Kinabalu, February 2025), briefings for major research institutions, Sabah Biodiversity Centre outreach across 11 districts engaging over 900 community members, and Sarawak documentation workshops across 127 villages.

ACTION 14.2: DOCUMENT AND PROTECT THE TRADITIONAL KNOWLEDGE, INNOVATIONS, AND PRACTICES OF INDIGENOUS AND LOCAL COMMUNITIES

Protecting traditional knowledge (TK) requires both defensive measures to prevent misappropriation and proactive mechanisms to ensure communities share in any benefits arising from its use. Malaysia has pursued a dual strategy: systematically documenting TK to create authoritative records, while simultaneously building the partnerships and agreements that channel benefits back to indigenous and local communities.

Foundational Protection of Traditional Knowledge

Parallel to legal development, Malaysia has made significant progress in documenting TK to create defensive records and validate benefit-sharing claims. This work is being carried out at scale through institutional programmes across all three regions.

Forest Research Institute Malaysia (FRIM)

The FRIM TK Project is an initiative led by the Forest Research Institute Malaysia to document and preserve medicinal plant knowledge from both Orang Asli and Malay traditional practitioners in Peninsular Malaysia. Since 2007, the project has recorded:

- 677 medicinal plant species from Orang Asli sources, supported by 2,452 herbarium specimens
- 634 medicinal plant species from Malay practitioners, supported by 2,144 herbarium specimens

FRIM uses the BRAHMS (Botanical Research And Herbarium Management System), a comprehensive software platform, to manage, curate, and analyse its extensive botanical collections, including over 300,000 herbarium specimens, living collections, and field survey data that includes crucial information about traditional knowledge.

Sabah Biodiversity Centre (SaBC)

The Sabah Biodiversity Centre has established the Sabah Traditional Knowledge Information System. This information system was developed to protect, document, and promote the use of TK related to biological resources held by the native peoples and local communities of Sabah. The objectives are to ensure that benefits arising from the use of TK can be shared fairly and equitably, and that the traditional heritage of Sabah continues to be preserved.

In addition, IPLCs in Sabah have developed community protocols to safeguard their resources, TK, and way of life (see also Target 2). The Sabah Traditional Knowledge Information System also serves as a repository for these community protocols.

Sarawak Biodiversity Centre (SBC)

The Sarawak Biodiversity Centre has implemented a TK Documentation Programme that has been ongoing since 2002. The programme records the knowledge of various ethnic groups on the use of biodiversity for food, medicine, and personal care. To date, the programme has documented 7,606 plants from 127 villages, representing 28 ethnic communities.

Malaysia Traditional Knowledge Digital Library (MyTKDL)

At the national level, the Malaysia Traditional Knowledge Digital Library (MyTKDL) serves as a central defensive tool. With over **8,600 documented entries** (as of mid-2024), it is actively used by the Intellectual Property Corporation of Malaysia (MyIPO) to conduct prior-art searches for patent examinations. This system provides a proactive national shield against misappropriation, turning documented TK into a legal asset that can prevent erroneous patents.

International Advocacy

Internationally, Malaysia played a key advocacy role in the consensus adoption of the landmark 2024 WIPO Treaty on Intellectual Property, Genetic Resources and Associated Traditional Knowledge. This new global instrument strengthens international frameworks against biopiracy and provides additional protections for TK holders.

Emergence of Tangible Benefits through Benefit-Sharing Agreements

Crucially, documentation efforts are increasingly linked to tangible benefit-sharing. The ABS framework is beginning to yield concrete returns for communities,

demonstrating that the system can deliver on its core promise of fair and equitable benefit-sharing.

The most advanced examples are in Sarawak, where collaborations facilitated by the Sarawak Biodiversity Centre have led to the commercial development of products channelling benefits back to local partners since 2019. These include:

- LitSara® (personal care products from *Litsea cubeba*)
- AdenoSara® (pet care products from *Adenosma nelsonioides*)
- MadhuSara® (nutraceutical products from *Madhuca motleyana*)

In Sabah, the Sabah Biodiversity Centre in 2025 signed its first BSA with Botanickel Sabah Sdn Bhd for phytoextraction involving multiple plant species, with benefits flowing to local communities in the Ranau District. Mutually Agreed Terms (MAT) have also been concluded between the Sabah Biodiversity Centre and two indigenous communities at Kampung Kolosunan (Inanam) and Kampung Melangkap (Kota Belud).

In Peninsular Malaysia, FRIM is advancing similar models, having drafted Mutually Agreed Terms with multiple Orang Asli communities (including Semelai, Jahai, Temiar, Lanoh, Semai, and Kensiu). In Sabah, MATs have been concluded with two indigenous communities at Kampung Kolosunan and Kampung Melangkap.

As of 2025, a total of five Benefit-Sharing Agreements have been signed in the country (four in Sarawak and one in Sabah)(Table 2-6).

Table 2-6: BSAs signed in Malaysia as of January 2026

No	Purpose	Biological Resource	Communities	Date	Benefits
1	BSA with five indigenous communities on the development of personal care products (LitSara®)	Litsea cubeba	1. Bidayuh from Kampung Kiding, Padawan, Kuching 2. Kelabit from Pa'Ukat and Pa'Lungan, Bario, Miri 3. Lun Bawang from Long Kerebangan and Long Telingan, Lawas, Limbang	2019-2021	• Capacity Building • Payment for essential oils • % Indigenous Knowledge Benefit Sharing from sales of products
	BSA with six indigenous communities on the development of personal care products (LitSara®)		1. Bidayuh from Kampung Kiding, Padawan, Kuching 2. Kelabit from Pa'Ukat and Pa'Lungan, Bario, Miri 3. Lun Bawang from Long Kerebangan, Long Telingan and Long Rusu, Ba'Kelalan, Lawas, Limbang	2022-2027	

No	Purpose	Biological Resource	Communities	Date	Benefits
2	BSA with two indigenous communities on the development of pet care products (AdenoSara®)	<i>Adenosma nelsonioides</i>	1. Bidayuh from Kampung Semadang, Penrissen, Kuching 2. Iban from Rumah Simon, Lubok Antu, Sri Aman	2020-2022 2023-2028	• Capacity Building • Payment for essential oils • % Indigenous Knowledge Benefit Sharing from sales of products
3	BSA with three indigenous communities on the development of nutraceutical products (MadhuSara®)	<i>Madhuca motleyana</i>	Melanau communities: 1. Kampung Jemoreng Hulu, Matu, Mukah 2. Kampung Jemoreng Hilir, Matu, Mukah 3. Kampung Penibong, Daro, Mukah	2023-2025	• Capacity Building • Payment for oil • % Indigenous Knowledge Benefit Sharing from sales of products
4	BSA with five indigenous communities on the development of cosmeceutical products	<i>Psychotria viridiflora</i>	Iban communities 1. Rumah Bajau, Rantau Kuyang, Julau, Sarikei 2. Rumah Lembang, Nanga Segera, Pakan, Sarikei 3. Rumah Machup, Kedoh, Sg Tapang, Roban, Betong 4. Krangan Mong, Lubok Antu, Sri Aman 5. Kampung Rapak Tebus, Pantu, Sri Aman	2025-2028	• Capacity Building • Payment for plant material • % Indigenous Knowledge Benefit Sharing from sales of products
5	BSA signed between SaBC and Botanickel Sabah Sdn Bhd on phytoextraction	<i>Phyllanthus rufuschaneyi</i> , <i>Rinorea aff. bengalensis</i> , <i>Xylosma luzonensis</i> , <i>Walsura pinnata</i> , <i>Mischocarpus sundaicus</i>	1. Local Communities from Ranau District (to be expanded to other Districts in Sabah in the coming years)	2024-2040	• Capacity Building • Income opportunities

Key Indicator:**By 2030, registries on traditional knowledge, innovation, and practices have been enriched**

Significant progress has been made in enriching Malaysia's traditional knowledge registries, with all three regions contributing substantial new records as detailed above. The Malaysia Traditional Knowledge Digital Library (MyTKDL) now contains over 8,600 entries and is actively used by MyIPO for prior-art searches. With these contributions from FRIM, SaBC, and SBC, Malaysia's TK registries have been considerably enriched well ahead of the 2030 target. Ongoing efforts will continue to expand these repositories.

EXAMPLES OF INITIATIVES DRIVING CHANGE

The effectiveness of Malaysia's ABS framework is best demonstrated through concrete, on-the-ground results that show the system in operation across its key pillars: benefit-sharing, documentation, defensive protection, and capacity building.

(a) Benefit-Sharing Agreements (BSAs) in Action:

The most direct measure of success is the execution of BSAs. A clear example is Sarawak's steady progress in implementing the ABS framework, demonstrated by the four major Benefit Sharing Agreements (BSAs) facilitated by the Sarawak Biodiversity Centre (SBC) as highlighted in the BSA table in Section 3 above. Sabah Biodiversity Centre, in 2025, signed its first BSA with Botanickel Sabah Sdn Bhd for phytoextraction.

(b) Advancing Towards Agreements in Peninsular Malaysia and Sabah:

In Peninsular Malaysia, FRIM is focussing on the Orang Asli communities in Perak and Kedah and has drafted Mutually Agreed Terms (MAT) as part of its ABS framework under Act 795 to ensure that the commercialisation of medicinal plants based on knowledge documented from Orang Asli communities benefits the communities. The communities include Semelai – RPS Iskandar, Semelai – Jempol, Jahai & Temiar – RPS Banun, Lanoh – Kg Air Bah, Semai – Ulu Geroh and Kensiu – Baling. Various outreach programmes and workshops have also been conducted. In Sabah, Mutually Agreed Terms (MAT) have been concluded between Sabah Biodiversity Centre and two indigenous communities at Kampung Kolosunan, Inanam and Kampung Melangkap, Kota Belud.

(c) Targeted Capacity Building Across the ABS Ecosystem:

A functional ABS regime requires all actors to be equipped with knowledge. Malaysia has implemented a multi-layered capacity-building strategy targeting every key stakeholder group:

- For Regulators & Enforcement Officers: Intensive train-the-trainer sessions, such as the Residential Workshop on Strengthening the Implementation of Act 795 (Shah Alam, December 2024), have been conducted for federal and state officers.
- For IPLCs and Their Advocates: Empowerment includes strategic forums like the National Seminar on ABS and the Nagoya Protocol for IPLC advocates (Kota Kinabalu, February 2025), direct community dialogues (e.g., the "Traditional Knowledge Discourse" with the Temuan community), and hands-on documentation workshops.

- Through State Institutions: The Sarawak Biodiversity Centre (SBC) builds community readiness for Traditional Knowledge (TK) related initiatives through statewide consultative meetings and documentation workshops across 127 villages. The Sabah Biodiversity Centre (SaBC) has developed a Sabah ABS CEPA Kit and conducted outreach programmes in 11 districts, engaging over 900 community members.

- For Researchers & Academia: Dedicated briefings have been held for major institutions (UPM, UKM, UM, Monash), and awareness was raised at forums like the ABS Session of the National Biodiversity Conference 2023. SaBC also collaborated with Japan's National Institute of Genetics to host a virtual International ABS Workshop in February 2024, which was attended by over 100 participants, including researchers and industry representatives from Japan.

- For Specialised Legal and Policy Development: Technical workshops, such as on Drafting Regulations for Pathogen Access and Benefit-Sharing and Regulations offences compounding (March 2025), directly shape the legal architecture by convening experts from multiple fields.

- For Broader Professional Sectors: Engagement extends to integrating ABS into related fields, exemplified by Briefing Sessions for State Forestry Department Officers in 2024.

(d) Institutional Partnerships for Mainstreaming ABS:

Formal collaborations are embedding ABS principles into broader governance. In 2022, a Memorandum of Understanding (MoU) was signed between FRIM and the Department of Orang Asli Affairs (JAKOA) to collaborate on protecting TK. Subsequently, a collaborative project by FRIM with the Jakun community in Johor (August-September 2024) combined herbarium preparation with GPS mapping of culturally significant sites. This produced not just a record but a practical tool for land-use planning and cultural preservation.

Together, these examples provide compelling evidence of a maturing ABS system: from signed contracts and community-managed archives to a national database and targeted training, they demonstrate the system is actively building the competence required to deliver fair and equitable benefit-sharing.



SABAH'S FIRST BENEFITS SHARING AGREEMENT

In September 2025, the Sabah State Government through Sabah Biodiversity Centre (SaBC) signed its first ever Benefit Sharing Agreement (BSA) with Botanickel Sabah Sdn Bhd, marking a historic milestone for the state. The agreement, formalised during a ceremony on September 19, 2025, represents the first BSA to be concluded since the Sabah Biodiversity Enactment 2000 was amended in 2017. Those amendments introduced Access and Benefit Sharing (ABS) provisions, aligning Sabah's laws with the international Nagoya Protocol on genetic resources.

The agreement grants Botanickel Sabah a Commercial Biological Resource Access Licence to undertake a pioneering “metal farming” project using a process called phytoextraction. This innovative technology utilises native hyperaccumulator plants, which are naturally occurring species in Sabah capable of absorbing high concentrations of nickel metal from the soil. As the plants grow, they effectively harvest or “farm” the nickel, offering a method to restore soil productivity while potentially contributing to renewable energy solutions.

The project is a tripartite collaboration involving the state government, Botanickel, and the local community of Kampung Pahu Pinawantai in Ranau, where a project farm was officially launched in August 2025. This community engagement ensures that the benefits of the research are shared with the people who have stewarded the land.

This initiative aligns directly with the Sabah Maju Jaya (SMJ) development plan by strengthening the agriculture and industrial sectors. The agreement sets a significant precedent for how Sabah can sustainably commercialise its rich biodiversity while ensuring equitable benefit sharing with Sabah State Government as the resource provider and ultimately, delivering tangible socio-economic benefits to its local communities.



Photo credit: SaBC

MALAYSIAN TRADITIONAL KNOWLEDGE DIGITAL LIBRARY - MyTKDL

The Malaysian Traditional Knowledge Digital Library (MyTKDL) is a strategic initiative managed by the Intellectual Property Corporation of Malaysia (MyIPO). Established primarily as a defensive protection mechanism, its core mission is to safeguard the nation's rich heritage of traditional knowledge, genetic resources, and traditional cultural expressions from misappropriation and bio-piracy.

The primary function of MyTKDL is to serve as a comprehensive and authoritative prior art database. By systematically documenting existing traditional knowledge—such as medicinal uses of plants and indigenous healing practices—it establishes a verifiable record that knowledge is already in the public domain. This is crucial during patent examinations at MyIPO. When an application seeks to patent an invention based on traditional resources, examiners can search MyTKDL to verify its novelty. If the knowledge is found within the database, the patent application can be rejected, preventing corporations or individuals from claiming exclusive rights over something that belongs to Malaysia's cultural heritage.

The content of MyTKDL is compiled from books, academic research, and community documentation. As of October 2024, the database contained 9,443 recorded items, nearing its target of 10,000. This includes records of the medicinal plants of Sabah's Murut and Dusun peoples, as well as knowledge from Sarawak's communities. This expansion is driven by strategic partnerships, particularly with the Sabah Biodiversity Centre, and aligns with regional efforts to share data management practices with countries like Indonesia.

It is important to note that access to MyTKDL is restricted. It is not a public website but an internal tool for patent examiners and authorised personnel. This controlled access protects the knowledge from unrestricted commercial use while still allowing it to serve its defensive function. Ultimately, MyTKDL ensures that should any commercial benefits arise from traditional knowledge, they can be equitably shared with the original custodians.



Photo credit: Sarawak Biodiversity Centre

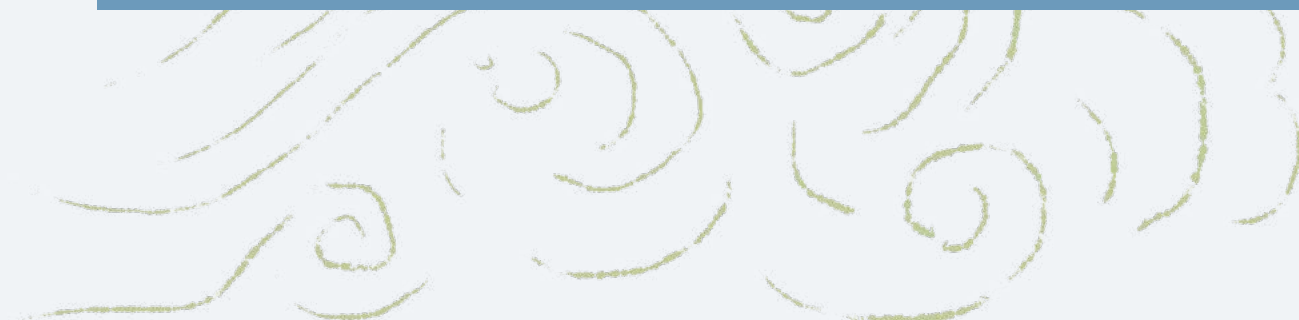
ADENOSARA®: FROM TRADITIONAL KNOWLEDGE TO COMMUNITY ENTERPRISE

Adenosma nelsonioides, known as Bunga Ta'ang (Bidayuh) or Bangkit Engkerawan (Iban), is a wild herb long valued in Sarawak for traditional uses. First documented in 2007 with the late Mr. William Saau of Kampung Semadang, the plant emits a woody, herbal scent akin to oregano. Generations have used it to soothe skin ailments like rashes and itching, and as a natural insect repellent for livestock.

Through the Sarawak Biodiversity Centre (SBC) TK Documentation Programme, Bunga Ta'ang was identified as a promising plant for development. SBC's scientific studies confirmed its essential oil contains Carvacrol, used in cosmetics, food flavouring, and natural pesticides, leading to the commercialisation of AdenoSara® oil.

In 2020, with support from NRES via UNDP Malaysia's Orang Asli/Orang Asal Micro Grant Facility, two communities – the Bidayuh of Kampung Semadang, Penrissen, Kuching and the Iban of Rumah Simon, Lubok Antu, Sri Aman – partnered with SBC to turn traditional knowledge into sustainable livelihoods. Distillation facilities were set up in their villages for on-site extraction, following Access and Benefit-Sharing (ABS) principles to ensure fair community benefits.

AdenoSara® shows how traditional knowledge, science, and community collaboration can advance biodiversity conservation while creating meaningful economic opportunities.



CHALLENGES AND CONSIDERATIONS FOR FUTURE IMPLEMENTATION

Malaysia has established a functional legal and administrative architecture for Access and Benefit-Sharing (ABS). However, to realise fair and equitable benefit-sharing by 2030, five specific gaps must be addressed:

- Finalising regulatory systems and building operational capacity** – Full operationalisation of the Federal Act 795 is pending the finalisation and gazettment of its supporting regulations. There is a shortage of specialised legal-technical personnel with ABS expertise, and the MyABS digital system's potential as a comprehensive 'Permit-to-Product' tracking tool is not yet fully realised. *Considerations for future implementation: Expedite finalisation of all supporting regulations for Act 795. Establish dedicated ABS units or personnel within relevant federal and state agencies and invest in a national capacity-building programme to develop specialised expertise.*
- Transforming awareness into strategic empowerment and compliance** – There is a significant gap between general awareness and the deep, practical understanding needed for strategic engagement. Researchers and industries may see ABS as a bureaucratic hurdle, while Indigenous Peoples and Local Communities (IPLCs) may not fully grasp their rights or the long-term implications of agreements. *Considerations for future implementation: Launch targeted, sector-specific communication campaigns that reframe ABS as a tool for innovation, sovereignty, and ethical partnership. Develop simplified guides and decision-support tools for researchers, IPLCs, and legal professionals.*
- Addressing the Digital Sequence Information (DSI) loophole** – Modern biotechnology's reliance on digital genetic data, rather than physical samples, presents a major regulatory gap. It is unclear if DSI derived from Malaysian genetic resources is covered under existing ABS laws, creating a loophole that could allow benefit-sharing obligations to be bypassed entirely. *Considerations for future implementation: Actively engage in multilateral negotiations to establish an effective global solution for DSI benefit-sharing. Develop and implement interim national measures or policy guidance to regulate access to and use of DSI from Malaysian resources.*
- Linking traditional knowledge protection to land and resource rights** – The vitality of traditional knowledge (TK) is inherently tied to the health of ecosystems and communities from which it originates. Ensuring long-term protection of documented TK requires strategies that support the continuity of cultural practices and community resilience. *Considerations for future implementation: Integrate ABS and TK safeguarding with community development programmes. Support initiatives that revitalise traditional knowledge through intergenerational learning and sustainable use.*
- Ensuring policy coherence with trade and global health frameworks** – Harmonising the ABS framework with other international commitments presents a complex challenge. Aligning Malaysia's Protection of New Plant Varieties Act with UPOV 1991 standards must be carefully managed to avoid conflicts with farmers' rights. Ongoing negotiations for a WHO Pandemic Agreement require navigating a specialised Pathogen ABS system distinct from the Nagoya Protocol. *Considerations for future implementation: Conduct rigorous, inclusive impact assessments to develop a balanced approach to UPOV 1991 alignment. Advocate for a functional, legally binding PABS system that ensures equitable benefit-sharing while supporting global health security.*

Photo credit: Dept of Fisheries



Goal 4: Benefit-Sharing**NPBD TARGET 15**

BY 2030, A COMPREHENSIVE BIOSAFETY SYSTEM IS OPERATIONAL TO MANAGE POTENTIAL AND ADVERSE IMPACTS OF MODERN BIOTECHNOLOGY ON HUMAN, PLANT AND ANIMAL HEALTH, THE ENVIRONMENT, AND BIOLOGICAL DIVERSITY

INTRODUCTION

Malaysia's strategy for Target 15 is to maintain and continuously strengthen a comprehensive, precautionary national biosafety system that is legally sound, operationally dynamic, scientifically robust, and publicly accountable. This requires moving beyond the foundational regulatory framework to enhance enforcement capacity, deepen scientific risk assessment, and develop proactive mechanisms for emerging challenges such as liability and new genomic techniques.

The Biosafety Act 2007, which came into force in 2009, establishes a clear governance structure comprising the National Biosafety Board, the Genetic Modification Advisory Committee, the Socio-Economic Advisory Committee, and 66 Institutional Biosafety Committees. The Department of Biosafety serves as the national competent authority, managing daily operations and leading enforcement efforts. The Department is undergoing restructuring to improve its effectiveness. This restructuring plan, including human resources, awaits consideration by NRES senior management and subsequent approval from the Public Service Department.

This report details progress under three action areas: strengthening enforcement, enhancing impact assessment, and developing emergency response and liability mechanisms.

CURRENT LEVEL OF PROGRESS TOWARDS THE TARGET

On track to achieve target.

ACTION 15.1: STRENGTHEN ENFORCEMENT INSPECTION AND BIOSAFETY COMPLIANCE

A fully operational biosafety system requires not just regulations, but the practical capacity to monitor, detect, and enforce compliance at every stage—from the research laboratory to the national border. Malaysia has focused on building the infrastructure, guidelines, and inter-agency collaborations necessary to translate legal mandates into effective, on-the-ground control.

Operational Enforcement and Compliance Systems:

The Department of Biosafety has developed a comprehensive suite of guidelines to provide clear, actionable directives for all stakeholders. These include:

- Offences and Compounding under the Biosafety Act 2007
- GM Microorganism Risk Assessment Guidelines
- LMO Controlled Field Trial Guidelines
- Guidelines for Environmental Risk Assessment of GM Plants in Malaysia
- LMO Contained Use Activity Guidelines
- Institutional Biosafety Committee (IBC) Guidelines
- Biosafety User Guidelines
- Integrated Biosafety Enforcement Matrix (Sarawak)
- Integrated Biosafety Enforcement Matrix (Sabah)
- Integrated Biosafety Enforcement Matrix (Peninsular Malaysia)

These tools, including the Integrated Biosafety Enforcement Matrices for the three regions, ensure a standardised approach to monitoring and enforcement across the country.

Recognising that effective enforcement requires a whole-of-government approach, Malaysia has forged strong inter-agency collaborations. Operational partnerships with the Royal Malaysian Customs, the Malaysian Quarantine and Inspection Services (MAQIS), and the Ministry of Health (MOH) are essential for border control. Both MAQIS and MOH are designated as authorised enforcement officers under the Third Schedule of the Biosafety Act 2007, enabling coordinated action.

To bolster its technical enforcement capability, the Department of Biosafety established a GMO analytical laboratory in 2023. This facility is central to the nation's ability to independently detect and identify LMOs and their products, supporting both compliance monitoring and investigative activities. The Department aims to have it ISO 17025 certified by 2029. Furthermore, LMO labelling regulation is in the pipeline and is expected to come into effect in 2026.



Photo credit: Tourism Malaysia

The Department conducts regular capacity-building, including the Annual National IBC Seminar, which convenes over 120 representatives of the registered institutional biosafety committees, and technical workshops on molecular detection methods for regulatory scientists, strengthening the national competency in conducting these essential assessments.

Key Indicator:

By 2030, a systematic procedure for safe handling, transport, packaging, detection, and identification of LMOs and its products is operational

Significant progress has been made toward this indicator. The Biosafety Act 2007 and its supporting regulations provide the overarching legal procedure. This is operationalised through detailed guidelines for contained use, field trials, and transport. The establishment of the national GMO analytical laboratory in 2023 is a critical milestone, providing the technical capability for detection and identification. The Department aims to achieve ISO 17025 certification for this laboratory by 2029, which will formally accredit its procedures and ensure they meet international standards. With the laboratory operational and a clear roadmap to accreditation, Malaysia is well on track to achieving a fully systematic procedure by 2030.

ACTION 15.2: STRENGTHEN IMPACT ASSESSMENT OF LIVING-MODIFIED ORGANISMS (LMOs) AND ITS PRODUCTS ON HUMAN, PLANT AND ANIMAL HEALTH, THE ENVIRONMENT, AND BIOLOGICAL DIVERSITY

The core of Malaysia's biosafety system is a mandatory, science-based risk assessment for any LMO activity, whether for contained use or environmental release. The focus is on continuously strengthening the technical depth and comprehensive scope of these assessments to ensure all potential impacts are rigorously evaluated.

Science-Based Risk Assessment and Management:

The risk assessment process is fully operational and led by the Genetic Modification Advisory Committee (GMAC), the primary technical advisory body that evaluates comprehensive risk assessment dossiers and provides science-based risk management recommendations to the NBB. GMAC evaluates comprehensive dossiers submitted by applicants for various purposes, including field trials, products for food, feed, and processing, and contained use activities involving research and development, commercial production or storage. The committee's work is underpinned by detailed guidelines, such as the GM

Microorganism Risk Assessment Guidelines, the LMO Controlled Field Trial Guidelines, and the Guidelines for Environmental Risk Assessment of GM Plants in Malaysia. These guidelines draw upon international best practices, including those developed by the Ad Hoc Technical Expert Group for Risk Assessment under the Cartagena Protocol on Biosafety and the Codex Alimentarius, ensuring assessments are robust and globally informed for crops, fish, and microorganisms.

Research institutions handling LMOs are mandated to establish their own IBCs to conduct initial risk assessments, review protocols, and ensure institutional compliance. To date, 66 IBCs are actively providing this essential frontline oversight across the country.

Transparency and Public Engagement:

Malaysia mandates public disclosure of decisions under the Biosafety Act. All NBB decisions on LMO releases and products are published simultaneously on three platforms: (i) Department of Biosafety Website, (ii) Biosafety Clearing House, and (iii) FAO GM Foods Platform. Applicants must advertise in at least four local newspapers (national language, English, Mandarin, Tamil) and provide a factsheet on the Department's website.

The NBB is legally required to consider public opinion before approving LMO release or import. The Act also grants public access to non-confidential application and approval information, ensuring societal values inform governance. The Socio-Economic Advisory Committee (SEAC) advises the NBB on relevant socio-economic considerations.

Key Indicator:

By 2030, a comprehensive analytical framework is established that incorporates a robust risk assessment, management, and socio-economic considerations in the decision-making process on applications for release of LMOs and its products

Malaysia has already established the core elements of this analytical framework. The Biosafety Act 2007 mandates a rigorous, science-based risk assessment process, which is fully operational through GMAC. The existence and function of the SEAC formally integrates socio-economic considerations. The legal requirement for public consultation adds a further layer of societal input. To achieve a truly comprehensive framework by 2030, future efforts will focus on refining the methodologies for integrating socio-economic inputs and developing clearer, more systematic links between risk assessment outcomes, public feedback, and final NBB decisions. Current progress firmly places the system on track.

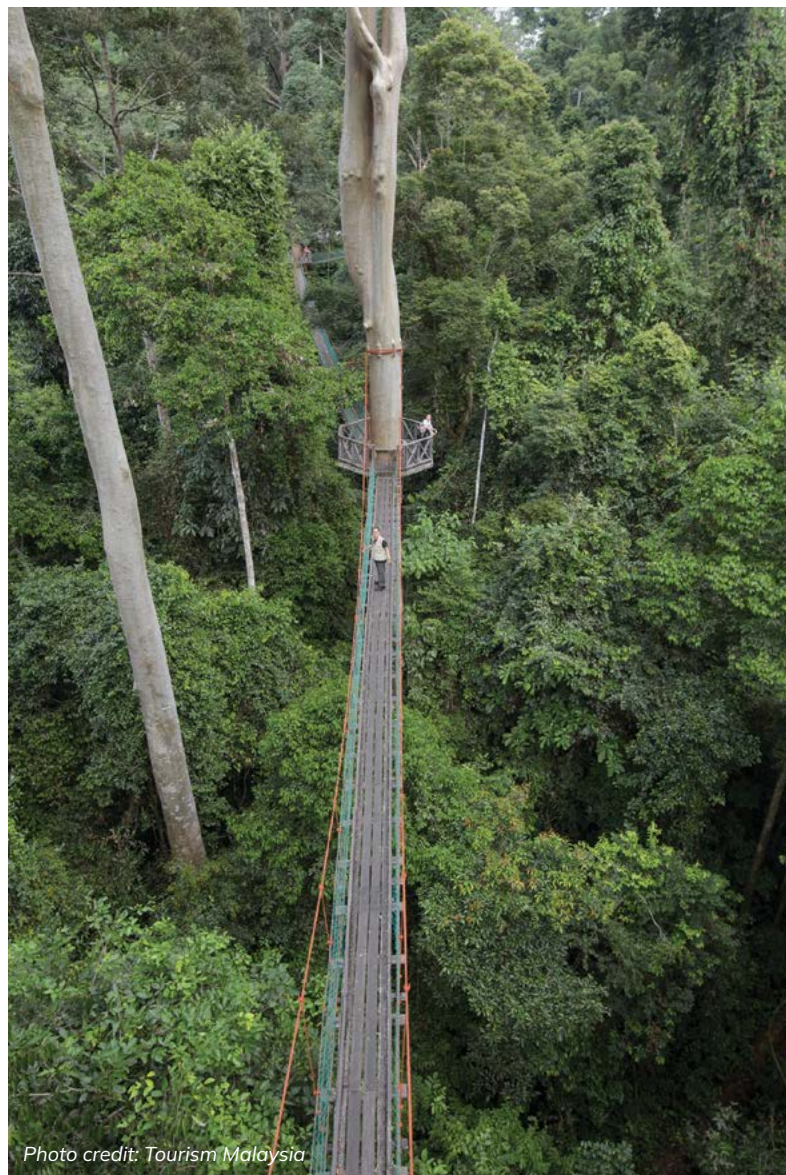


Photo credit: Tourism Malaysia

ACTION 15.3: DEVELOP ADEQUATE RESPONSES TO BIOSAFETY EMERGENCIES INVOLVING LIVING-MODIFIED ORGANISMS (LMOS) AND ITS PRODUCTS AND MECHANISMS TO ADDRESS LIABILITY AND REDRESS

A mature biosafety system requires robust capabilities on two fronts: the capacity to respond immediately and effectively to accidents or emergencies, and a legal framework to determine accountability and provide compensation should damage occur. Malaysia is actively developing this final, critical pillar of its system, ensuring that prevention is matched by preparedness and justice.

Defining and Responding to Biosafety Emergencies

A biosafety emergency constitutes any unintended or accidental event involving LMOs that poses an imminent threat to human, plant, or animal health, or the environment. This could range from the accidental environmental release of a GM microorganism from a contained facility to the detection of an unauthorised LMO in the food supply chain. While the long-term liability framework is under development, the Department of Biosafety utilises existing emergency response protocols. These protocols are activated in coordination with authorised enforcement agencies—such as MAQIS, MOH, and the Department of Environment—to ensure immediate containment, public notification, and mitigation measures are undertaken without delay, demonstrating that public safety remains the foremost priority even as the legal framework catches up.

Developing a Comprehensive Liability and Redress Framework

Recognising the importance of long-term accountability, Malaysia is in the process of establishing a dedicated legal framework to address liability and redress for damage specifically resulting from LMO activities. This framework will be designed to provide clear pathways for compensation for any potential environmental or health damage, reinforcing the principles of precaution and polluter-pays. To ensure the framework is both legally robust and practically implementable, the Department of Biosafety has initiated a structured, multi-year process to develop this framework:

- **2024-2025 (Completed/Underway):** Preliminary internal scoping studies to review international best practices and models for liability and redress under the Cartagena Protocol.
- **2026:** The Department of Biosafety will commence formal engagement sessions with key stakeholders, including industry representatives, farming communities, environmental NGOs, and legal experts, to gather diverse perspectives.
- **2027:** Commission and carry out a detailed national liability and redress research project to assess potential damage scenarios, jurisdictional challenges, and appropriate financial limits or mechanisms for compensation.

This deliberate, consultative approach ensures that when enacted, the framework will provide a clear and just path for addressing incidents, ensuring environmental restitution and protecting the rights of those potentially affected.

Key Indicator:

By 2030, a legal framework to address liability and redress for damage caused by LMOs and its products has been established

While the legal framework is not yet in place, substantial progress is being made toward its development. The commitment to this goal is formalised in the national biosafety strategy, with a clear roadmap now established. The planned stakeholder engagements (2026) and research project (2027) are concrete actions that will form the foundation of the framework. By initiating these foundational steps well ahead of the 2030 deadline, Malaysia is on track to meet this indicator.

EXAMPLES OF INITIATIVES DRIVING CHANGE

The strength of Malaysia's biosafety system lies not only in its legal framework but in its dynamic application and continuous evolution. The following initiatives demonstrate how the system functions effectively in practice—fostering dialogue, adapting to scientific progress, and ensuring coordinated enforcement. These concrete examples translate policy into tangible action, showcasing a responsive and operational biosafety regime.

(a) Biosafety Symposium 2025: The symposium titled “Strengthening Biosafety for Future Sustainability”, attended by over 600 participants, demonstrates Malaysia's proactive commitment to fostering national dialogue, updating stakeholders on emerging issues (like gene editing), and building capacity to address future challenges, thereby strengthening the human resource pillar of the biosafety system. This high-level event advanced regional cooperation and reinforced a key commitment: to strengthen regulatory cooperation and invest in innovative detection systems for biotechnology products within ASEAN.

(b) Ministerial Exemption for Genome-Edited Plants: This policy adaptation creates a pathway for faster development of resilient crops by exempting SDN-1 applications, where no foreign DNA is added, from the full GMO regulatory process. It illustrates the ongoing effort to address regulatory gaps for emerging technologies while maintaining oversight, a crucial step for keeping pace with scientific innovation.

(c) Inter-Agency Collaboration: Operational collaborations with the Royal Malaysian Customs, the Malaysian Quarantine and Inspection Services (MAQIS), and industry players demonstrate the practical, cross-departmental implementation of the regulatory framework. These partnerships are essential for effective enforcement at borders and within the country, translating law into on-the-ground control. For example, a consignment of papaya containing an unauthorised LMO was detected during border inspection activities conducted by the Malaysian Quarantine and Inspection Services (MAQIS) in collaboration with the Ministry of Health (MOH). Both MAQIS and MOH act as strategic enforcement partners under the Third Schedule of the Biosafety Act 2007 [Act 678], serving as authorised enforcement officers in supporting the implementation of biosafety controls at national borders. Upon detection, coordinated enforcement measures were undertaken in accordance with established procedures, including verification, sampling, and regulatory action.

NATIONAL BIOSAFETY BOARD

The National Biosafety Board (NBB) is the apex decision-making body under Malaysia's Biosafety Act 2007. It regulates all activities involving living modified organisms (LMOs)—including release, importation, exportation, and contained use—to protect human, animal, and plant health, as well as the environment and biological diversity.

The NBB follows a transparent process that integrates scientific recommendations from the Genetic Modification Advisory Committee, public feedback from mandatory consultations, and input from government agencies. The Act also empowers the NBB to apply the precautionary principle, allowing preventive action even when scientific certainty is lacking, particularly to avoid irreversible harm.

Chaired by the Secretary General of the Ministry of Natural Resources and Environmental Sustainability, the NBB includes representatives from key ministries (Health, Agriculture, and International Trade and Industry) and up to four appointed experts. This ensures decisions balance scientific, policy, and socio-economic considerations.

The Department of Biosafety serves as the national competent authority, handling regulatory applications, providing secretariat support, and implementing the NBB's decisions across the country.

CHALLENGES AND CONSIDERATIONS FOR FUTURE IMPLEMENTATION

Malaysia has established a comprehensive, precautionary national biosafety system. However, to ensure it remains fully operational and effective by 2030, four specific gaps must be addressed:

- Adapting the regulatory framework to scientific advancement** – Rapid progress in biotechnology, particularly New Genomic Techniques (NGTs) such as gene editing, presents challenges for the current regulatory framework, which is tailored for Living Modified Organisms (LMOs) with recombinant DNA. Clarifying the pathway for innovative products that may not fall under traditional definitions is needed. *Considerations for future implementation: Develop a clear, science-based, and risk-proportionate strategy for NGTs to provide regulatory certainty, foster responsible innovation, and ensure continued robust oversight.*
- Strengthening institutional and technical capacity** – Effective implementation of the biosafety framework requires sustained investment in specialised human resources and technical infrastructure. Building depth in technical expertise for risk assessment and expanding capacity for monitoring, detection, and enforcement are priorities. *Considerations for future implementation: Enhance professional capacity through specialised training programmes and career development pathways for biosafety professionals. Advance national GMO detection capability by pursuing international accreditation for the national laboratory.*
- Deepening public understanding and engagement** – Maintaining public trust is fundamental to the social license for biotechnology. The current system provides for transparency and notification, but the next phase requires fostering more nuanced public understanding and incorporating diverse perspectives into decision-making. *Considerations for future implementation: Develop and implement enhanced science communication strategies and innovative public engagement models. Strengthen the role of socio-economic considerations by establishing clear methodologies for integrating such inputs into decisions.*
- Ensuring policy coherence across national priorities** – The biosafety framework operates within a broader context of national goals for sustainable development, trade, and food security. Ensuring seamless alignment between biosafety regulations and other sectoral policies is key to coherent governance. *Considerations for future implementation: Foster high-level inter-ministerial dialogue to harmonise biosafety objectives with related national policies on trade, agriculture, and environmental conservation.*

Goal 5: Capacity & Finance**NPBD TARGET 16**

BY 2030, MALAYSIA'S CAPACITY TO IMPLEMENT THE POLICY AND OTHER BIODIVERSITY CONSERVATION AGREEMENTS HAS BEEN SIGNIFICANTLY STRENGTHENED

INTRODUCTION

Malaysia's strategy for Target 16 is a comprehensive programme to build the human, institutional, and governance capacity required to implement the NPBD across Federal and State government agencies, departments, and units. Guided by the NPBD and the CBD's Long-Term Strategic Framework for Capacity-Building (LTSF-CBD), the approach moves beyond ad hoc training to embed strategic, long-term capacity development.

Despite progress in establishing coordinating platforms and institutional mechanisms, capacity gaps remain at state and local levels, and systematic monitoring of capacity-building outcomes is still developing. Addressing these gaps requires sustained investment in technical expertise, stronger federal-state coordination, and inclusive approaches that integrate Indigenous Peoples and Local Communities, women, and youth.

Implementation is structured around five key action areas: strengthening coordination and decision-making, improving government agency capacities, enhancing the roles of the legislature and judiciary, establishing centres of excellence, and developing biodiversity-related human resource capacities. This report details progress, highlights key indicators, and outlines the challenges ahead.

CURRENT LEVEL OF PROGRESS TOWARDS THE TARGET

Progress made but at an insufficient rate.

ACTION 16.1: STRENGTHEN COORDINATION AND DECISION-MAKING AT THE NATIONAL AND STATE LEVELS

Strengthening coordination, planning, and decision-making at national and sub-national levels facilitates implementation of the NPBD. The revised NPBD provides greater institutional clarity by establishing coordinating platforms and delineating roles and responsibilities for all targets and actions.

Malaysia has had institutional coordination in place to support biodiversity decision-making since 2015. The National Biodiversity Council (NBC), chaired by the Deputy Prime Minister and comprising Federal Ministers and State Menteri Besar and Chief Ministers, serves as the primary platform for national-level coordination, policy direction, and oversight of NPBD implementation. At the sub-national level, the Sarawak Biodiversity Council and Sabah Biodiversity Council perform similar coordinating functions for state policies. Federal-state coordination is further supported through the Meeting of Environmental Ministers and State Government Council Members (MEXCOE).

Since 2021, progress is evident at the state level, with more coordinating platforms being established. Pahang established the Pahang Biodiversity Council on 1 January 2022 under the Pahang Biodiversity Enactment 2021, serving as an advisory body to the State Government. Other states have established environment or sustainability councils, such as the Penang Green Council and the Johor Green Growth Council.

Key Indicator:

By 2030, biodiversity conservation has been embedded into the national and state level decision-making framework

Progress on this indicator is still developing where biodiversity conservation is increasingly embedded in national and state-level decision-making framework and process. Nearly all states have incorporated biodiversity considerations into their development policies, aligned with the 13th Malaysia Plan and state-level planning instruments including structure plans. Several states have further institutionalised this by establishing dedicated biodiversity or sustainability councils to support their decision-making processes.

ACTION 16.2: IMPROVE THE CAPACITIES OF GOVERNMENT AGENCIES TO CONSERVE BIODIVERSITY

Improving technical capabilities of government agencies supports delivery of the NPBD. At the federal level, the Biodiversity Implementation Support (BIS) was established in December 2023 to drive NPBD implementation by coordinating tasks, mainstreaming the Policy, fostering collaboration, and supporting stakeholders. Additionally, the Malaysia Biodiversity Centre (MBC) was established in 2024 as a national coordination hub and centre of excellence for advancing the biodiversity agenda.

At the state level, while dedicated biodiversity units have not uniformly established, several states have strengthened capacity through environment-related functions. These include dedicated units in UPEN Kelantan and UPEN Terengganu covering green technology and environment. Johor and Selangor have appointed dedicated environment officers.

Across sectors, several ministries and agencies have established sustainability and biodiversity units within their portfolios. This includes the Malaysian Palm Oil Board (MPOB) Sustainability, Climate Change and Biodiversity unit. Other ministries (infrastructure, trade, health, commodities) have assigned officers or internal functions to oversee biodiversity matters.

Capacity building has also been enhanced through targeted programmes. The Biodiversity Protection and Patrolling Programme (BP3), introduced in 2020, addresses wildlife crime by appointing Community Rangers from army and police veterans, indigenous peoples, and local communities. The government continues to engage with international and regional partners such as JICA, the EU, and the ASEAN Centre for Biodiversity to build local expertise.

Key Indicator:

By 2030, capacity needs have been prioritised and biodiversity-related capacity modules have been utilised

Progress on this indicator is still developing. The operationalisation of the MyBIS and the Malaysia Biodiversity Centre (MBC) represents significant steps in supporting implementation of the NPBD. However, no dedicated biodiversity-related capacity modules have been developed to date, and a capacity needs assessment is still ongoing under the Ministry of Natural Resources and Environmental Sustainability (NRES).



Photo credit: Tourism Malaysia

ACTION 16.3: STRENGTHEN THE ROLES OF THE LEGISLATURE AND JUDICIARY IN BIODIVERSITY CONSERVATION

This action focuses on strengthening the institutional roles of the legislature and judiciary in support of biodiversity conservation. Priorities have centered on setting up the mechanisms and platforms to enhance the knowledge and awareness of legislators and members of the judiciary to better develop, improve and enforce the legislations that protect biodiversity.

Progress is notable in Sabah and Sarawak, where environmental and conservation issues have been recognised as priorities by the judiciary. In Sabah, the Kota Kinabalu Court Working Group on Environment (KKCWGE), established in 2015, has over the past decade pioneered judicial-enforcement collaboration in Malaysia by bringing together judges, enforcement officers, legal practitioners, and other stakeholders to improve the handling of environmental cases, develop sentencing guidelines for wildlife and forest crimes, and strengthen the prosecution of environmental offences. In Sarawak, the Sarawak Court Working



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Group on Environment has been documented as an operational working group under the judiciary, providing a structured forum for judges and legal actors to coordinate on environmental matters, including organising environmental-related activities and strengthening judicial engagement on natural resource and conservation issues.

At the Parliamentarian level, the Special Select Committee on Environment, Science and Plantation was established in March 2023 which function as a formal body to scrutinise policies, legislation and implementation issues intersecting environment, science and plantation-related matters. In addition, the Parliament has also established eight All-Party Parliamentary Groups Malaysia (APPGMs) since 2019 as bipartisan platform that bring together Members of Parliament with external stakeholders to deliberate on public policy issues. These include the APPGM on Sustainable Development Goals (APPGM-SDG), which focuses on localising the SDGs through research, grassroots community projects and policy discussions.

Key Indicator:

By 2030, the biodiversity parliamentary select committee is actively providing support for the Parliament and its committees

As of 2026, there is no dedicated biodiversity parliamentary select committee in place, however the Special Select Committee on Environment, Science and Plantation that was established in 2023 serves as the functional equivalent. The committee has exercised its legislative capacity on biodiversity-relevant issues, including a formal inquiry in 2023 on human-wildlife conflict management in response to rising cases of human-wildlife conflict (HWC) and roadkill nationwide.

ACTION 16.4: ESTABLISH AND POSITION CENTRES OF EXCELLENCE TO COORDINATE RESEARCH, MANAGEMENT, AND CAPACITY BUILDING FOR BIODIVERSITY CONSERVATION

This action focuses on setting up the properly functioning centres and institutes to enhance biodiversity conservation in the country. At the federal level, Malaysia is operationalising the Malaysia Biodiversity Centre (MBC) as a national coordination hub and centre of excellence for biodiversity in the country – which is currently maintained through the MBC Interim Team with a dedicated facility and 30 personnel planned by 2030. Under the MBC, the Malaysia Biodiversity Information System (MyBIS) has expanded the national database to over 800,000 records, including species taxonomy, publications and an expert directory. The MBC complements long-established sub-national institutions such as the Sabah Biodiversity Centre (SaBC) and Sarawak Biodiversity Centre.

In addition, several states have also established sustainability and climate institutions that complement biodiversity efforts. Johor established the Johor Sustainability Centre to anchor the execution of Johor Green Deal while Selangor launched the Selangor Climate Adaptation Centre (SCAC) in May 2025, which serves as the state's focal point for advancing climate resilience and sustainable development.

Several public and private universities have established centres on sustainability, climate change and related fields. These include Sunway Centre for Planetary Health, UM Sustainability and Development Centre (UMSDC), Sustainability Development Centre (SDC) by Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA) and National Energy Centre by UNITEN and TNB. These centres generally support research, policy advocacy, capacity development and interdisciplinary collaboration.

Key Indicator:

By 2030, the MBC has been established and operational

The MBC is on track for full establishment by 2030. The MBC Interim Team is currently operational and sited in NRES with 10 staffs, with funding for the permanent facility in Kuala Lumpur secured under the 13th Malaysia Plan. Construction is scheduled for completion by 2030 with a planned staffing capacity of 30 personnel.

ACTION 16.5: DEVELOP BIODIVERSITY-RELATED HUMAN RESOURCE CAPACITIES

This action focuses on building the human capital and skillsets needed to sustain the supply of specialised experts that the biodiversity field demands. This includes traditional disciplines such as taxonomy, veterinary sciences and botany, as well as emerging fields related to sustainability, ensuring that these streams continue to have sufficient and capable personnel.

Malaysia continues to strengthen education and training in core biodiversity fields, including forestry, ecology, wildlife, marine, and fisheries, alongside targeted professional training programmes, such as wildlife rangers. In addition, under the NPBD framework, Technical Working Groups on Education and Research are coordinating biodiversity career data, with the Malaysia Biodiversity Centre consolidating information to track emerging trends and support national reporting on growth in conservation-related careers from 2024 onward.

At the same time, many public and private universities increasingly offer sustainability and interdisciplinary programmes such as Universiti Malaysia Sarawak, Swinburne University of Technology Sarawak, Sunway University, UCSI University, and International Islamic University Malaysia. These programmes prepare graduates for the growing complexity of biodiversity challenges and their intersection with fields such as climate change, energy, sustainable finance, health, social studies and sustainable development.

Workshops, seminars, and conferences related to biodiversity and sustainability have also increased, reflecting wider interest and engagement, especially from the private sector. These platforms enable stakeholders to exchange best practices, share policy and technical insights, and discuss emerging issues as biodiversity becomes more prominent across topics such as climate change, finance, gender, human rights, trade and energy transition. Examples include the annual National Climate Governance Summit, Climate Finance Summit and PETRONAS Nature X Energy Forum in 2025.

Key Indicator:

By 2030, biodiversity-conservation related careers have increased compared to 2024 levels

Baseline pending. Assessment based on proxy indicators. Meaningful groundwork has been laid through government institutions covering forestry, wildlife, and fisheries, alongside a growing number of universities offering sustainability-related programmes. Initiatives such as the Young Environmental Leaders and Learners (YELL) programme further support young people in building practical skills relevant to biodiversity and environmental careers.

EXAMPLES OF INITIATIVES DRIVING CHANGE

The following case studies illustrate how strategic capacity-building is being translated into effective action across different sectors and governance levels. They highlight tangible progress in strengthening institutions, enhancing expertise, and fostering multi-stakeholder collaboration for biodiversity conservation.

- (a) Institutionalisation of Malaysia Biodiversity Information System (MyBIS):** Malaysia is strengthening national biodiversity knowledge and technical capacity through the institutionalisation and continuous enhancement of the MyBIS as a national biodiversity information platform. Government funding under successive Malaysia Plans has supported system development and data expansion, with cumulative biodiversity records increasing from 157,833 in 2018 to 819,718 in 2025. Over the same period, MyBIS has expanded its taxonomic content, expert networks, and agency participation. Species records have increased to 48,453, expert listings to 619, and participating agencies to 56 by 2025. MyBIS also supports national biodiversity reporting, research collaboration and knowledge sharing, including CEPA activities, expert directory services and biodiversity publications.
- (b) Institute of Forestry Training (FORTRAIN):** FORTRAIN, the oldest forestry training institution in Malaysia, provides structured technical training for forestry personnel and related stakeholders. Between 2019 and 2025, FORTRAIN trained 487 participants under the Forester Certificate and Forest Ranger Certificate programmes, including 97 women, supporting workforce readiness in core forestry functions such as forest surveying, dendrology and biodiversity conservation. In addition, 454 short and specialised courses were delivered between 2020 and 2025, supporting continuous skills upgrading for field and operational forestry implementation.
- (c) Sarawak Biodiversity Centre's Regulatory Awareness Programme:** The programme has trained over 200 participants from enforcement agencies, ports, academia and NGOs. It covered biodiversity regulations, wildlife laws, the Nagoya Protocol and the SORAS system. The programme strengthened operational understanding of legal roles, compliance procedures and research governance, turning biodiversity laws into practical enforcement and management actions.
- (d) Parliamentary Oversight on Human-Wildlife Conflict Management:** The Special Select Committee on Environment, Science and Plantation conducted a formal inquiry into rising human-wildlife conflict (HWC) and roadkill cases. In 2023, it held hearings with the Department of Wildlife and National Parks, reviewing conflict data, enforcement challenges, and capacity gaps. A tabled Parliamentary report identified habitat fragmentation, coordination gaps, and staffing constraints, recommending stronger federal-state coordination, integration of wildlife into land-use planning, and enhanced enforcement and capacity building for frontline officers.
- (e) Judicial Engagement on Environmental and Climate Justice (Sabah):** The Kota Kinabalu Court Working Group on Environment has built judicial capacity through sustained engagement on environmental and conservation cases. Its 10th anniversary was marked by the 5th Borneo Colloquium on Environmental Justice, involving over 100 judges, enforcement officers, lawyers and civil society. The forum reviewed a decade of progress and advanced legal understanding of environmental and climate justice in Sabah and Sarawak.
- (f) Association of Sustainability Professionals (ASP):** Recognising the growing importance of sustainability professionals, the Securities Commission Malaysia is facilitating the establishment of an association to support the profession. The ASP aims to be Malaysia's leading platform for sustainability professionals, driving excellence, and acting as a collective voice for policy advocacy and engagement with regulators.
- (g) Youth Environment Living Labs (YELL):** YELL is a joint UNDP and UNICEF-Malaysia programme enabling youth to take active roles in climate action by localising climate narratives and elevating local and indigenous perspectives. It also strengthens the ecosystem supporting youth engagement in environmental policy. To date, YELL has mobilised 8,768 youth through 69 seed-funded workshops, with 81% reporting increased climate competencies. The platform expands the pool of young people with practical skills for biodiversity, sustainability, and environmental careers.



MALAYSIA'S BIODIVERSITY CENTRE: FROM BLUEPRINT TO REALITY

The Malaysia Biodiversity Centre (MBC) is being established to strengthen biodiversity governance, technical coordination, and science-based advisory services. Its seven core functions include biodiversity assessment, standards development, national collections management, mainstreaming advisory services, stakeholder cooperation, and public awareness programming.

A key function is managing MyBIS, the national biodiversity information platform. Government funding has boosted cumulative records from 157,833 in 2018 to 819,718 in 2025, with species records reaching 48,453, expert listings 619, and participating agencies 56. MyBIS supports national reporting, research collaboration, and biodiversity publications.

Institutional work began in 2014 with a Core Team, later absorbed into NRES with four open-contract positions, now supported by 10 contract staff from the Forest Research Institute Malaysia as the MBC Interim Team.

A permanent facility is under development on an 8-acre site in Kuala Lumpur, with RM140 million secured under the Thirteenth Malaysia Plan. The Public Works Department is the implementing agency. The Ministry of Finance has designated MBC a Project of National Interest, enabling corporate tax deductions of up to 10%. The Malaysian Green Technology and Climate Change Corporation leads fundraising.

MBC officers have undertaken benchmarking visits to leading biodiversity institutions in Singapore (2023), France and Germany (2024), and the United States (2025), including the Smithsonian and Harvard University museums.

(h) Science Panel for Borneo (Heart of Borneo Initiative):

The Science Panel for Borneo brings together over 15 research institutions and experts from Malaysia (Sabah & Sarawak), Indonesia, and Brunei to produce integrated science-policy assessments. Its flagship assessment synthesised evidence on forests, biodiversity, climate change, land use, and development pressures, presented at UNFCCC and CBD platforms. This work helps Heart of Borneo governments align conservation, climate, and development policies using shared scientific evidence.

(i) ASEAN Capacity Building through ASEAN Centre for Biodiversity (ACB):

Through ACB, Malaysia supports regional training on protected area management, law enforcement, restoration, taxonomy and access and benefit-sharing. ACB also facilitates transboundary conservation planning and regional biodiversity data platforms. These initiatives strengthen technical capacity, information-sharing and coordination across ASEAN Member States.

(j) Experiential Learning: ASEAN Heritage Parks (AHP) Conference:

Malaysia participates in the ASEAN Heritage Parks (AHP) Conference. Held every three years, this conference serves as a regional experiential learning platform for AHP managers, development partners, and stakeholders. It enables them to share science-based management approaches, strengthen the implementation of nature-based solutions for climate resilience and ecosystem restoration, and exchange practices on sustaining conservation-linked livelihoods.

NATIONAL BIODIVERSITY COUNCIL: SETTING THE NATIONAL BIODIVERSITY AGENDA

The National Biodiversity Council (NBC) is Malaysia's apex coordination platform for biodiversity policy. Chaired by the Deputy Prime Minister and supported by the Ministry of Natural Resources and Environmental Sustainability (NRES), NBC enables federal and state governments to discuss national biodiversity strategies.

While established in 2015 under the National Policy on Biological Diversity, NBC was formally reactivated on 22 March 2023, adopting its Terms of Reference and aligning the KMGBF targets with the NPBD. Its institutional footprint expanded in July 2024, adding five federal ministries as members: Energy Transition, Economy, Tourism, Housing, and Works.

The Council has since driven key decisions. It endorsed the Malaysia Biodiversity Centre as a national centre of excellence, approved the National One Health Steering Committee, and supported Malaysia's engagement with the BBNJ Agreement. It also recognized the Malayan Seladang as a critically endangered species, leading to a conservation plan, and mandated enhanced human-wildlife conflict mitigation along the East-West Highway in Gerik, Perak.

The NBC represents a whole-of-government effort to turn policy into coordinated action. It continues to strengthen national biodiversity governance, aligned with Malaysia MADANI principles of environmental sustainability, accountability, and the well-being of future generations.

CHALLENGES AND CONSIDERATIONS FOR FUTURE IMPLEMENTATION

Malaysia has made progress in building national human, institutional, and governance capacity, but progress is at an insufficient rate. To deliver meaningful conservation outcomes by 2030, four specific gaps must be addressed:

- Bridging the policy-implementation gap** – While national policies such as the NPBD provide clear direction, execution depends on a multitude of stakeholders with varying priorities, capacities, and resources, leading to fragmented application of capacity-building programmes. Reliance on short-term project funding further complicates long-term systemic training. *Considerations for future implementation: Strengthen federal-state coordination mechanisms to align priorities and resources. Advocate for longer-term, core funding streams for capacity development to enable strategic, sustained institutional strengthening.*
- Addressing capacity constraints at state and local levels** – Capacity gaps are particularly pronounced at sub-national levels, where responsibility for land-use decisions is greatest. Many states lack dedicated biodiversity units, and local authorities face constraints in staffing and technical expertise, creating misalignment between mandate and capacity. *Considerations for future implementation: Prioritise targeted technical assistance and capacity-building programmes for state planning units and local authorities. Support the creation of dedicated biodiversity functions within state governments.*
- Overcoming human resource and inclusivity gaps** – Malaysia faces a need to attract, develop, and retain specialised scientific and technical expertise in fields such as advanced taxonomy, conservation genetics, biosafety, and environmental economics. Ensuring capacity-building is truly inclusive remains a challenge. *Considerations for future implementation: Develop and promote specialised public sector career tracks in biodiversity fields. Design and mandate inclusive participation protocols for all capacity-building initiatives, ensuring programmes are co-created with and accessible to IPLCs, women, and youth.*
- Strengthening outcome-based monitoring and data systems** – Systematic monitoring of capacity-building outcomes remains limited. Progress is often measured by activities delivered rather than changes in practice or performance. Gaps in data, including the lack of comprehensive sex-disaggregated data, hinder robust analysis of programme effectiveness. *Considerations for future implementation: Institutionalise a results-based monitoring framework for capacity-building initiatives. Invest in data systems to track career progression, skills application, and the gender and social impact of programmes.*



Photo credit: Dept of Fisheries

Goal 5: Capacity & Finance**NPBD TARGET 17**

THERE IS A SIGNIFICANT INCREASE IN FUNDS AND FINANCIAL INCENTIVES FOR BIODIVERSITY CONSERVATION FROM BOTH GOVERNMENT AND NON-GOVERNMENT SOURCES

INTRODUCTION

Malaysia's strategy for Target 17 centres on diversifying financing sources and facilitating greater private sector participation alongside increased public allocations at both national and sub-national levels. Existing efforts include strengthening fiscal policy and national budgeting processes and supporting states to diversify their revenue streams toward more nature-positive outcomes. Increasingly, efforts are also focused on exploring and pioneering innovative green financing instruments, including blended finance and carbon markets, to harness private capital and non-government revenue sources, with the overall aim of building a robust conservation finance ecosystem in the country.

CURRENT LEVEL OF PROGRESS TOWARDS THE TARGET

Progress made but at an insufficient rate.

ACTION 17.1: INCREASE PUBLIC FUNDS AVAILABLE FOR BIODIVERSITY CONSERVATION

This action focuses on scaling public finance for biodiversity, as they continue to serve as the primary source of funding for biodiversity conservation in Malaysia. The government effort in domestic green financing is through embedding environmental priorities and biodiversity into fiscal policy and national budgeting processes. Overall, assessment by the Biodiversity Finance Initiative (BIOFIN) indicates that the federal biodiversity-related spending in 2025 has reached RM 1.63 billion, a 64 per cent increase from 2021, which reflects a growing recognition of biodiversity as a national priority.

Among the key initiatives is the Ecological Fiscal Transfer (EFT) where the federal government transfers budget funds to sub-national governments based on their ecological contributions to incentivise conservation through performance-based outcomes. The EFT was introduced in 2019, and its annual allocations have risen from RM60 million in 2019 to RM250 million in 2025, delivering a cumulative RM800 million in total. The EFT has undergone several criteria refinements since its inception and has supported various conservation initiatives at the state level.

The National Conservation Trust Fund (NCTF) which was established in 2015 continues to channel contributions from public and private sources towards a wide range of conservation projects including on flora and fauna, limestone ecosystems and caves, marine ecosystems and habitats, inland aquatic ecosystems, and indigenous and local community projects. As of December 2025, the NCTF has financed

112 projects amounting to RM 22.62 million - from species conservation in Royal Belum State Park, Perak, to marine ecosystem rehabilitation in Pulau Rawa, Johor, and Pulau Tioman, Pahang.

Malaysia is also strengthening biodiversity financing through the BIOFIN by UNDP, which supports the mobilisation and more effective use of public and non-government financial resources for biodiversity conservation. Through tools such as the Biodiversity Expenditure Review and Finance Needs Assessment, BIOFIN has informed policy and fiscal decision-making, while supporting the development and piloting of innovative finance solutions, including Ecological Fiscal Transfers, ecosystem-based fees, payments for ecosystem services, and private sector engagement.

Key Indicator:

By 2030, at least RM500 million has been mobilised for biodiversity conservation through annual public funds

A BIOFIN assessment found that total biodiversity-related expenditure in Malaysia has grown by approximately 40%, from RM1.87 billion in 2021 to RM2.63 billion in 2025, equivalent to 0.12-0.13% of gross domestic product (GDP). Of this, approximately 58% is sourced from the Federal Government, with federal biodiversity-related spending reaching RM1.63 billion in 2025, a 64% increase from RM 993.8 million in 2021. However, these figures reflect a broad definition of biodiversity-related expenditure consistent with BIOFIN methodology, which include activities such as river maintenance, urban sustainability, solid waste management and ministerial operational expenditure, in recognition that they contribute indirectly to ecosystem and biodiversity outcomes.

ACTION 17.2: MOBILISE GREEN CONSERVATION FINANCING FROM THE PRIVATE SECTOR

This action aims to harness green financing opportunities and channel private capital toward biodiversity conservation, in line with KMGBF Target 19(b) on mobilising private, blended, and philanthropic finance. To this end, Malaysia is strengthening the enabling environment for nature-related markets and sustainable finance instruments to attract and scale private capital for conservation.

The Malaysia Forest Fund was established in 2021 to operationalise the REDD Plus Finance Framework (RFF) and administers two instruments: Forest Carbon Offsets (FCOs) for market-based emissions offsetting and the Forest Conservation Certificate (FCC), a non-market and public-private financing mechanism aimed at delivering conservation outcomes. The FCC certifies sustainable forest initiatives while incentivising corporate participation in conservation, thereby supporting maintenance of forest cover and delivering co-benefits in carbon sequestration and biodiversity conservation. Since its launch on 27 May 2024, the FCC has approved nine projects nationwide, securing over RM1.3 million in private financing for on-the-ground conservation initiatives. Development of the FCO framework and associated national carbon standards and methodologies for carbon accounting, verification, and certification is currently underway, aligned with international best practices and tailored to local conditions.

Malaysia has taken concerted steps to strengthen its voluntary carbon market ecosystem. The Bursa Carbon Exchange (BCX), launched in December 2022, is the world's first Shariah-compliant carbon exchange and provides the trading platform for standardised technology- and nature-based carbon credits. In July 2024, BCX hosted the auction of its first nature-based carbon credits from the Kuamut Rainforest Conservation Project and certified at Gold Level under the Climate, Community and Biodiversity (CCB) Standards. The action cleared over 20,000 tCO₂e, signalling growing private sector interests in nature-based carbon trading and offsets.

The government, through the Ministry of Finance, has strengthened policy coherence across fiscal, procurement and financial sectors to align financial flows and market instruments with biodiversity and climate objectives. The Government Green Procurement initiative, implemented since 2013, integrates environmental considerations across 20 categories of public procurement. In 2023 alone, green procurement reached RM2.58 billion, with cumulative procurement from 2013 to 2022 amounting to RM6.55 billion, leveraging government purchasing power to shift markets toward more sustainable products and services. In addition, MOF has introduced tax

exemption for activities related to environmental preservation and conservation projects since 2001.

Malaysia has also leveraged its established leadership in Islamic finance to pioneer innovative instruments that directly link capital markets to biodiversity and sustainability outcomes. The government issued the world's first sovereign sustainability sukuk in 2021, which was oversubscribed by 6.4 times and upsized to RM 1.3 billion. Since then, the Ministry of Finance has issued approximately RM13 billion in Sustainability Sukuk on green and social development programmes with biodiversity co-benefits. In addition, the corporate sustainable and responsible investment (SRI) sukuk segment has expanded from RM5.3 billion in 2020 to RM52.3 billion outstanding by the end of 2025, placing Malaysia among the top three issuers of green, social and sustainability bonds and sukuk in ASEAN, accounting for approximately 23.1% of the region's issuance.

Key Indicator:

By 2030, private financing contributions into national / state conservation trust funds have increased

BIOFIN assessments indicate that annual private sector expenditure on environmental protection grew from RM3.12 billion in 2021 to RM3.64 billion in 2025. Of this total, approximately 20% is relevant to biodiversity, with the majority addressing pollution and waste management in line with regulatory requirements and operational risk management, and less than 1% directed specifically toward wildlife and habitat conservation. This distribution points to an opportunity to further mobilise private finance toward a more direct biodiversity outcomes.

ACTION 17.3: DIVERSIFY THE REVENUE STREAMS OF STATE GOVERNMENTS FOR BIODIVERSITY CONSERVATION

This action focuses on diversification of the revenue streams of State governments to reduce their level of dependency on natural resources and exploitative activities that lead to biodiversity loss, as well as incentivise conservation actions. This remains a critical priority given that state governments are the custodians of land, forests and natural resources. Beyond federal initiatives such as the EFT that supports state-revenue diversification, state governments have also begun exploring and developing several financing instruments to broaden their revenue base.

Several states have introduced sustainability-related levies linked to environmental conservation and tourism objectives. Melaka introduced the Caj Warisan (Heritage Charge), a per-room levy on accommodation guests, with proceeds directed toward the conservation

of the state's UNESCO World Heritage sites and tourism infrastructure. Pahang introduced the Fi Kelestarian (Sustainability Fee) in 2022 with revenue earmarked for conservation projects, sustainable tourism development and environmental awareness. Effective from 1 January 2026, Selangor has introduced a Sustainability Fee tiered by accommodation category, with proceeds dedicated to heritage conservation, infrastructure maintenance and tourism development.

The growing interest in carbon trading has created opportunities for state governments to explore new revenue streams through forest-based carbon projects. Sarawak has been the most advanced in this regard, enacting the Environment (Reduction of Greenhouse Gases Emission) Ordinance 2023, which establishes a comprehensive regulatory framework for carbon credits, carbon levies and emissions thresholds. Under this framework, forest carbon project developers are subject to a royalty per hectare and an ecosystem fee equivalent to 5% of revenues from carbon credit sales. Sabah has passed the Forest Enactment (Amendment) 2025 to introduce mandatory licensing for all forest carbon activities and ensure revenues are channelled directly to the state, followed by the Climate Change and Carbon Governance Enactment 2025 which establishes a dedicated climate fund financed through levies, royalties and carbon-related fees.

Efforts to harness the value of ecosystem services as a sustainable financing mechanism are also being explored, particularly through Payment for Ecosystem (PES) scheme. In Sabah, the Babagon Catchment PES pilot aims to establish a Babagon Catchment Water Fund that channels payments from downstream water users and the water utility to landowners and communities in the catchment in exchange for maintaining watershed services. In Sarawak, a similar approach is being developed in the Gerugur Reservoir area in Sarikei to link watershed protection with sustainable financing. BIOFIN is also supporting the Sabah State Government in exploring the application of a state-wide Ecosystem Conservation Fee.

Key Indicator:

By 2030, sustainable financing task forces (or relevant equivalents) have been established in all states and are leveraging sustainable financing approaches for biodiversity conservation

As of 2025, no dedicated sustainable financing task forces at the state level have been formally established, although several states have formed state-level councils related to climate change, biodiversity and sustainability, within which green financing is often included as part of the agenda. There are also increasing efforts by states to explore and develop various conservation financing mechanisms, particularly in Sarawak, Sabah, Terengganu and Pahang.

EXAMPLES OF INITIATIVES DRIVING CHANGE

The effectiveness of Malaysia's diversified financing approach is demonstrated through the practical application of its key mechanisms. The examples below showcase how public fiscal instruments, market-based solutions, and blended finance models are mobilising resources and generating measurable conservation outcomes.

(a) Financing Malaysian Tiger Conservation in the Al-Sultan Abdullah Royal Tiger Reserve:

This Pahang-based reserve is the first privately managed protected area in Peninsular Malaysia, aimed at protecting the critically endangered Malaysian tiger. Supported by a USD 22 million grant from the Mohamed bin Zayed Species Conservation Fund, the reserve is managed by the Pahang State Government with Enggang Management Services, The Habitat Foundation, BORA, Panthera, and Nature-Based Solutions Sdn Bhd. The financing supports anti-poaching, habitat management, monitoring, and community engagement.

(b) Sustainable and Responsible Investment (SRI) Sukuk and Sustainability-linked Instruments:

The Securities Commission Malaysia introduced the SRI Sukuk Framework in 2014 to finance green, social, and biodiversity-related projects through sukuk, revised in 2019 to align with ASEAN standards. The SRI Sukuk Grant Scheme defrays up to 90% of external review costs per issuance (capped at RM300,000), expanded in 2022 to include sustainability-linked bonds. Green SRI sukuk enable Malaysia's net-zero transition under the National Energy Transition Roadmap and New Industrial Master Plan 2030.

(c) Climate Finance Innovation Lab (CFIL): A joint initiative under the Joint Committee on Climate Change (JC3), CFIL develops innovative climate finance solutions to mobilise public and private finance for net-zero, climate resilience, and nature-positive actions. It supports energy transition, circular economy, sustainable agriculture, and biodiversity. Since June 2025, CFIL has onboarded 30 projects with funding needs exceeding RM4.0 billion, advancing blended finance, risk mitigation, and public-private collaboration.

(d) Forest Conservation and Enhancement of Darulaman Sanctuary, Lubuk Semilang:

Spanning 91.58 hectares at the foothills of Gunung Raya, this is the first project implemented under the FCC. Led by Bina Darulaman Berhad with support from corporate partners, including ByteDance System Sdn. Bhd. and BDB Infra Sdn. Bhd., the initiative focuses on conserving and enhancing

the sanctuary's natural assets in line with broader environmental sustainability goals. Beyond protecting Langkawi's ecological heritage, the project also delivers inclusive community benefits through eco-tourism, environmental education, and sustainable livelihood opportunities.

(e) Penjaga Gunung Project: Located within Selangor State Park (Hutan Warisan Diraja Selangor), this is the second project implemented under the FCC to support three Orang Asli communities in Kampung Gerachi, Kampung Pertak, and Kampung Ulu Batu, who possess deep traditional ecological knowledge and strong ties to forest-based livelihoods. Led by YourIdeaMaker Network with support from corporate partners, including CIMB Islamic Bank Berhad and Vantage Data Centers Malaysia Sdn. Bhd., the project empowers these communities through training in forest conservation and eco-tourism. The initiative creates sustainable income opportunities while strengthening forest protection through community-led monitoring and advocacy for long-term environmental stewardship.

(f) Pulau Pinang National Park Conservation Fee Mechanism: Pulau Pinang National Park introduced a structured park fee system in November 2022 to support conservation financing and site management. The mechanism applies three categories of charges, namely a conservation fee per visit based on visitor category, activity-based fees by activity type, and annual tourism service fees charged to service providers operating in the park. From November 2022 to October 2025, the fee mechanism generated

RM 4,357,311, providing a dedicated revenue stream to support park operations and conservation-related activities.

(g) Nature-Based Carbon Finance through Peatland Restoration in Southeast Pahang: The Southeast Pahang Peat Swamp Forest, spanning 97,000 ha, is one of the four national peatland priorities under the Sustainable Management for Peatland Ecosystem Malaysia programme. Enggang (Pekan) Sdn Bhd is supporting the Pahang state government to develop the Verra-aligned Pahang Peatland Restoration Project, designed to deliver climate, community and biodiversity benefits. The project features canal blocking of logging canals, fire prevention and suppression, SMART patrol forest protection and a 60-year biodiversity monitoring programme, while working with Jakun indigenous communities in conservation activities.

(h) The Habitat: Ecotourism-Linked Conservation Financing: The Habitat Penang Hill, a B Corp-certified rainforest discovery park, operates as a purpose-driven ecotourism enterprise. Revenue generated from visitor fees, guided tours and educational programs is pledged by its founders to support The Habitat Foundation, a non-profit organisation that supports nature conservation, research, education, training and innovation. This model provides financial support to academicians, students, researchers, community members, trainers and environmental practitioners to undertake various projects within the Penang Hill Biosphere Reserve and beyond.

ECOLOGICAL FISCAL TRANSFER SUPPORTING STATE CONSERVATION EFFORTS

Malaysia has implemented the Ecological Fiscal Transfer (EFT) since 2019 as a federal-state financing instrument to incentivise biodiversity conservation and protected area expansion at the subnational level. Allocations are based on protected area coverage and six performance variables, including enforcement, community engagement, and restoration. Disbursements follow a 50/50 split between area and performance, rewarding both the extent and quality of conservation.

Since its introduction, EFT has contributed to the gazettelement and expansion of approximately 350,000 hectares of protected areas. Between 2022 and 2024, EFT funded 152 community involvement and capacity-building projects totalling approximately RM23 million, supporting states in engaging local communities and raising public awareness of conservation.

EFT has also enabled states to secure international recognition for important conservation areas, including

Wang Kelian in Perlis, and Bako National Park and Lambir Hills National Park in Sarawak, as ASEAN Heritage Parks, as well as Lenggong as a UNESCO Global Geopark. In Negeri Sembilan, EFT funds were used to upgrade infrastructure at the PD Forest at Sungai Menyala, resulting in increased visitor numbers from 5,380 in 2021 to 15,700 in 2024. By 2024, the forest had received three Malaysia Book of Records certifications and the Malaysia Tourism Quality Assurance (MyTQA) award, demonstrating how conservation investment can generate tangible ecotourism returns.

Malaysia's EFT is recognised by the UNDP Biodiversity Finance Initiative (BIOFIN) as a fiscal mechanism aligning intergovernmental transfers with biodiversity outcomes and is featured on the UNDP Panorama Solutions platform as a replicable good practice. This international recognition positions the EFT as a model for countries aiming to integrate biodiversity conservation into fiscal policy and budgeting.

MALAYSIA FOREST FUND: MOBILISING BIODIVERSITY AND CLIMATE FINANCE

Malaysia recognises its forests as critical natural capital delivering climate mitigation, biodiversity conservation, and ecosystem services, aligned with the Kunming–Montreal Global Biodiversity Framework (GBF). Established in June 2021 under the Ministry of Natural Resources and Environmental Sustainability (NRES), the Malaysia Forest Fund (MFF) advances GBF Targets 18 and 19 by mobilising and redirecting public and private finance towards nature positive outcomes through the REDD+ Finance Framework (RFF).

The non market Forest Conservation Certificate (FCC) incentivises voluntary private sector contributions, supported by fiscal incentives, thereby operationalising GBF Target 15 by enabling businesses to invest in biodiversity stewardship and transparent conservation outcomes. FCC supported activities contribute directly to GBF Target 14 by integrating biodiversity values into national development and corporate decision making, while delivering verified co benefits for ecosystems and forest dependent communities. In 2026, FCC approved 9 impact-driven projects for RM30.2 million fund raising activities.

Complementing this, the Forest Carbon Offset (FCO) - Malaysia's government carbon crediting mechanism for the forestry sector - is scheduled for launch in the second quarter of 2026, supported by seven new high integrity forest carbon methodologies. The FCO will significantly scale results based finance for nature based solutions, strengthen environmental integrity, and enhance inclusive and transparent benefit sharing arrangements in line with GBF Target 21.

Conservation Agreement Exchange Ceremony for the Penjaga Gunung Project, one of various initiatives under the Forest Conservation Certificate (FCC) instrument, witnessed by the Crown Prince of Selangor, 30 March 2026.



CHALLENGES AND CONSIDERATIONS FOR FUTURE IMPLEMENTATION

Malaysia has made progress in developing diversified financial mechanisms, resulting in increased funding flows, but progress is at an insufficient rate. To catalyse a major increase in financial flows toward high-impact conservation by 2030, four specific gaps must be addressed:

- Ensuring the sustainability and adequacy of public financing** – While public allocations have increased (federal biodiversity-related spending reached RM1.63 billion in 2025, a 64% increase from 2021), they remain subject to broader fiscal constraints and competing national priorities. Sustaining and growing this funding requires demonstrating high impact and cost-effectiveness. *Considerations for future implementation: Strengthen results-based budgeting and impact evaluation for biodiversity programmes to justify sustained investment. Expand the use of dedicated fiscal instruments like the Ecological Fiscal Transfer (EFT), refining guidelines to better link payments to verifiable conservation outcomes.*
- Scaling early-stage private sector engagement** – While climate finance has established significant market traction, the ecosystem for directing comparable capital flows toward nature-positive outcomes requires further development. Less than 1% of private environmental expenditure is directed specifically toward wildlife and habitat conservation. *Considerations for future implementation: Develop*
- stronger regulatory signals and market incentives, including enhancing sustainable finance taxonomies and nature-related disclosure requirements. Create accessible green finance products and de-risking mechanisms through blended finance to catalyse private investment.*
- Enabling state-level access to diverse finance streams** – Sub-national governments face barriers in directly accessing international biodiversity finance and developing bankable conservation projects. Variations in technical capacity, project readiness, and fiduciary standards constrain their ability to tap into new funding sources. *Considerations for future implementation: Provide federal-level facilitation and targeted technical support to help states meet donor requirements and develop investment-ready proposals. No dedicated sustainable financing task forces have been formally established at state level as of 2025.*
- Improving the tracking and transparency of financial flows** – Comprehensive tracking of biodiversity-related expenditure is limited. Budget tagging is not yet fully institutionalised across all relevant ministries, and private sector contributions through CSR and philanthropy are not systematically captured, obscuring the true picture of financial flows. *Considerations for future implementation: Institutionalise a biodiversity budget tagging system aligned with NPBD targets. Develop a framework to systematically track and report private and philanthropic contributions to conservation, improving transparency and informing strategy.*

CHAPTER 3

ASSESSMENT OF NATIONAL PROGRESS CONTRIBUTING TO THE GOALS OF THE KUNMING-MONTREAL GLOBAL BIODIVERSITY FRAMEWORK AND SUSTAINABLE DEVELOPMENT GOALS

3.1 INTRODUCTION

Malaysia's progress towards the KMGBF and the SDGs is operationally anchored in its NPBD 2022–2030. The NPBD targets are deliberately aligned with the 23 KMGBF action targets, while also serving as an integrated delivery mechanism for multiple SDGs, particularly SDG 14 (Life Below Water), SDG 15 (Life on Land), SDG 17 (Partnerships), and others detailed in this chapter.

Malaysia has now transitioned from policy formulation to active implementation, establishing robust legal frameworks, initiating large-scale conservation actions, and pioneering innovative governance and financing models. Focused, concrete actions are delivering outcomes for global targets on restoration, protected areas, sustainable use, and benefit-

sharing. However, the primary challenge remains accelerating the pace and scale of action. By 2030, Malaysia must fully translate national ambition into systemic outcomes that contribute meaningfully to both the KMGBF 2050 vision and the 2030 Agenda for Sustainable Development.

3.2 NATIONAL PROGRESS CONTRIBUTING TO KMGBF

The following sections assess Malaysia's performance against each of the four KMGBF 2050 Goals (A, B, C, and D). For each Goal, the analysis highlights measurable outcomes, key policy and legislative instruments, and on-the-ground actions that demonstrate Malaysia's contribution to the global biodiversity agenda. Where relevant, linkages to the corresponding KMGBF Targets are identified, and summary tables present consolidated progress against specific objectives.

3.2.1 GOAL A: PROTECT AND RESTORE

Malaysia has demonstrated measurable, structured progress in protecting ecosystem integrity, halting species extinctions, and safeguarding genetic diversity, directly contributing to KMGBF Goal A.

CHAPTER 3 – ASSESSMENT OF NATIONAL PROGRESS CONTRIBUTING TO THE GOALS OF THE KUNMING-MONTREAL GLOBAL BIODIVERSITY FRAMEWORK AND SUSTAINABLE DEVELOPMENT GOALS

(a) Ecosystem Integrity, Connectivity, and Resilience

Malaysia is actively increasing its area of natural ecosystems through protection and restoration, directly contributing to KMGBF Target 3 (30x30). As of 2025, Malaysia’s terrestrial protected area (PA) coverage stood at 14.83% while marine protected area at 5.34%. Sabah terrestrial PA coverage stands at 27.3% and the state Cabinet has approved expansion to 30%. Sarawak has gazetted approximately 2.1 million hectares of new Totally Protected Areas. The protected areas expansion is guided by the Central Forest Spine (CFS) Masterplan and the Heart of Borneo Initiative. To reverse degradation, Malaysia has launched large-scale restoration programs (KMGBF Target 2). The national 100 Million Tree Planting Campaign was exceeded ahead of schedule. Sarawak has already restored 137,178 hectares of degraded forest, achieving 68.6% of its 2030 target.

(b) Halting Extinctions and Recovering Species

Malaysia employs a science-based, plan-driven approach to species recovery. This is guided by national and state-level Action Plans for flagship species, including the Malayan Tiger, Asian Elephant, Orangutan, and marine turtles. Implementation through dedicated task forces is yielding measurable results: intensified, intelligence-led patrolling has stabilised tiger prey populations in core landscapes, and enhanced nesting beach protection has led to stable or increasing trends for marine turtles at key sites.

(c) Maintaining Genetic Diversity

Malaysia addresses genetic diversity through integrated strategies. The protection of large, contiguous landscapes maintains viable population sizes and gene flow. Ex-situ efforts are robust, with seed banks and germplasm collections conserving the genetic diversity of threatened flora and fauna.

Table 3-1: Summary of Key Progress for Goal A

Objective	Key Action / Progress Indicator	Status / Outcome
Ecosystem Protection & Area-Based Conservation	Gazettement of new Totally Protected Areas (TPAs)	2.1 million hectares gazetted in Sarawak (2025) including significant expansions such as the Bako National Park and extensions to Batang Ai National Park. Sabah’s terrestrial PA coverage has reached 27.3%.
	Expansion of Marine Protected Areas (MPAs)	Sabah announced plans to nearly double MPA coverage; Tun Mustapha Park (899,000 hectares) is a model multi-use MPA.
	Legal Framework for OECMs	Draft National OECM Assessment Methodology completed, laying groundwork for recognition.
Ecological Connectivity & Corridors	Implementation of CFS Masterplan	39 priority linkages identified; 23,734.63 hectares of critical corridor land gazetted.
	Securing Transboundary Landscapes (Heart of Borneo)	6.6 million hectares under protection/sustainable management in Malaysian HoB territory.
Large-Scale Ecosystem Restoration	“100 Million Tree Planting Campaign”	The campaign surpassed its target ahead of schedule, resulting in the planting of 137,035,826 trees nationwide
	Sub-National Level Forest Landscape Restoration	Sarawak restored 137,178 hectares (68.6% of target). Sabah has large-scale rainforest rehabilitation projects.
Threatened Species Recovery	Species-Specific National & State Action Plans	Formal, funded plans for Malayan Tiger, Asian Elephant, Orangutan, Marine Turtles, etc.
	Targeted Population Management & Threat Reduction	National Tiger Conservation Task Force coordinates enforcement.
Genetic Diversity Conservation	In-situ Conservation in Large Landscapes	Protection of large contiguous forests maintains natural gene flow.
	Ex-situ Gene Banks & Living Collections	Seed banks and captive breeding programs target conservation of genetic diversity.

3.2.2 GOAL B: PROSPER WITH NATURE

Malaysia is mainstreaming the sustainable use and valuation of biodiversity across key economic sectors, directly supporting Goal B and KMGBF Targets 9 (sustainable wild use) and 10 (sustainable agriculture). This framework actively promotes inclusive economic empowerment, exemplified by initiatives like the Department for Women's Development's KIRANA OMEGA programme, which trains rural women in 'waste to value' concepts, linking sustainable livelihoods to the circular economy (KMGBF Target 23).

(a) Mainstreaming Biodiversity into Production Sectors

Malaysia has integrated biodiversity safeguards into its major commodity systems. The mandatory Malaysian Sustainable Palm Oil (MSPO) certification now covers 89.6% of the plantation area. The revised MSPO 2.0 standard, effective 2025, explicitly prohibits conversion of natural forests and High Conservation Value (HCV) areas, directly halting a key driver of habitat loss. Similarly, the new Malaysian Sustainable Natural Rubber (MSNR) standard embeds sustainability. In fisheries, the government is rebalancing production towards aquaculture and implementing Ecosystem Approach to Fisheries Management.

(b) Integrating Biodiversity into Development Planning

Biodiversity considerations are legally embedded into national spatial planning (KMGBF Target 14). The National Physical Plan and its ESA framework mandate that development plans avoid critical habitats. This principle is being extended to marine spaces through Marine Spatial Planning pilots and demonstrated in practice through projects such as the East Coast Rail Link (ECRL), which incorporated 28 dedicated wildlife crossings.

(c) Promoting Sustainable Use through Tourism and Business

Synergies between conservation and the economy are being realised through the Strategic Framework for Sustainable Tourism in Malaysia. The National Ecotourism Plan and the 'Green Badge' for nature guides promote high-value tourism. This has resulted in 384 certified nature guides (as of January 2026), professionalising the sector and improving visitor management. The private sector is increasingly engaged, with leading corporations adopting corporate Biodiversity Frameworks.

Table 3-2: Summary of Key Progress for Goal B

Objective	Key Action / Progress Indicator	Status / Outcome
Sustainable Agri-commodities	Mandatory MSPO Certification	89.6% of national plantation area certified. Prohibits conversion of forests/HCV areas.
	Malaysian Sustainable Natural Rubber Standard	National standard enforced since Jan 2025.
Sustainable Fisheries	Shift to Aquaculture & Ecosystem-Based Management	Implementing 60:40 aquaculture target; applying EAFM.
Mainstreaming in Planning	ESA Framework in Spatial Plans	ESA classification embedded in National Physical Plan, guiding all development plans.
Sustainable Tourism	National Ecotourism Plan & Guide Certification	Growth in certified operators and the "Green Badge" Nature Guide programme.
Business Integration	Blueprint for Accelerating Biodiversity Action for Businesses	Launched in 2025 to guide private sector strategy.
	Corporate Biodiversity Frameworks	Adoption by leading firms (e.g., PETRONAS, Sarawak Energy and Tenaga Nasional).

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3.2.3 GOAL C: SHARE BENEFITS FAIRLY

Malaysia has established an advanced and operational Access and Benefit-Sharing (ABS) framework, directly fulfilling the objectives of Goal C and KMGBF Target 13, with deliberate efforts to ensure equitable sharing including along gender lines

(a) Operational Legal and Administrative Systems

Malaysia has a functional, multi-tiered ABS architecture. The Federal Access to Biological Resources and Benefit Sharing Act 2017 is operational, complemented by pioneering state-level laws. The system is supported by clear procedures for Prior Informed Consent (PIC) and Mutually Agreed Terms (MAT). Administrative tools like the national MyABS Clearing-House and the Malaysia Traditional Knowledge Digital Library (MyTKDL) provide transparency and defensive protection against biopiracy.

(b) Generation and Sharing of Benefits

The framework is transitioning from law to tangible outcomes. The Sarawak Biodiversity Centre (SBC) has finalised four Benefit-Sharing Agreements (BSAs) with Indigenous communities. Capacity-building programs empower Indigenous Peoples and Local Communities (IPLCs). Sabah signed its first BSA in 2025. These agreements have led to the commercial development of products like LitSara® and AdenoSara® essential oils, with benefits flowing back to Indigenous partner communities in Sarawak since 2019.

(c) Inclusive and Equitable Participation

Malaysia is ensuring that opportunities to contribute to conservation are distributed fairly, in line with KMGBF Target 23 (Gender Equality). Notable examples include the all-female, all-Indigenous wildlife ranger team established by the Gibbon Conservation Society in Peninsular Malaysia and the Iban women formally trained and employed as camera trappers for the first biodiversity baseline of the Lanjak Entimau Wildlife Sanctuary in Sarawak.

Table 3-3: Summary of Key Progress for Goal C

Objective	Key Action / Progress Indicator	Status / Outcome
Legal Framework	Operational ABS Laws	Federal ABS Act 2017 active, complemented by state laws in Sabah & Sarawak.
Community Protocols	Prior Informed Consent (PIC) & Mutually Agreed Terms (MAT)	Structured PIC protocols ensure IPLCs are rights-holders.
Benefit Generation	Executed Benefit-Sharing Agreements (BSAs)	Five BSAs finalised (e.g., 4 by SBC and 1 by SaBC).
Knowledge Protection	Malaysia Traditional Knowledge Digital Library	Defensive database to prevent biopiracy.

3.2.4 GOAL D: INVEST AND COLLABORATE

Malaysia is proactively developing innovative mechanisms to close the implementation gap, in line with Goal D and KMGBF Targets 19 (financial resources) and 20 (capacity-building).

(a) Innovating Public and Private Financial Mechanisms

The Ecological Fiscal Transfer (EFT) is an innovative intergovernmental mechanism that rewards states for conservation performance, with allocations growing from RM60 million in 2019 to RM250 million annually by 2025. The National Conservation Trust Fund for Natural Resources (NCTF) channels public and private contributions, having approved RM22.62 million for 112 projects. To mobilise market-based finance, Malaysia launched the Bursa Carbon Exchange (BCX), which successfully auctioned its first nature-based credits from the Kuamut Rainforest Conservation Project in 2024. The sustainable

finance ecosystem is further strengthened by Green SRI Sukuk frameworks and Green Technology Tax Incentives. This is critical given that current data indicates approximately 20 per cent of private sector environmental spend is relevant to biodiversity, with less than 1 per cent on conservation of wildlife and habitats.

(b) Building Institutional and Human Capacity

The Malaysia Biodiversity Centre (MBC) is being operationalised as a national hub for data (via the Malaysia Biodiversity Information System - MyBIS), research, and training. Parliamentary oversight has been enhanced through the Special Select Committee on Environment, Science and Plantation, which scrutinises issues like human-wildlife conflict management. Strategic international cooperation, such as with the Japan International Cooperation Agency (JICA) on peatland management, and regional leadership through ASEAN, build long-term

technical expertise. Concurrently, foundational systems for inclusive implementation are being established, including the appointment of Gender Focal Points in key environmental ministries to drive the integration of the CBD's Gender Plan of Action.

Table 3-4: Summary of Key Progress for Goal D

Objective	Key Action / Progress Indicator	Status / Outcome
Innovative Public Finance	Ecological Fiscal Transfer	Allocation grew to RM250M annually (2025).
	National Conservation Trust Fund	Has approved RM22.62M for 112 projects.
Mobilising Private & Market Finance	Bursa Carbon Exchange	First auction of nature-based credits was held in 2024.
Capacity Building	Operationalising the Malaysia Biodiversity Centre (MBC)	Developing as a national hub for data, research, and training.
	Parliamentary & Judicial Engagement	Special Select Committee provides oversight. Court Working Groups advance environmental justice.
International & Regional Cooperation	Strategic Partnerships (e.g., JICA, GEF/UNDP)	Long-term cooperation on peatland management, forest restoration, and species monitoring.
	ASEAN Leadership & South-South Cooperation	Active role in ASEAN Centre for Biodiversity; sharing peatland expertise with other Global South nations.

3.3 NATIONAL PROGRESS CONTRIBUTING TO SDGS

The NPBD targets are structured as an integrated framework where each target directly advances multiple SDGs. Section 6 of each target explicitly describes these relationships, showing that biodiversity action operates as a cross-cutting mechanism for sustainable development. The analysis identifies several SDGs that appear consistently across targets, indicating that nature conservation is central to Malaysia's whole of government approach to the 2030 Agenda.

3.3.1 SDG 15 Life on Land and SDG 14 Life Below Water

These two goals are the most frequently cited direct beneficiaries, appearing in nearly every target. SDG 15 is advanced through forest governance and management under Target 5, sustainable production systems under Target 6, protected area expansion under Target 8, ecosystem restoration under Target 9, ecological corridor security under Target 10, threatened species recovery under Target 11, and combating illegal wildlife trade under Target 12.

SDG 14 is similarly advanced through marine spatial planning under Target 3, sustainable fisheries under Target 6, marine protected areas under Target 8, coral reef and mangrove restoration under Target 9, marine ecological connectivity under Target 10, and recovery of marine species under Target 11.

3.3.2 SDG 17 Partnerships for the Goals

This goal emerges as the core operational model across the majority of targets. The whole of society approach involving government, Indigenous Peoples and Local Communities, private sector, academia, and civil society is explicitly referenced as essential for implementation of Targets 1, 2, 4, 8, 9, 10, 11, 12, and 16. Target 2 specifically strengthens the roles of non state actors in biodiversity conservation, while Target 17 mobilises financial partnerships from multiple sources.

3.3.3 SDG 13 Climate Action

Forest conservation, peatland management, mangrove restoration, and ecosystem-based adaptation are consistently linked to climate action. Targets 3, 4, 5, 6, 8, 9, 10, 11, and 17 all describe how biodiversity action directly supports Malaysia's commitments under the Paris Agreement. The maintenance of forest cover as a carbon sink, rehabilitation of peatlands to prevent emissions, and protection of blue carbon ecosystems are presented as nature based climate solutions.

3.3.4 SDG 12 Responsible Consumption and Production

This goal appears prominently in Targets 4, 5, 6, and 7. The mainstreaming of sustainable practices into palm oil certification under the Malaysian Sustainable Palm Oil scheme, timber management under the Malaysian Timber Certification Scheme, sustainable tourism certification, and circular economy policies directly implements SDG Target 12.2 on sustainable management of natural resources.

3.3.5 SDG 8 Decent Work and Economic Growth and SDG 1 No Poverty

Community based ecotourism, sustainable agriculture, and green job creation are advanced through multiple targets. Target 6 strengthens rural livelihoods linked to sustainable agriculture and fisheries, supporting smallholder inclusion in certified supply chains. Target 7 creates sustainable tourism jobs and community-based enterprises including homestays and guiding cooperatives. Target 8 secures ecosystem services that support community livelihoods. Target 9 creates green jobs in nursery management, planting, and landscape maintenance.

3.3.6 SDG 4 Quality Education

This goal is a primary delivery mechanism for Target 1, with formal and non-formal education programmes including SERASI in schools, the ASEAN Youth Biodiversity Leaders Fellowship, and experiential learning for all age groups. These programmes cultivate lifelong environmental stewardship and build the skilled workforce needed for all other targets.

3.3.7 SDG 16 Peace, Justice and Strong Institutions

Reinforced through strengthened governance, anti-money laundering tools applied to wildlife crime, and transparent institutional frameworks. Target 5 includes provisions for public hearings and transparent forest governance. Target 12 applies financial investigation tools to disrupt wildlife crime networks. Target 14 establishes legally mandated Free, Prior and Informed Consent processes. Target 16 builds effective, accountable institutions for biodiversity governance.

3.3.8 SDG 2 Zero Hunger

Directly served by Target 13 through control of agricultural pests and invasive species including the golden apple snail in rice paddies, protecting crop yields. Target 6 supports sustainable food production systems through the National Agrofood Policy and sustainable fisheries management.

3.3.9 SDG 6 Clean Water and Sanitation

Advanced through protection of water related ecosystems in Targets 3, 4, 9, and 10. Watershed protection, riparian corridor management, and restoration of upland forests and peat swamps regulate water flow and improve quality, directly contributing to SDG Target 6.6 on protecting water related ecosystems.

3.3.10 SDG 3 Good Health and Well being

Supported through the One Health approach in Target 4, which addresses risks at the human animal environment interface including emerging infectious diseases and antimicrobial resistance. Target 13 also supports this goal through management of disease vectors and allergenic plants.

3.3.11 SDG 5 Gender Equality and SDG 10 Reduced Inequalities

These goals are advanced where capacity building initiatives are designed to be inclusive. Target 2 empowers Indigenous Peoples and Local Communities with secure land rights and a voice in governance. Target 14 ensures fair and equitable sharing of benefits with communities. Target 16 promotes inclusive and participatory decision making.

3.4 CONCLUSION

Malaysia's implementation of its NPBD 2022–2030 demonstrates a comprehensive commitment to both the KMGBF and the SDGs. The country has built a strong foundation of law, policy, and action that aligns with all four KMGBF 2050 Goals. It also advances multiple SDGs, positioning biodiversity conservation as essential infrastructure for the 2030 Agenda. Malaysia is actively protecting vast new areas, recovering species, sharing benefits with Indigenous communities, and innovating in conservation finance. The journey to 2050 and 2030 requires sustained political will, increased investment, and relentless focus on systemic implementation. Progress to date positions Malaysia as a regional leader capable of achieving a future where all people and nature truly prosper together.

Photo credit: Forestry Department Peninsular Malaysia



Table 3-5 : NPBD Targets and Sustainable Development Goals

NPBD Target	Target Description	Primary SDGs	Key SDG Targets
Target 1	By 2030, more Malaysians are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably	SDG 4, SDG 12, SDG 13, SDG 14, SDG 15, SDG 17	4.7, 12.8, 13.3, 15.b, 17.17
Target 2	By 2030, the roles of Indigenous Peoples and local communities, civil society, the private sector, and academia in biodiversity conservation have been strengthened significantly	SDG 1, SDG 5, SDG 10, SDG 12, SDG 16, SDG 17	1.4, 5.5, 10.2, 12.6, 16.6, 16.7, 16.10, 17.16, 17.17
Target 3	By 2030, terrestrial and marine spatial planning fully incorporate elements of biodiversity conservation	SDG 6, SDG 8, SDG 11, SDG 12, SDG 13, SDG 14, SDG 15	6.6, 8.4, 11.3, 11.7, 13.2, 14.2, 14.5, 15.1, 15.4, 15.9
Target 4	By 2030, biodiversity conservation has been effectively mainstreamed into development frameworks	SDG 6, SDG 8, SDG 9, SDG 11, SDG 12, SDG 13, SDG 14, SDG 15, SDG 17	6.3, 6.5, 8.4, 8.9, 9.1, 9.4, 11.6, 12.1, 12.2, 12.4, 12.6, 13.2, 14.1, 15.5, 15.9, 17.19
Target 5	By 2030, our forest governance and management has been strengthened for biodiversity conservation	SDG 12, SDG 13, SDG 15, SDG 16, SDG 17	1.4, 12.1, 12.2, 13.2,
Target 6	By 2030, our agrofood, agricommodity, and fisheries production are managed and harvested sustainably	SDG 1, SDG 2, SDG 12, SDG 14, SDG 15	1.4, 2.3, 2.4, 2.5, 12.1, 12.2, 12.c, 14.4, 14.6, 14.7, 14.b, 15.2
Target 7	By 2030, the synergies between tourism and conservation are fully realised	SDG 1, SDG 8, SDG 11, SDG 12, SDG 14, SDG 15	1.4, 8.3, 8.9, 11.4, 12.b, 14.5, 15.1, 15.9
Target 8	By 2030, at least 20% of terrestrial areas and inland waters, and 10% of coastal and marine areas are conserved through an effectively managed and ecologically representative system of protected areas and OECMs	SDG 6, SDG 8, SDG 13, SDG 14, SDG 15, SDG 16, SDG 17	6.6, 8.9, 13.1, 13.2, 14.2, 14.5, 15.1, 15.4, 15.5, 16.6, 16.7, 17.17
Target 9	By 2030, threatened natural ecosystems are sustainably managed and degraded ecosystems are restored	SDG 6, SDG 13, SDG 14, SDG 15, SDG 17	6.6, 13.1, 13.2, 14.2, 15.1, 15.2, 15.3, 15.5, 15.9, 17.17

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NPBD Target	Target Description	Primary SDGs	Key SDG Targets
Target 10	By 2030, important ecological corridors have been secured and ecosystem resilience is enhanced across terrestrial, freshwater, and marine realms	SDG 6, SDG 9, SDG 11, SDG 13, SDG 14, SDG 15, SDG 17	6.6, 9.1, 11.3, 13.1, 13.2, 14.2, 14.5, 15.1, 15.5, 17.17
Target 11	By 2030, targeted management actions are in place to enable the recovery of threatened species	SDG 2, SDG 13, SDG 14, SDG 15, SDG 16, SDG 17	2.5, 13.1, 14.2, 14.5, 15.5, 15.8, 16.6, 17.17
Target 12	By 2030, poaching, illegal harvesting, and illegal trade of flora and fauna are minimised or significantly reduced	SDG 12, SDG 15, SDG 16, SDG 17	12.8, 15.7, 15.c, 16.3, 16.4, 16.6, 16.a, 16.10, 17.17, 17.18
Target 13	By 2030, measures are in place for the prevention, eradication, containment and control of invasive alien species	SDG 2, SDG 3, SDG 14, SDG 15, SDG 17	2.4, 2.5, 3.3, 14.2, 15.8, 17.17
Target 14	By 2030, Malaysia has enhanced its capacity to implement the Access and Benefit Sharing framework to realise the fair and equitable sharing of benefits arising from their utilisation	SDG 2, SDG 10, SDG 14, SDG 15, SDG 16, SDG 17	2.5, 10.2, 10.3, 14.c, 15.6, 16.6, 16.7, 17.6, 17.17
Target 15	By 2030, a comprehensive biosafety system is operational to manage potential and adverse impacts of modern biotechnology on human, plant and animal health, the environment, and biological diversity	SDG 2, SDG 3, SDG 9, SDG 14, SDG 15, SDG 17	2.4, 3.3, 3.d, 9.5, 9.b, 14.2, 15.5, 15.8, 16.6, 17.6, 17.17
Target 16	By 2030, Malaysia's capacity to implement the policy and other biodiversity conservation agreements has been significantly strengthened	SDG 4, SDG 5, SDG 10, SDG 14, SDG 15, SDG 16, SDG 17	4.7, 4.b, 5.5, 10.2, 14.a, 15.a, 16.6, 16.7, 17.9, 17.14, 17.16, 17.17
Target 17	By 2030, there is a significant increase in funds and financial incentives for biodiversity conservation from both government and non-government sources	SDG 12, 13, 15, 17	12.7, 13.a, 13.b, 15.a, 15.b, 17.1, 17.2, 17.3

CHAPTER 4

CONSIDERATIONS FOR THE MID-TERM REVIEW OF THE NPBD 2022-2030

4.1 WHY THE MID-TERM REVIEW MATTERS

The NPBD's implementation framework provides for a formal review. This review will take into account the policy's achievements and priorities at national, state, and global levels. It also complements Malaysia's national development plans and CBD reporting commitments. The mid-term review is crucial to identify and address weaknesses and implementation gaps in the NPBD 2022-2030.

Since the NPBD 2022-2030 was adopted in 2022, several developments have material implications for Malaysia's biodiversity obligations: the BBNJ Agreement (signed 2025), ongoing negotiations on Digital Sequence Information governance, and rapid advances in New Genomic Techniques. The mid-term review needs to address these developments to ensure alignment with international commitments and implementation realities.

Beyond external developments, progress assessments across all 17 targets reveal systemic patterns requiring policy-level attention. This chapter draws on those assessments to identify where the NPBD 2022-2030 requires strengthening and provide guidance to the mid-term review that will take place in 2027. The analysis focuses on three interconnected dimensions:

- Thematic coverage gaps — important biodiversity themes that receive insufficient or insufficiently coordinated attention across the Policy's 17 targets, including both longstanding issues that remain under-addressed and emerging issues that have grown in importance since the Policy was adopted (Sections 4.3 and 4.4);
- Structural design — targets that are too broad to be effectively implemented or monitored, and governance arrangements that do not adequately support accountability (Section 4.5); and
- The quality of key indicators — the extent to which the Policy's measurement framework tracks meaningful conservation outcomes rather than administrative outputs (Section 4.6).

4.2 WHAT THE PROGRESS REPORTS REVEAL

Malaysia has demonstrated significant progress in implementing the NPBD 2022-2030. Biodiversity-related expenditure has grown by 40% to RM2.63 billion annually. Protected area coverage has expanded to 14.83% of terrestrial and 5.34% of marine areas. Malaysia received the Reverse the Red NBSAP Medal at the 2025 IUCN World Conservation Congress for its outstanding commitment to species recovery.

At the same time, the progress assessments reveal systemic gaps that recur across targets. Three patterns are particularly significant.

First, implementation is uneven. Strong federal frameworks face variable state-level capacity and priorities. Coordination bodies like the thematic working groups and the National Biodiversity Roundtable have not been consistently active during this reporting period. This affects policy implementation, biodiversity mainstreaming, and financing mechanisms alike.

Second, critical themes are under-addressed. Plant conservation, human-wildlife conflict, gender equality, IPLC recognition, marine connectivity, and financing sustainability are all under-addressed. Each is examined in detail in Section 4.3.

Third, monitoring system is limited. Output, not outcome, metrics dominate reporting. Ecological outcome indicators are generally absent. Without baselines or outcome measures, it is difficult to determine whether real conservation progress is being made.

These gaps represent opportunities for course correction before 2030. Several are compounded by a common underlying problem: the Policy's measurement framework is not well-designed to detect whether conservation outcomes are actually improving (addressed in Section 4.6).

4.3 THEMATIC COVERAGE GAPS

A number of important themes require stronger treatment in the revised NPBD 2022-2030. Some are present in the current policy text but remain under-resourced or untracked in practice. Others have grown significantly in importance since the Policy was adopted in 2022 and are not yet adequately reflected. Ten themes warrant particular attention in the 2027 revision.

4.3.1 Plant Conservation

Plant conservation is addressed indirectly through ecosystem-based approaches across the NPBD 2022-2030, but no dedicated strategic framework exists for threatened flora. This is a material gap: nearly 50% of the 458 evaluated native vascular plant taxa in Malaysia are threatened. Plant-specific data on species distributions, population trends, and genetic diversity remain uneven across the three regions.

Existing capacity in botanical gardens, seed banks, and arboreta provides a foundation, but this network requires expansion and integration to function as a coherent national ex-situ conservation system for threatened endemic species.

Consideration for the revision: The 2027 revision should emphasise the need to expedite the revision of the National Plant Conservation Strategy with specific targets for Red List assessments, species recovery plans, and ex-situ conservation coverage. A dedicated technical working group shall be established to integrate plant-specific indicators into national monitoring surveys.

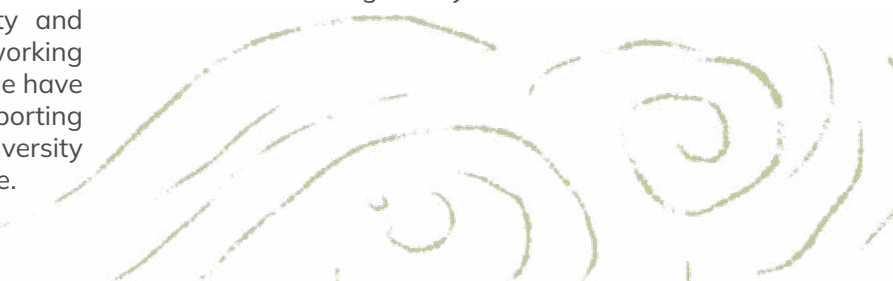




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4.3.2 Human-Wildlife Conflict

Human-wildlife conflict has been identified as a growing challenge across Targets 2, 5, 10, 11, and 12, particularly involving elephants, tigers, primates, and crocodiles. Financial assistance schemes and rapid-response teams have been established, but these address only the symptoms. Habitat fragmentation and land-use conversion, the primary drivers of conflict, are not being systematically managed under a unified national strategy.

The absence of a National Human-Wildlife Conflict Strategy that integrates prevention, landscape-level planning, response protocols, and community compensation mechanisms means that current interventions, though valuable, remain fragmented and reactive.

Consideration for the revision: The 2027 revision should include an action to develop a dedicated National Human-Wildlife Conflict Strategy with requirements for land-use planning to prevent the creation of new conflict hotspots, alongside a dedicated prevention fund for non-lethal mitigation measures.

4.3.3 Gender Equality

Gender equality is referenced across the NPBD 2022-2030 but is not embedded as an operational requirement. Field-based conservation institutions show notably low female representation. Gender-disaggregated data systems are not yet institutionalised.

Two specific gaps require urgent attention. First, there are no Protection from Sexual Exploitation, Abuse and Harassment (PSEAH) guidelines specifically for the conservation sector, a critical duty-of-care gap as more women enter field roles. Second, Gender Focal Points lack formalised terms of reference, dedicated budgets, and technical training, limiting their effectiveness as agents of institutional change.

Consideration for the revision: The 2027 revision should establish explicit targets for women's representation in technical field roles, mandate PSEAH guidelines for all agencies under NRES, and strengthen the terms of references of Gender Focal Points.

4.3.4 Insufficient Conservation Financing

The NPBD 2022-2030's financing provisions under Target 17 are among the most important in the Policy, yet it is advancing at an insufficient rate. The EFT has grown to RM250 million annually, but total biodiversity-related expenditure remains below what is required. More significantly, the structure of financing remains fragile: predominantly public, short-term, and project-based.

The private sector spends an estimated RM3.64 billion annually on environmental protection, but less than 1% targets wildlife and habitat conservation. The remaining 99% goes to pollution control and compliance, which have regulatory teeth. Wildlife conservation currently lacks an equivalent regulatory driver. Nature-related disclosures remain voluntary, and no biodiversity financing taxonomy exists.

The NPBD 2022-2030's financing ambitions, payments for ecosystem services, conservation trust funds, biodiversity credits, remain largely aspirational. Closing this gap requires explicit regulatory signals and market-shaping instruments, not awareness-raising alone.

Consideration for the revision: The 2027 revision shall aim to develop a dedicated National Biodiversity Financing Plan as a binding annex to the NPBD 2022-2030, with explicit targets for private sector contributions, a roadmap for accelerating nature-related financial disclosures among public listed companies, and performance criteria for the Ecological Fiscal Transfer linked to verifiable conservation outcomes. Beyond fiscal measures, the feasibility of other legal instruments shall be explored, including innovative financing mechanisms such as payment for ecosystem services (PES), strict liability for habitat destruction, or a separate biodiversity remediation fund financed by penalties.

4.3.5 IPLC Recognition

The NPBD 2022-2030 makes strong commitments to recognising the rights and stewardship roles of Indigenous Peoples and Local Communities. However, the legal architecture that would give these commitments operational force remains incomplete. The draft amendments to the Orang Asli Act 1954, which would formally recognise customary institutions as custodians of traditional knowledge, remained under consideration at the time of reporting.

The National Framework for Other Effective area-based Conservation Measures (NF-OECM) framework, which would provide the mechanism for promoting Community Conserved Areas, is still being finalised. The consequences are real. IPLC-managed areas of demonstrable conservation value, such as the Kiau Community Forest and community-governed systems in Sabah and Sarawak, cannot yet be formally counted toward national protected area targets. IPLC rangers, monitors, and co-managers are delivering conservation outcomes that current framework does not systematically track or resource.

Consideration for the revision: The 2027 revision shall set a specific target that secures and recognises CCA, accelerate the finalisation of the national OECM framework, and establish a systematic national programme to document and resource IPLC-led conservation outcomes in official planning and reporting.



Photo credit: SANJITPAAL SINGH / JITSPICS.COM



Photo credit: Tourism Malaysia

4.3.6 The BBNJ Agreement

In September 2025, Malaysia signed the Agreement under the United Nations Convention on the Law of the Sea on the Conservation and Sustainable Use of Marine Biological Diversity of Areas beyond National Jurisdiction, commonly known as the BBNJ Agreement. This is a significant international commitment. The Agreement creates obligations related to area-based marine conservation measures, environmental impact assessments for activities in areas beyond national jurisdiction, and marine genetic resource governance in the high seas. As Malaysia proceeds toward ratification, these obligations will require domestic legal and institutional adjustments and must align with the targets or actions outlined in the NPBD 2022-2030.

Consideration for the revision: Depending on the ratification status, the 2027 revision may emphasize the necessity of aligning Malaysia's BBNJ obligations with the NPBD 2022-2030.

4.3.7 Digital Sequence Information

The governance of Digital Sequence Information (DSI), genetic data derived from biological resources and stored in digital databases, is one of the most consequential unresolved issues in international biodiversity law. At CBD COP15, parties agreed to establish a multilateral mechanism for sharing benefits arising from the use of DSI, and negotiations on this mechanism are ongoing. For Malaysia, which holds significant genetic resources and is party to the Nagoya Protocol, the outcome of these negotiations has direct implications for the ABS framework under Target 14.

As the international DSI framework evolves, Malaysia's domestic ABS framework must adapt accordingly. Strengthening the DSI mechanisms and tracking processes is essential for complying with the Access to Biological Resources and Benefit Sharing Act 2017.

Consideration for the revision: The 2027 revision shall include an explicit action under Target 14 on DSI governance, encompassing active engagement in multilateral negotiations, national policy guidance, and the development of monitoring mechanisms to track DSI use derived from Malaysian genetic resources.

4.3.8 New Genomic Techniques

Rapid advances in New Genomic Techniques (NGTs), particularly genome editing tools such as CRISPR-Cas, are creating regulatory challenges for Malaysia's biosafety system under Target 15. The Biosafety Act 2007 was designed to regulate Living Modified Organisms produced through recombinant DNA technology. Products of NGTs may not involve foreign DNA insertion and may therefore fall outside the Act's definitions, creating uncertainty for researchers, developers, and enforcement agencies.

Malaysia has taken an initial step through the Ministerial Exemption for genome-edited plants under SDN-1 applications, but a comprehensive regulatory framework remains to be developed. NGTs are being actively applied in crop development, disease management, and conservation genetics, including potential applications for recovering threatened Malaysian species. Regulatory clarity is essential to enable responsible innovation while ensuring biosafety safeguards keep pace with scientific capability.

Consideration for the revision: The 2027 revision shall include a dedicated action under Target 15 to develop a science-based, risk-proportionate regulatory framework for NGTs, with a clear timeline and public consultation process.



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4.3.9 Climate Change and Biodiversity Synergies

Since the NPBD 2022-2030 was adopted, climate impacts have accelerated. Malaysia has experienced severe heatwaves, prolonged droughts, increased rainfall intensity, and recurrent coral bleaching. These are no longer future risks but present constraints on biodiversity conservation.

The current Policy does not include a dedicated framework for managing climate-biodiversity interactions. Climate change is a threat multiplier affecting protected areas (Target 8), ecological corridors (Target 10), threatened species recovery (Target 11) and ecosystem restoration (Target 9).

Three specific gaps require attention. First, climate refugia mapping has just started and needs to be expedited. Second, nature-based solutions such as mangrove restoration and peatland conservation are referenced but not operationalised with dual biodiversity and climate resilience indicators. Third, climate response measures such as afforestation of non-forest ecosystems, monoculture tree plantations under carbon finance, and hydropower development in sensitive catchments carry risks that the Policy does not yet address.

Consideration for the revision: The 2027 revision shall include a new cross-cutting action requiring a National Climate-Biodiversity Action Plan to map climate refugia, establish screening criteria for nature-based solutions, require climate vulnerability assessments for threatened species recovery plans, and integrate biodiversity safeguards into land-based carbon projects and renewable energy developments.

4.3.10 International Cooperation

The NPBD 2022-2030 does not have dedicated actions and targets for international cooperation. References to international engagement are currently confined to acknowledgements of external funding assistance and scattered mentions in some thematic areas. This area warrants greater focus relative to Malaysia's international stature for biodiversity as a megadiverse country and its past role in leading biodiversity-related multilateral environmental agreements. The principle of common but differentiated responsibilities (CBDR), to which Malaysia has consistently committed, underpins its environmental diplomacy and foreign policy strategy, and is a shared basis for advancing South-South cooperation and collective advocacy on equitable access to financing and resources.

The absence of a dedicated action also creates a structural gap in national reporting. A substantial and ongoing body of work is being carried out across multiple government agencies in the areas of knowledge exchange, technical expertise sharing and regional cooperation, particularly within ASEAN. Without a dedicated target or placement in the NPBD 2022-2030, this progress cannot be systematically captured or reported.

Consideration for the revision: The 2027 revision shall include specific actions under Target 16 or other suitable targets to anchor Malaysia's international cooperation and efforts within the Policy, emphasising continued contribution to international goals and processes on biodiversity including the CBD and to promoting cooperation through bilateral and multilateral frameworks, institutions and mechanisms.

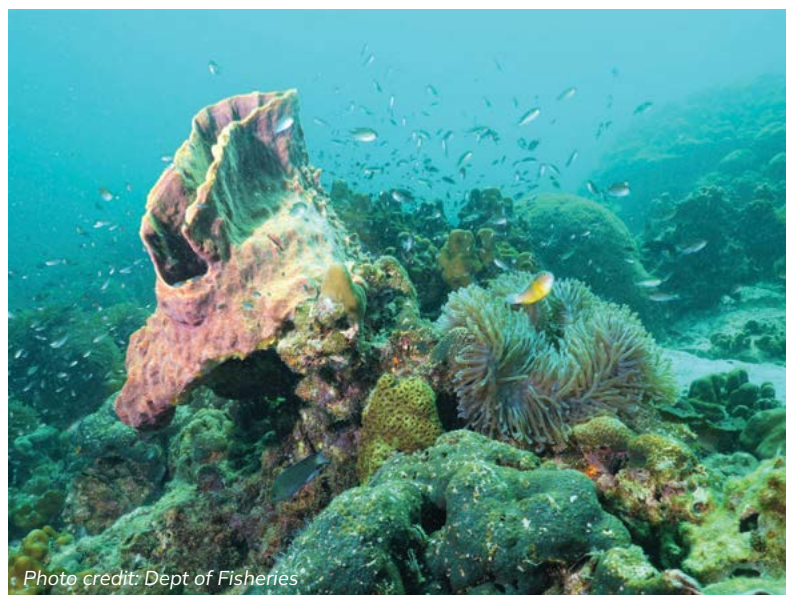


Photo credit: Dept of Fisheries

4.4 TARGET-SPECIFIC IMPLEMENTATION FINDINGS

Beyond the cross-cutting thematic gaps described in Section 4.3, the progress reports for individual targets reveal a set of specific challenges that the 2027 revision should address directly. These are not gaps in the Policy's coverage but gaps between what the Policy intends and what current implementation is delivering.

4.4.1 Target 1: From Awareness to Action

The progress assessment for Target 1 documents a broad and expanding portfolio of public awareness activities, reaching schools, communities, corporations, and the general public. This is genuine progress. However, the assessment itself acknowledges a persistent and well-documented limitation: high levels of general awareness do not automatically translate into sustained pro-environmental behaviour.

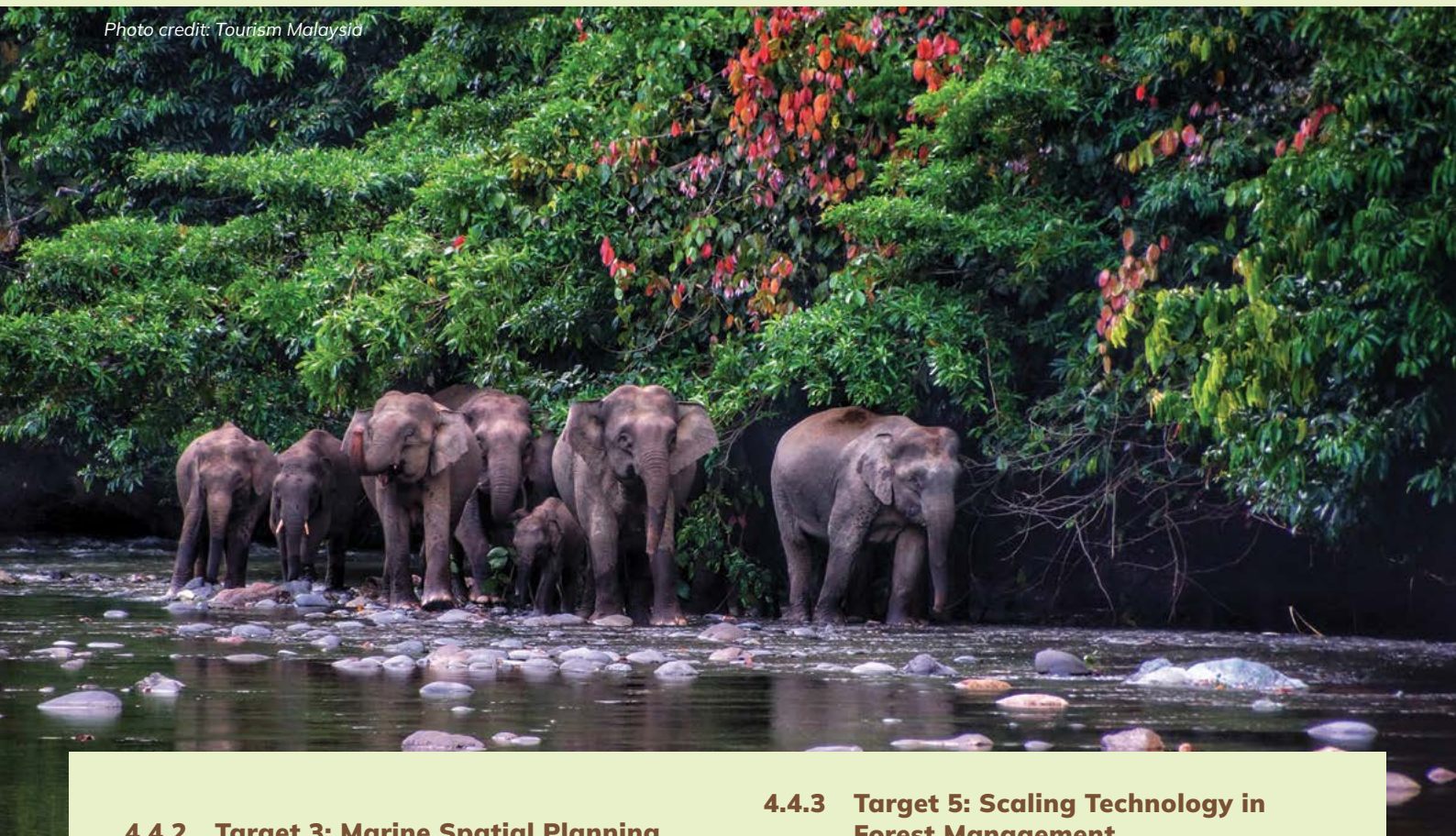
The Policy's current framing for Target 1 is oriented primarily around awareness-raising such as campaigns, events, media, and educational programmes. The next phase of implementation requires a deliberate shift in approach: from informing the public to designing the social, economic, and institutional conditions that make conservation-positive choices the default. Information provision alone is a weak driver of behaviour change; more effective approaches include social norms, reduced friction, and economic incentives.

Consideration for the revision: The 2027 revision shall reframe Target 1 to distinguish between awareness as a necessary precondition and behaviour change as the intended outcome. Actions should be developed around behavioural design, institutional nudges, and market signals, not only communications campaigns. A specific outcome indicator measuring documented behaviour change, rather than participation counts, should be adopted.



Photo credit: Tourism Malaysia

Photo credit: Tourism Malaysia



4.4.2 Target 3: Marine Spatial Planning

Malaysia has a well-developed framework for terrestrial spatial planning, anchored by the National Physical Plan and state-level instruments. Marine spatial planning, by contrast, remains at an earlier stage. The National Marine Spatial Planning Framework and the Malaysia Blue Economy Blueprint are still under development. No single coordinating authority exists for ocean governance, and seascape priorities are not yet translated into binding spatial designations.

This imbalance matters because Malaysia's marine biodiversity faces distinct pressures: fisheries depletion, coastal reclamation, pollution, and climate-driven bleaching. These require dedicated spatial frameworks rather than adaptation of terrestrial instruments.

Consideration for the revision: The 2027 revision shall establish marine spatial planning as a priority action with a defined timeline for completing and consider giving legal effect to the National Marine Spatial Planning Framework. Consideration should also be given to a dedicated coordinating mechanism for ocean governance that clarifies institutional mandates.

4.4.3 Target 5: Scaling Technology in Forest Management

Malaysia has made significant investments in forest monitoring technology. The War Room at the Forestry Department of Peninsular Malaysia, the iForSabah system in Sabah, and the COMOS system in Sarawak, each represent meaningful advances in detection and surveillance capability. The progress report documents strong uptake at the institutional level.

The deployment of these systems, however, remains uneven across states, and the link between detection and enforcement response is not consistently described in the progress data. Technology that detects forest clearings and encroachment but does not effectively trigger enforcement action delivers information without conservation outcomes. Additionally, the current systems are oriented primarily toward monitoring. Next-generation tools such as predictive analytics, AI-assisted species identification, and eDNA monitoring offer substantial potential for conservation management. But the NPBD 2022-2030 has not yet systematically integrated these tools into its actions.

Consideration for the revision: The 2027 revision shall include specific actions on: closing the detection-to-enforcement loop with defined response time standards; harmonising technology platforms across Peninsular Malaysia, Sabah, and Sarawak to enable national-level reporting; and integrating next-generation tools including predictive analytics and eDNA monitoring into forest management practice.

4.4.4 Target 9: A National Restoration Roadmap

Malaysia's restoration achievements under Target 9 are substantial: more than 137,000 hectares restored in Sarawak alone, significant mangrove replanting, and expanding coral and peatland restoration. These demonstrate strong programme-level delivery. What is absent is the strategic architecture to coordinate these efforts, prioritise sites at landscape scale, and track ecological outcomes rather than planting outputs.

Without a national restoration roadmap, there is no shared framework for determining restoration priorities, identifying underserved ecosystem types, or linking the 200,000-hectare target to broader land-use commitments. The current approach aggregates programme outputs rather than delivering strategically directed landscape recovery.

Consideration for the revision: The 2027 revision shall consider a National Restoration Roadmap that spatially prioritises investment, establishes ecosystem-type targets (forest, mangrove, peatland, freshwater, marine), sets minimum standards for long-term ecological monitoring, and integrates restoration with protected area expansion (Target 8) and ecological corridors (Target 10).

4.4.5 Target 10: Infrastructure in Biodiversity-Sensitive Areas

The progress report highlights important advances in wildlife-friendly infrastructure, particularly the East Coast Rail Link's 28 wildlife crossings and the eco-viaducts on the Aring-Kenyir Road. These demonstrate that biodiversity considerations can be integrated into major projects when political will exists. However, they remain exceptions. Most infrastructure planning does not yet systematically incorporate ecological connectivity.

Two gaps require attention. First, comprehensive national guidelines on how new infrastructure in biodiversity-sensitive areas should be designed, sited, and mitigated are needed. Second, no plan exists for retrofitting existing infrastructure in priority wildlife movement corridors. Roads, fences, and embankments continue to fragment habitats and cause wildlife mortality across the Central Forest Spine and other critical landscapes.

Consideration for the revision: The 2027 revision should include two actions under Target 10 (or Target 4): first, expand the current guidelines for new infrastructure in biodiversity-sensitive areas, incorporating wildlife crossing requirements, lighting standards, and fencing specifications; and second, adopt a time-bound national plan for retrofitting existing infrastructure in priority corridors, with identified sites, cost estimates, and responsible agencies.

4.4.6 Target 16: Addressing the Baseline Data Gap

A recurring limitation across the progress reports for all 17 targets is the absence of baseline data against which to measure progress. For at least 12 of the 17 targets, the progress assessment necessarily defers quantitative measurement, noting that formal measurement 'awaits the completion of the baseline study', which is currently in progress. Without baselines, progress assessments are necessarily qualitative and the 2030 national report to the CBD will lack the quantitative evidence base needed to demonstrate outcomes.

The progress assessment for Target 16, which addresses Malaysia's capacity to implement the NPBD 2022-2030, is itself advancing at an insufficient rate. Capacity constraints, in specialised expertise, in sub-national institutional structures, and in data systems, have been identified as systemic barriers. The Malaysia Biodiversity Centre is being established as the national coordination hub, and MyBIS has grown substantially to 819,718 records, but the institutional capacity to generate, maintain, and analyse the baseline data needed across all 17 targets is not yet in place.

Consideration for the revision: The 2027 revision shall explicitly identify, for each target, the baseline data that is required, the agency responsible for generating it, and the timeline for completion. The revision shall also establish data collection standards and reporting formats to ensure comparability across the three regions. Completion of outstanding baseline studies shall be treated as a priority action for 2027–2028, ahead of the next reporting cycle.



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4.4.7 Target 17: Budget Tagging and Financial Metrics

The progress assessment rates Target 17 as advancing at an insufficient rate. Total biodiversity-related expenditure has grown. As noted in Section 4.3.4, reported figures rely on a broad BIOFIN definition. The actual investment reaching on-ground biodiversity action is considerably lower and is not separately tracked.

Two data gaps undermine financial reporting. First, biodiversity budget tagging is not institutionalised across relevant ministries. Significant biodiversity-relevant expenditure in agriculture, infrastructure, and water management is not captured in biodiversity accounts, while non-biodiversity expenditure may be inadvertently included. Second, private sector contributions through CSR and philanthropy are not systematically tracked, leaving the true scale of non-government financing unknown.

Consideration for the revision: The 2027 revision shall consider institutionalising biodiversity budget tagging across all relevant federal and state ministries, aligned with NPBD 2022-2030 target categories. A standardised framework for reporting private and philanthropic contributions could be developed to enable comprehensive tracking of financial flows. The revised Target 17 indicator shall distinguish clearly between total environmental expenditure and direct biodiversity conservation investment.



4.5 STRUCTURAL DESIGN

The NPBD 2022-2030's structure is broadly sound, but three targets have been designed at a level of breadth that impedes focused implementation and meaningful progress tracking.

4.5.1 Target 2: Strengthening the roles of non-state actors

Target 2 encompasses Indigenous Peoples and Local Communities (IPLCs), civil society, the private sector, and academia within a single target. These constituencies have distinct roles, face different barriers, and require different policy responses. Grouping them together dilutes focus and makes it difficult to track progress for any one group meaningfully. Given the growing international emphasis on IPLC rights and leadership in biodiversity governance, IPLCs warrant a dedicated target.

Consideration: Split Target 2 into two targets: one focused on IPLCs as stewards and co-governors, and one addressing civil society, the private sector, and academia as implementation and innovation partners.

4.5.2 Target 4: Mainstreaming biodiversity into development frameworks

Target 4 is the most overloaded in the NPBD 2022-2030, spanning financial sector reform, infrastructure planning, pollution control, mining governance, and sustainable consumption and production. These are substantively distinct policy domains with different institutional actors, regulatory frameworks, and monitoring requirements. Infrastructure, commercial, industrial, energy, and health sectors are combined under a single action, making it difficult to track sector-specific progress or assign accountability.

Consideration: Split Target 4 into two targets: one focused on mainstreaming in development planning and the financial sector, and one addressing mainstreaming in productive sectors including infrastructure, energy, mining, and health.



4.5.3 Target 8: Protected areas and OECMs

Target 8 covers both terrestrial and marine protected areas within a single target. Marine protected area coverage currently stands at 5.34% against a 10% national target, a significant shortfall that risks being obscured within a combined target where terrestrial progress is more advanced. The marine realm requires a distinct governance architecture, different institutional actors, and dedicated policy attention that a combined target does not provide.

Consideration: Split Target 8 into separate terrestrial and marine targets. A standalone marine conservation target would provide the focus needed to accelerate progress toward the 10% coverage goal.

4.6 THE QUALITY OF KEY INDICATORS

A limitation in the NPBD 2022-2030 is its system of key indicators. Across the majority of the 17 targets, current indicators measure what implementing stakeholders do rather than what happens to biodiversity as a result. When progress reporting is built on output metrics, activity can increase while conservation outcomes deteriorate. The measurement system will not detect the difference.

This weakness is not unique to Malaysia. The use of output-based indicators reflects a common global challenge: data to measure ecological outcomes directly are often unavailable, expensive to collect, or require long time series to detect meaningful trends. Policymakers face a persistent trade-off between what needs to be measured and what can be measured with available resources. The NPBD 2022-2030's current indicator framework is a compromise. The mid-term review provides the opportunity to assess which outcome indicators are now feasible, where proxy indicators remain necessary, and what investments in monitoring systems would allow Malaysia to close the gap between aspiration and measurement.

4.6.1 Illustrative Examples

The following examples illustrate how the current indicators systematically undercount what matters.

Target 4 (biodiversity mainstreaming in finance).

The indicator asks whether biodiversity conservation has been embedded into the country's investment and financing frameworks. The 7NR itself acknowledges that nature-related financial disclosures remain voluntary and TNFD adoption is limited. An indicator framed around the existence of frameworks rather than capital flows cannot distinguish between a framework that is changing investment decisions and one that is not.

Target 11 (threatened species recovery).

The key indicator asks whether conservation and recovery plans are in place for critically endangered species. It does not track population trends, habitat occupancy, breeding success, or any direct measure of species recovery. An indicator that actually tracks wildlife population numbers and health would be desirable.

Target 12 (poaching and illegal trade).

The key indicator measures whether collaborative enforcement efforts have increased by 50%. More patrols, more arrests, and more joint operations are measurable and desirable. But the indicator does not ask whether poaching pressure has declined. Snare densities could remain constant or increase while enforcement activity doubles, and the indicator would still record progress.



Photo credit: Abdul Razak Mohd Nor Rasid

4.6.2 A Framework for Stronger Indicators

Table 4-1 shows examples of ten key indicators that need strengthening and specifies, for each, what the indicator currently fails to measure. The 2027 revision should treat this as a minimum agenda for indicator reform.

Table 4-1: Examples of Key Indicators Requiring Strengthening in the 2027 Revision

Target	Current Indicator	What It Does Not Measure
Target 1	Increase in youth participation	Whether participation leads to lasting behavioural change or long-term stewardship.
Target 2	Number, size, and duration of collaborative projects	Conservation effectiveness or genuine empowerment of IPLCs.
Target 4	Biodiversity embedded into investment frameworks	Actual capital reallocation or reduced environmental harm from financial decisions.
Target 5	Deployment of forest monitoring technology	Whether deforestation or forest degradation has actually been reduced.
Target 6	MSPO certification coverage (certified hectares)	Biodiversity outcomes on certified land, such as species population trends.
Target 9	Hectares of degraded sites restored	Seedling survival rates, canopy closure, return of native fauna, or ecosystem function recovery.
Target 11	Conservation and recovery plans in place	Whether species populations are recovering or extinction risk is declining.
Target 12	Collaborative enforcement efforts increased by 50%	Poaching pressure, snare density, or illegal wildlife trade volumes.
Target 16	Biodiversity conservation-related careers increased	Whether institutional capacity or on-ground conservation outcomes have improved.
Target 17	Funds mobilised	Conservation return on investment or whether funding reaches on-ground action.



Photo credit: Muhammad Al Zahri

The 2027 revision shall develop a national biodiversity monitoring framework that establishes at least one outcome-based indicator for each of the 17 targets. For priority species under Target 11, population trend indicators could be established for all critically endangered species. For Target 12, snare density per square kilometre of priority habitat could potentially be adopted as a core enforcement effectiveness metric alongside seizure data. It is also pertinent that the new NPBD 2022-2030 indicators are better aligned with the KMGBF indicators to ease and standardise national reporting.

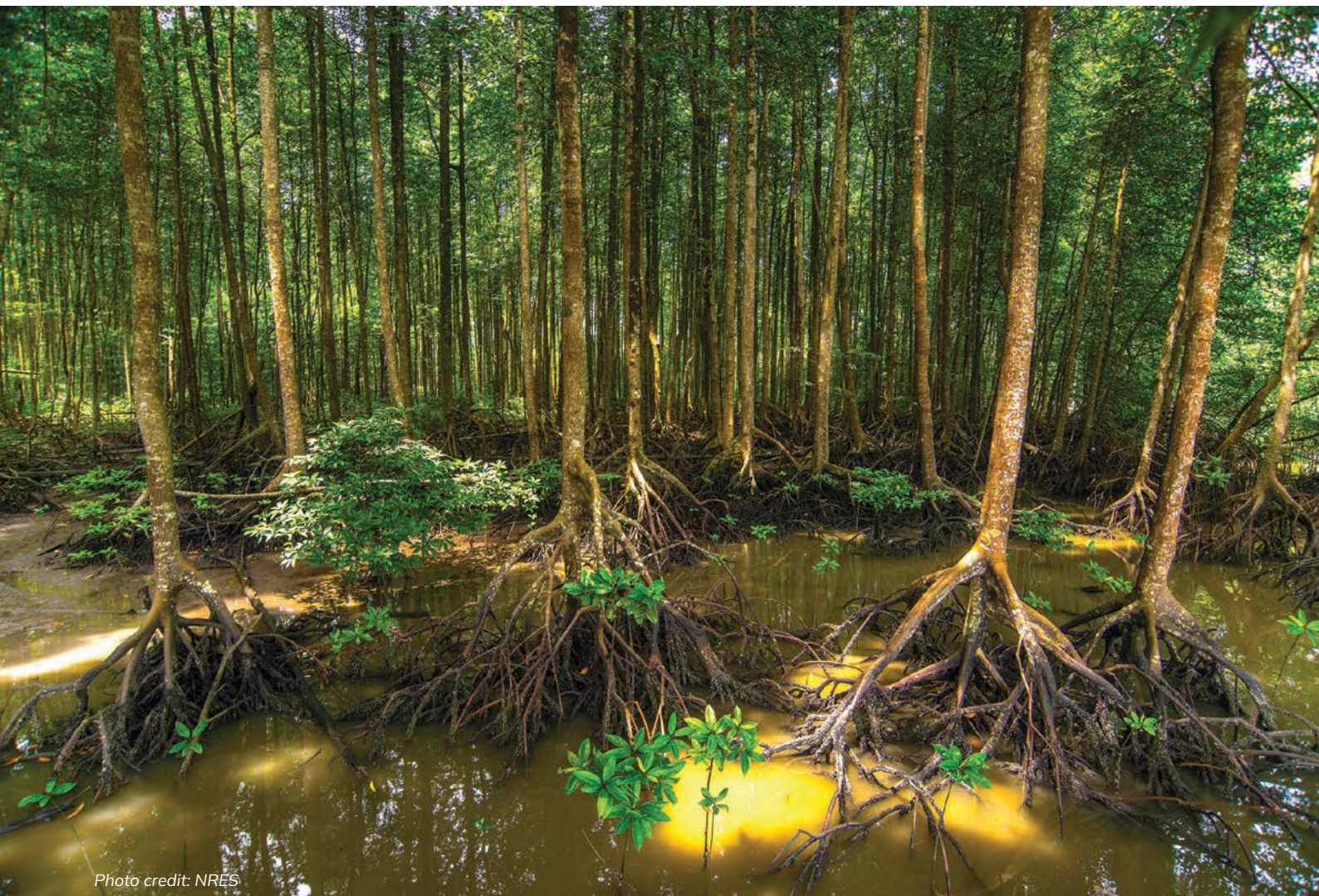


Photo credit: NRES

4.7 RECOMMENDATIONS FOR THE 2027 REVISION

Based on the assessment above, the 2027 revision of the NPBD shall consider the following improvements, organised into five categories: structural reforms to targets, indicator and monitoring reforms, new strategies and action plans, emerging issues, and governance and coordination.

A. Structural reforms to targets (splitting overloaded targets)

- Split Targets 2, 4, and 8 as described in Section 4.5 to improve focus, accountability, and progress tracking.

B. Indicator and monitoring reforms

- Develop outcome-based indicators for each target, drawing on the framework in Table 4.1. Where ecological data are not yet available, adopt agreed proxy indicators with a clear transition plan to direct ecological measurement.
- Reframe Target 1 to distinguish between awareness-raising and behaviour change, with specific actions on behavioural design and market signals, and an outcome indicator measuring documented behaviour change.
- Establish a baseline data completion schedule under Target 16, identifying for each target the data required, the responsible agency, and the timeline for completion before the next CBD reporting cycle.

C. New strategies and action plans

- Add dedicated actions under the relevant targets committing to expedite the revision of the National Plant Conservation Strategy, develop a National Human-Wildlife Conflict Strategy, National Restoration Roadmap and a National Climate-Biodiversity Action Plan with timelines and lead agencies specified.
- Develop a dedicated National Biodiversity Financing Plan as a binding annex to the NPBD, with explicit targets for private sector contributions and a roadmap for accelerating nature-related financial disclosures among public listed companies.
- Accelerate the finalisation of the national OECM framework and establish a specific target that secures and recognises CCA.
- Establish technology scaling actions under Target 5 to close the detection-to-enforcement loop, harmonise monitoring platforms across the three regions, and integrate next-generation tools including predictive analytics and eDNA.
- Include a new action under Target 10 to expand the current guidelines for new infrastructure in biodiversity-sensitive areas, and a time-bound retrofitting plan for existing infrastructure in priority wildlife movement corridors.
- Include a new action under Target 17 to institutionalise biodiversity budget tagging across all relevant ministries and develop a standardised framework for reporting private and philanthropic conservation contributions.
- Strengthen marine spatial planning provisions under Target 3, establishing the National Marine Spatial Planning Framework with a defined timeline.

D. Emerging issues

- Incorporate explicit actions on Digital Sequence Information governance, and a regulatory framework for New Genomic Techniques, with clear timelines and assigned responsibilities.

E. Governance and coordination

- Clearly define the roles of the MBC and the Biodiversity Implementation Support (BIS) programme in the revised policy.
- Redefine the role of the National Biodiversity Roundtable in light of the existence of the Malaysia Platform for Business and Biodiversity.
- Add Youth as a stakeholder group under “Roles and Responsibilities for Implementation” under Implementation Framework.
- Integrate the CBD Gender Plan of Action as a cross-cutting operational theme, with performance indicators on representation in field-based roles, PSEAH compliance, and strengthen the terms of references of Gender Focal Points.

4.8 CONCLUSION

The NPBD 2022–2030 has established a strong foundation for Malaysia’s biodiversity conservation, and genuine progress has been achieved across all 17 targets. However, there are gaps between policy ambition and on-ground outcomes which require course correction.

This chapter has identified three interconnected dimensions for the 2027 revision: thematic coverage gaps (from gender equality and IPLC recognition to emerging issues such as DSI), target-specific implementation challenges (including incomplete baselines and fragmented restoration planning), and structural design flaws (overloaded targets).

A robust measurement framework serves as the foundation for effective governance. By transitioning from agency-level output tracking to the monitoring of biodiversity outcomes, policy remains evidence-based, enabling the achievement of significant conservation milestones.

The 2027 mid-term review of the NPBD presents an opportunity to address these dimensions in an integrated way. A policy with sharper targets, stronger indicators, clearer financing commitments, and systematic accountability will better position Malaysia to deliver on its biodiversity heritage and its obligations under the KMGBF.

CHAPTER 5

CONCLUSIONS

5.1 WHAT THIS REPORT SHOWS

Malaysia's 7NR is more than a statutory submission. Prepared through a four-stage process engaging over 22 stakeholder groups, with more than 65% women participants, it is a comprehensive national stock-take and the primary evidence base for the NPBD's 2027 mid-term review. The findings are clear: Malaysia has built the enabling framework that effective conservation requires, and implementation is accelerating. But the gap between policy ambition and systemic outcomes remains, and three of the 17 NPBD targets are progressing at an insufficient rate. The 2027 review is the opportunity to close that gap. This chapter details the requirements necessary to achieve this.

5.2 THREE PATTERNS ACROSS THE TARGETS

The preceding chapters document Malaysia's progress target by target, sector by sector. Taken together, the evidence supports three conclusions that no individual chapter makes on its own.

The enabling framework is delivering early gains, with more to come. Malaysia has aligned its NPBD with the KMGBF, enacted landmark legislation, institutionalised multi-stakeholder governance, and developed innovative financial instruments. These are genuine achievements. But a framework is not an outcome. The Central Forest Spine exists; ecological connectivity continues to require active management. MSPO certification covers 90% of oil palm plantings; deforestation pressures persist. The Ecological Fiscal Transfer is incentivising gazettement; management effectiveness remains inconsistently measured. The distance between what the policy says and what the landscape shows is the central challenge of the next four years.

The three lagging targets share a common structural cause. Marine protected area coverage, institutional capacity, and financial resource mobilisation all depend primarily on action at levels of government below the federal. Marine spatial planning requires coordinated state-level decisions across multiple jurisdictions. Capacity gaps are most acute in states that lack dedicated biodiversity units. Financial mobilisation depends partly on state willingness to engage with instruments like the EFT and emerging carbon markets. Malaysia's Constitution gives states control over land, forests, and natural resources. So federal ambition risks outpacing local delivery unless sub-national capacity is elevated to a core strategic priority.

The measurement framework needs to better reflect conservation outcomes. At least 12 of the 17 targets currently measure outputs rather than outcomes. Patrols conducted, trees planted, and plans published are important signals of effort and commitment, but they do not on their own confirm that the intended biodiversity outcomes are being attained. Transitioning from activity-based metrics to impact-based outcomes across NPBD targets will provide a more definitive measure of Malaysia's biodiversity recovery.



Photo credit: Dept of Fisheries

5.3 THE 2027 REVIEW: THE MOMENT TO ACT

Chapter 4 sets out in detail what the mid-term review must address: thematic gaps in the NPBD's coverage, structural weaknesses in its target design, and the shift from output to outcome indicators that is the prerequisite for evidence-based implementation.

The 2027 mid-term review serves as a pivotal opportunity to align policy ambitions with measurable conservation results and ensure Malaysia's long-term targets remain achievable. The evidence base to guide course correction, assembled through the process that produced this 7NR, is still fresh and specific. The structural gaps in the indicator framework, and the challenges in marine governance, financing architecture, and climate-biodiversity integration, must be addressed to ensure Malaysia's biodiversity is conserved and its international obligations fulfilled.

5.4 A FINAL REFLECTION

This 7NR documents a nation in genuine transition. From the world's tallest tropical tree in Danum Valley to the mangrove stewards of Sabah's east coast, from all-women ranger teams to corporate biodiversity frameworks, from Orang Asli community rangers to the Iban women conducting the first-ever biodiversity baseline survey of Lanjak Entimau, Malaysia is mobilising its whole society for nature in ways that were not visible in its previous national reports.

The institutional architecture, political commitment, and multi-stakeholder coalition necessary to achieve Malaysia's 2030 targets are in place. The priorities for the period ahead are clear: accelerating the pace of implementation, strengthening outcome-based measurement, and ensuring that the 2027 mid-term review translates diagnostic findings into concrete decisions.

Malaysia enters the second half of its NPBD implementation period with a strong foundation and a clear mandate. The task now is to build on that foundation with the consistency, rigour, and accountability that the scale of the biodiversity challenge demands.



ACKNOWLEDGEMENT



Royal Belum (Photo credit: Mazidi Abd Ghani, WWF-Malaysia)

The 7NR would not have been possible without the generosity, expertise and dedication of so many individuals and organisations. NRES is truly humbled and grateful to everyone who gave their time and knowledge, often under significant time pressure, as this report was completed in a very short period. Whether by participating in consultation workshops, sharing data and success stories, or carefully reviewing and validating the reports, your contributions have been the heartbeat of this report, and we thank you from the bottom of our hearts. We also extend our profound appreciation to the GEF and the UNDP, whose financial and technical support was offered with unwavering commitment and made this work possible.

MALAYSIAN GOVERNMENT AGENCIES

1. Attorney General's Chambers Malaysia
2. Department of Agriculture Malaysia
3. Department of Biosafety
4. Department of Director General of Lands and Mines
5. Department of Environment Malaysia
6. Department of Fisheries Malaysia
7. Department of Mineral and Geoscience Malaysia
8. Department of Orang Asli Development
9. Department of Statistics Malaysia
10. Department of Survey and Mapping Malaysia
11. Department of Town and Country Planning
12. Department of Veterinary Services
13. Department of Wildlife and National Parks
14. Department of Women's Development Malaysia
15. Farmers' Organization Authority Malaysia
16. Fisheries Development Authority of Malaysia
17. Forest Department of Peninsular Malaysia
18. Forest Research Institute Malaysia
19. Institute for Medical Research
20. Johor State Economic Planning Division
21. Kedah State Economic Planning Division
22. Kelantan State Economic Planning Unit
23. Malaysia Productivity Corporation
24. Malaysian Agricultural Research and Development Institute
25. Malaysian Maritime Enforcement Agency
26. Malaysian Meteorological Department
27. Malaysian Palm Oil Board
28. Malaysian Space Agency
29. Malaysian Sustainable Palm Oil
30. Malaysian Timber Certification Council
31. Malaysian Timber Industry Board
32. Maritime Institute of Malaysia
33. Melaka Biotechnology Corporation
34. Melaka Chief Minister's Department, Tourism Promotion Division
35. Melaka Green Technology Corporation
36. Melaka Water Regulatory Body
37. Melaka State Economic Planning Unit
38. Melaka State Land and Mines Office
39. Melaka State Treasury and Finance Office
40. Ministry of Agriculture and Food Security
41. Ministry of Domestic Trade and Costs of Living

42. Ministry of Economy
43. Ministry of Education
44. Ministry of Energy Transition and Water Transformation
45. Ministry of Finance
46. Ministry of Health
47. Ministry of Housing and Local Government
48. Ministry of Higher Education
49. Ministry of Investment, Trade and Industry
50. Ministry of Natural Resources and Environment Sustainability
51. Ministry of Plantation and Commodities Malaysia
52. Ministry of Rural and Regional Development
53. Ministry of Science, Technology and Innovation
54. Ministry of Tourism, Arts and Culture
55. Ministry of Women, Family and Community Development
56. Ministry of Works
57. Ministry of Youth and Sports
58. National Heritage Department
59. National Institute of Health
60. National Water Research Institute of Malaysia
61. Negeri Sembilan State Economic Planning Unit
62. Pahang State Economic Planning Division
63. Penang State Economic Planning Division
64. Perak State Economic Planning Unit
65. Perlis State Economic Planning Division
66. Perlis State Forestry Department
67. Public Works Department
68. Sabah Biodiversity Centre
69. Sabah Biodiversity Council
70. Sabah Department of Wildlife
71. Sabah Department of Women's Affairs
72. Sabah Environment Protection Department
73. Sabah Fisheries Department
74. Sabah Forestry Department
75. Sabah Irrigation and Drainage Department
76. Sabah Land and Survey Department
77. Sabah Ministry of Finance
78. Sabah Ministry of Tourism, Culture and Environment
79. Sabah Museums Department
80. Sabah Parks Board
81. Sabah Public Works Department
82. Sabah State Economic Planning Unit
83. Sabah Tourism Board
84. Sarawak Biodiversity Centre

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85. Sarawak Department of Agriculture
86. Sarawak Department of Land and Survey
87. Sarawak Forestry Corporation
88. Sarawak Forestry Department
89. Sarawak Marine Fisheries Department
90. Sarawak Ministry of Food Industry, Commodities and Regional Development
91. Sarawak Ministry of Natural Resources and Urban Development
92. Sarawak Ministry of Utilities and Telecommunications
93. Sarawak Native Customs and Traditions Council
94. Sarawak Natural Resources and Environment Board
95. Sarawak Research and Development Council
96. Sarawak State Attorney-General's Chambers
97. Sarawak State Economic Planning Unit
98. Selangor State Economic Planning Unit
99. Selangor State Forestry Department
100. Terengganu State Economic Planning Unit
101. Tourism Malaysia
102. Bank Negara Malaysia
103. Securities Commission Malaysia

CIVIL SOCIETY

104. Bornean Sun Bear Conservation Centre
105. Bringing Back Our Rare Animals
106. Centre for Environment, Technology and Development
107. CoralKu Conservation
108. Danau Girang Field Centre
109. Ecoswed Initiative
110. Forever Sabah
111. Free Tree Society
112. Friends of Bukit Dinding
113. Friends of Bukit Kiara
114. Gaia Wildlife Conservation Malaysia
115. Gibbon Conservation Society
116. HUTAN
117. Indigenous Peoples Network of Malaysia
118. Indigenous Women and Biodiversity Network
119. International Indigenous Forum on Biodiversity
120. Jejak Liar
121. Klima Action Malaysia
122. Malaysian Ecology Society
123. Malaysian Nature Society
124. Malaysian Palm Oil Green Conservation Foundation

125. Malaysian Primatological Society
126. Malaysian Scouts Association
127. Malaysian Society of Marine Sciences
128. MareCet
129. Marine Research Foundation
130. Nakawan Explorer
131. PACOS Trust
132. Pangolin Aware
133. Persatuan Aktivis Sahabat Alam
134. Persatuan Mahasiswa Orang Asli
135. Persatuan Ekologi Malaysia
136. Pertubuhan Pemuliharaan Biodiversiti Seratu Aatai Sabah
137. Persekutuan Pengakap Malaysia
138. Pertubuhan Pelindung Alam Malaysia
139. Pertubuhan Pelindung Khazanah Alam Malaysia
140. Reef Check Malaysia
141. Sabah Environmental Trust
142. Sabah Wetlands Conservation Society
143. Sahabat Alam Malaysia
144. Sarawak Eco Warriors
145. Save Rivers Sarawak
146. Skuad Pemburu Ikan Asing
147. Southeast Asia Rainforest Research Partnership
148. TRAFFIC International (Malaysia Programme)
149. Tropical Rainforest Conservation and Research Centre
150. Turtle Conservation Society of Malaysia
151. Wildlife Conservation Society Malaysia
152. WWF Malaysia
153. Youths United for Earth

PRIVATE SECTOR

154. Aquaria KLCC Sdn Bhd
155. Ayer Holdings Berhad
156. Bursa Malaysia
157. Business Council for Sustainable Development Malaysia
158. CIMB Group Berhad
159. ELISTRA Advisory Sdn Bhd
160. ENGENDER Consultancy
161. Enggang Holdings Sdn Bhd
162. Fast Genomics Solutions (M) Sdn Bhd
163. Gamuda Berhad
164. IOI Corporation Berhad
165. Malaysia Platform for Business and Biodiversity

ACKNOWLEDGEMENT

- 166. MISC Berhad
- 167. SANJITPAAL SINGH / JITSPICS.COM©
- 168. Sarawak Energy Berhad
- 169. SD Guthrie Berhad
- 170. Shell Malaysia
- 171. Tenaga Nasional Berhad
- 172. The Habitat Foundation
- 173. TNB Research Sdn Bhd
- 174. Yayasan Hasanah
- 175. Yayasan Hijau Malaysia
- 176. Yayasan PETRONAS
- 177. Yayasan Sime Darby

ACADEMIA

- 178. International Islamic University Malaysia
- 179. Sunway Centre for Planetary Health
- 180. Universiti Kebangsaan Malaysia
- 181. Universiti Malaya
- 182. Universiti Malaysia Kelantan
- 183. Universiti Malaysia Sabah
- 184. Universiti Malaysia Sarawak
- 185. Universiti Putra Malaysia
- 186. Universiti Teknologi MARA

OTHERS

- 187. Malaysia Cocoa Board
- 188. Malaysia Forest Fund
- 189. Malaysian Palm Oil Green Conservation Foundation
- 190. Sabah Foundation
- 191. Sabah Jurisdictional Approach for Sustainable Palm Oil Secretariat

INTERNATIONAL PARTNER

- 192. Global Environment Facility
- 193. United Nations Development Programme



ANNEX 1

REPORT ON MALAYSIA'S PROGRESS IN IMPLEMENTING THE CBD LONG-TERM STRATEGIC FRAMEWORK FOR CAPACITY-BUILDING AND DEVELOPMENT

1 INTRODUCTION AND STRATEGIC CONTEXT

This report details Malaysia's progress in implementing the CBD's Long-Term Strategic Framework for Capacity-Building and Development (LTSF-CB). Malaysia recognises that ambitious targets require equally ambitious investments in human capital, institutions, and governance systems. This strategy is embedded within the NPBD (2022-2030), which is explicitly aligned with the KMGBF and the 12 strategies of the LTSF-CB.

The detailed evidence of Malaysia's capacity-building efforts is presented throughout Chapter 2 of this report, particularly under NPBD Target 16 (institutional capacity) and across other targets where specific training, partnership, and institutional strengthening initiatives are documented. This annex does not repeat that full evidence base. Instead, it organises and summarises Malaysia's progress against each of the 12 LTSF-CB strategies, providing a high-level assessment and referencing the relevant sections of Chapter 2 for further detail.

ANNEX 1: REPORT ON MALAYSIA'S PROGRESS IN IMPLEMENTING THE CBD LONG-TERM STRATEGIC FRAMEWORK FOR CAPACITY-BUILDING AND DEVELOPMENT

The 12 strategies of the CBD's LTSF-CB are:

1. Institutionalise capacity-building and development
2. Integrate long-term CB&D into National Biodiversity Strategies and Action Plans
3. Increase focus on lifelong learning
4. Align biodiversity CB&D with broader cross-sectoral plans and programmes
5. Undertake measures to fully utilise and retain existing capacity
6. Develop thematic and regional (and/or subregional) CB&D action plans and programmes
7. Promote partnerships and networks for implementation
8. Enhance synergies between CB&D efforts of relevant processes
9. Promote North-South cooperation
10. Promote South-South and triangular cooperation
11. Engage the private sector
12. Strengthen monitoring and evaluation of CB&D interventions

2 DETAILED PROGRESS AGAINST THE LTSF-CB STRATEGIES

2.1 Institutionalise capacity-building and development

Malaysia has embedded capacity-building within the formal architecture of its governance, creating a durable multi-level system spanning executive, legislative, and judicial functions. Operationally, dedicated agencies run professional development units. The Malaysia Biodiversity Centre (MBC) is being operationalised as the national coordination hub. Recognised as a Project of National Interest, its permanent facility is funded under the 13th Malaysia Plan. The MBC's flagship achievement is the expansion of the Malaysia Biodiversity Information System (MyBIS), which grew from 157,833 records in 2018 to over 819,718 records by 2025, covering 48,453 species and 619 experts from 56 agencies. The Institute of Forestry Training (FORTRAIN) between 2019 and 2025 trained 487 participants in core certificate programmes and delivered 454 specialised short courses.

Institutionalisation extends to the legislature and judiciary. The Special Select Committee on Environment, Science and Plantation exercises legislative scrutiny, including its 2023 inquiry on human-wildlife conflict. The Kota Kinabalu Court Working Group on Environment, marking its 10th anniversary with the 5th Borneo Colloquium on Environmental Justice, actively builds judicial capacity.

2.2 Integrate long-term CB&D into National Biodiversity Strategies and Action Plans

The NPBD is the primary vehicle for integrating the LTSF-CB. Capacity needs assessments ensure NPBD goals are matched with explicit human resource and institutional strategies. The policy was designed to be operationalised through sectoral and state-level action plans, including the Sabah Biodiversity Strategy 2024-2034 and the Sarawak Biodiversity Master Plan, each of which includes a capacity development component. This cascading integration ensures that national commitments translate into actionable plans at the point of implementation.

2.3 Increase focus on lifelong learning

Malaysia promotes a continuum of learning from foundational education to advanced professional practice.

- **Structured Professional Certification:** FORTRAIN's certified programmes ensure workforce readiness. In the wildlife sector, specialist training at the National Wildlife Rescue Centre includes rehabilitation, forensics, and conflict mitigation.
- **Foundational Education and Youth Engagement:** The Youth Environment Living Labs (YELL), a joint UNDP and UNICEF-Malaysia programme, has mobilised 8,768 young Malaysians through 69 seed-funded workshops, with 81% of participants reporting increased environmental competencies.
- **Regional Experiential Learning:** Malaysia actively participates in the triennial ASEAN Heritage Parks (AHP) Conference, where park managers engage in peer learning on science-based management and Nature-based Solutions.

2.4 Align biodiversity CB&D with broader cross-sectoral plans and programmes

Biodiversity is positioned as a core policy priority within the Thirteenth Malaysia Plan (2026-2030) and the Madani Economic Framework. Dedicated sustainability units have been established within key sectoral ministries and agencies, including the Malaysian Palm Oil Board (MPOB).

Concrete training programmes demonstrate this cross-sectoral approach. In the palm oil sector, the Malaysian Sustainable Palm Oil (MSPO) certification scheme mandates environmental training for plantation managers on High Conservation Value (HCV) assessment. Malaysian Palm Oil Green Conservation Foundation (MPOGCF) trains smallholder farmers on biodiversity-friendly practices, including integrated pest management. In the tourism sector, MOTAC's Green Badge programme certifies nature guides in conservation and safety skills.

2.5 Undertake measures to fully utilise and retain existing capacity

To retain skilled professionals, Malaysia has implemented targeted retention strategies. These include the creation of specialised, merit-based career tracks within the civil service for foresters, wildlife officers, and park managers. Additionally, the Association of Sustainability Professionals (ASP) by the Securities Commission Malaysia supports the career progression of sustainability professionals.

2.6 Develop thematic and regional (and/or subregional) CB&D action plans and programmes

Malaysia advances targeted capacity-building through dedicated thematic action plans and regional cooperation.

- **Thematic Action Plans:** The ongoing development of a National Action Plan on Access and Benefit-Sharing (ABS) is supported by operational initiatives like the Sarawak Biodiversity Centre's Regulatory Awareness Programme (2024-2025), which trained over 200 participants on biodiversity laws, the Nagoya Protocol, and compliance systems. Malaysia is also a key partner in the five-country Transformative Pathways Project (2022-2028), building the capacity of IPLC leaders.
- **Subregional Science-Policy Integration:** Malaysia co-leads the Science Panel for Borneo under the Heart of Borneo (HoB) initiative, bringing together over 15 institutions from Malaysia, Indonesia, and Brunei. The Panel's flagship assessment on forests, biodiversity, and climate has been presented at UNFCCC and CBD forums.
- **Regional Cooperation:** Malaysia is a leading member of the ASEAN Centre for Biodiversity (ACB), co-hosting regional training on protected area management, invasive alien species, and taxonomy.

2.7 Promote partnerships and networks for implementation

Malaysia's approach relies on strong, multi-stakeholder partnerships.

- **Landscape and Transboundary Networks:** The Coral Triangle Initiative (CTI), Central Forest Spine (CFS), and Heart of Borneo (HoB) are implemented through formal collaborations involving federal and state agencies, NGOs, research institutions, and IPLCs.
- **Operational and Governance Networks:** The Sarawak Biodiversity Centre's Regulatory Awareness Programme created an operational network between enforcement agencies, ports, academia, and NGOs. The Kota Kinabalu Court Working Group on Environment builds a durable network among judges, lawyers, and enforcement officers.

2.8 Enhance synergies between CB&D efforts of relevant processes

Malaysia promotes integrated capacity-building across related multilateral environmental processes. A recent example is the the Penang Nature-Based Climate Adaptation Programme (PNBCAP) by Think City, funded by the Adaptation Fund under the UNFCCC, demonstrates how climate adaptation initiatives can simultaneously support biodiversity conservation objectives under the CBD through ecosystem restoration, nature-based solutions, institutional capacity building, community empowerment, and knowledge transfer.

2.9. Promote North-South cooperation

Malaysia engages in North-South cooperation to access advanced technical expertise. A longstanding collaboration with the Japan International Cooperation Agency (JICA) has contributed to sustainable forest management and peatland restoration. Cooperation with the European Union has supported advanced training in environmental DNA (eDNA) sampling for marine biodiversity monitoring and satellite telemetry for migratory species. These partnerships are guided by clear agreements on knowledge transfer and local ownership.

2.10. Promote South-South and triangular cooperation

Malaysia is an active proponent and provider of South-South cooperation. It has shared its experience in tropical peatland management with other ASEAN countries and, through UNDP-facilitated programmes, with nations in Africa. A successful triangular cooperation model involves Germany (GIZ), Indonesia, and Malaysia collaborating on community-based forestry training, where Germany provides facilitation, Indonesia shares legal frameworks, and Malaysia contributes technical knowledge on sustainable harvesting.

2.11. Engage the private sector

Malaysia strategically leverages private sector engagement to scale conservation impact. The Malaysian Sustainable Palm Oil (MSPO) certification scheme (see section 2.4) is a classic example and creates a direct link between market access and sectoral capacity.

National energy company PETRONAS, through its "Nature and Energy" conference series, incorporates biodiversity and natural capital accounting into its corporate planning. Foundations such as Yayasan Sime Darby and Yayasan Hasanah provide sustained funding for conservation research, species recovery, and community-based ecotourism.

The private sector is also financing foundational infrastructure. The MBC's development as a Project of National Interest unlocks tax incentives to attract private investment for its construction.

ANNEX 1: REPORT ON MALAYSIA'S PROGRESS IN IMPLEMENTING THE CBD LONG-TERM STRATEGIC FRAMEWORK FOR CAPACITY-BUILDING AND DEVELOPMENT

2.12. Strengthen monitoring and evaluation of CB&D interventions

Malaysia is transitioning from monitoring activities to measuring outcomes.

The primary framework is the NPBD's Monitoring and Evaluation (M&E) system and the enhancement of MyBIS.

Malaysia is engaging at the forefront of developing inclusive M&E frameworks. The country is participating in global consultations and has expressed strong interest in piloting the UNEP-WCMC indicator methodology for the CBD Gender Plan of Action, aiming to quantitatively measure progress on gender equality outcomes in biodiversity actions.

3 CONCLUSION AND REMAINING CHALLENGES

Malaysia has established a robust strategic framework for capacity-building. Key achievements include the operationalisation of the MBC, the five-fold expansion of MyBIS to over 819,000 records, structured FORTRAIN training programmes, and the activation of gender focal points across key ministries. The integration of CB&D into the NPBD and state-level action plans has created a durable foundation.

However, several interconnected challenges require continued attention (detailed in Chapter 4, Sections 4.3–4.4):

- **Coherent implementation.** Variations in planning and funding cycles among project-dependent partners complicate long-term programmes.
- **Consistent capacity across governance levels.** Gaps are most pronounced at state and local levels, where jurisdiction over land and natural resources resides.
- **Specialised technical expertise.** Malaysia needs to attract and retain expertise in conservation genetics, environmental economics, advanced taxonomy, eDNA, and remote sensing.
- **Social inclusion and equity.** Stronger frameworks are needed to integrate IPLC knowledge systems and ensure participation of women, youth, and marginalised groups.
- **Outcome-based monitoring.** Robust frameworks with clear outcome indicators, including gender-disaggregated data and traditional knowledge indicators, are required.

Addressing these challenges is fundamental to Malaysia's biodiversity ambitions. The 2027 NPBD mid-term review provides an opportunity to refine strategies, secure longer-term financing, and strengthen accountability.

ANNEX 2

REPORT ON MALAYSIA'S PROGRESS IN IMPLEMENTING THE CBD'S STRATEGY FOR RESOURCE MOBILISATION

1 INTRODUCTION AND STRATEGIC CONTEXT

This report documents Malaysia's progress in implementing the KMGBF's resource mobilisation objectives. The country's efforts are strategically guided by Target 17 of the NPBD, which commits to a significant increase in financial resources from both government and non-government sources by 2030. This national target provides the primary operational framework for aligning domestic financial mechanisms with the broader ambitions of the CBD's Strategy for Resource Mobilisation and KMGBF Target 19.

Malaysia has established a comprehensive financial architecture spanning public finance, private capital, and institutional strengthening. However, a self-assessment of NPBD Target 17 indicates that while progress is being made, it is at an insufficient rate. This underscores the significant scaling and implementation challenges that must be addressed to fully meet national and global resource mobilisation targets.

The detailed evidence of Malaysia's resource mobilisation efforts is presented in Chapter 2 of this report, particularly under NPBD Target 17. This annex does not repeat that full evidence base. Instead, it organises and summarises Malaysia's progress against each of the 6 key objectives of the CBD's Strategy for Resource Mobilisation, providing a high-level assessment and referencing the relevant sections of Chapter 2 for further detail.

2 PROGRESS TOWARDS IMPLEMENTING THE STRATEGY

This report is structured according to the 6 key objectives of the CBD's Strategy for Resource Mobilisation; namely:

- i. Substantially increase the level of financial resources from all sources.
- ii. Diversify the resource base, including through private sector engagement and innovative financial mechanisms.
- iii. Mainstream biodiversity within public finance, private sector, and across all sectors of the economy.
- iv. Enhance the effectiveness and efficiency of resource use.
- v. Strengthen enabling conditions, including governance, planning, and regulatory frameworks.
- vi. Ensure adequate means of implementation, including capacity building, technology, and monitoring and review.

2.1 Objective (i): Substantially increase the level of financial resources from all sources

Malaysia demonstrates a clear national commitment to increasing financial resources for biodiversity. Total biodiversity-related expenditure grew by approximately 40%, from RM1.87 billion in 2021 to RM2.63 billion in 2025 (representing 0.12-0.13% of GDP). Federal spending in this area saw a 64% increase between 2021 and 2025, accounting for an estimated 0.4% of total federal expenditure.

Public Funding Leadership: The Government of Malaysia remains the primary funder, contributing nearly 60% of total biodiversity-related expenditure. The flagship Ecological Fiscal Transfer (EFT) has been a major catalyst, with its annual allocation rising from RM60 million in 2019 to RM250 million in 2025. Cumulative allocations reached approximately RM800 million by 2025, funding over 270 state-level projects and contributing to the gazettement of an estimated 340,000+ new hectares of protected areas.

Private and Non-Government Finance: Non-public sources constitute roughly 40% of total expenditure and show an upward trend. Annual private sector expenditure on broader environmental protection grew from RM3.12 billion in 2021 to RM3.64 billion in 2025. However, only 20% of private sector environmental expenditure is relevant to biodiversity, and less than 1% goes directly to wildlife conservation — a major untapped opportunity.

National Funds and Philanthropic Channels:

The National Conservation Trust Fund for Natural Resources (NCTF), established in 2015, has approved RM22.62 million for 112 conservation projects (58 completed, 54 under implementation). The MySDG Foundation, launched in 2022, has disbursed more than RM36 million for SDG-aligned and biodiversity-relevant programmes.

2.2 Objective (ii): Diversify the resource base, including through private sector engagement and innovative financial mechanisms

Malaysia is actively building a diversified and multi-layered portfolio of financial instruments beyond traditional grants, strategically reducing dependence on volatile budgetary sources.

Market-Based Instruments: The Bursa Carbon Exchange (BCX), launched in December 2022, is the world's first Shariah-compliant carbon exchange. In July 2024, BCX hosted the auction of its first nature-based carbon credits from the Kuamut Rainforest Conservation Project, clearing over 20,000 tCO₂e and signalling growing private sector interest in nature-based carbon trading.

Non-Market Instruments: The Malaysia Forest Fund (MFF), established in 2021, administers two instruments. The Forest Conservation Certificate (FCC), a non-market public-private financing mechanism launched in May 2024, has approved nine projects nationwide, securing over RM1.3 million in private financing for conservation initiatives. The Forest Carbon Offset (FCO) framework is under development.

State-Level Innovation: States are pioneering conservation-aligned revenue-generating mechanisms. Sarawak has enacted progressive forest carbon legislation and exploring Payments for Ecosystem Services (PES) mechanism in the Gerugur Reservoir, Sarikei to link watershed protection with sustainable financing. The Pulau Pinang National Park Conservation Fee Mechanism, introduced in November 2022, generated over RM4.36 million in dedicated conservation revenue from visitor and operator fees by October 2025.

Ecotourism as Conservation Finance: The Habitat Penang Hill, a B Corp-certified discovery centre, operates on a model where a significant portion of its ecotourism revenue is pledged to support The Habitat Foundation, which funds conservation, research, and community projects within the Penang Hill Biosphere Reserve.

KUAMUT RAINFOREST CONSERVATION PROJECT: FINANCING NATURE AND CLIMATE ACTION THROUGH CARBON MARKETS



Photo credit: Arthur Chung

The Kuamut Rainforest Conservation Project spans 83,381 hectares of forests in Sabah's Tongod and Kinabatangan districts. This public-private partnership includes the Sabah Forestry Department, Yayasan Sabah, Rakyat Berjaya Sdn. Bhd., and Permian Malaysia, with support from PACOS Trust and SEARRP. The project protects a former Class II production forest while undertaking restoration activities.

The forest supports significant biodiversity, including the Bornean orangutan, Borneo elephant, and banteng, alongside 29 mammal and 12 bird species listed on the IUCN Red List. By preventing emissions from deforestation and forest degradation, the project delivers an estimated annual reduction of over 800,000 tonnes of carbon dioxide equivalent (CO₂e), with a 30-year target of preventing 16 million tonnes of CO₂e in total. It has been verified under Verra's Verified Carbon Standard (VCS), awarded Gold Level status under the Climate, Community and Biodiversity (CCB) Standards, and rated by BeZero Carbon as one of the highest-rated improved forest management projects in the world.

On 25 July 2024, the Bursa Carbon Exchange (BCX) held the first auction of Malaysian nature-based carbon credits from the Kuamut project, setting a benchmark price of RM50 per contract. Buyers included PETRONAS, Maybank, Gas Malaysia, and Yinson Holdings. Community engagement has been central, with about 3,000 villagers from the Kuamut and Karamuak clusters participating via Free, Prior and Informed Consent (FPIC) and co-designing the social development programme.

As Malaysia's first domestically certified and auctioned nature-based carbon project, Kuamut demonstrates that forests can generate high-integrity carbon finance while delivering verified biodiversity and community outcomes.

2.3 **Objective (iii): Mainstream biodiversity within public finance, private sector, and across all sectors of the economy**

Malaysia demonstrates a differentiated and evolving approach to mainstreaming biodiversity, with notable success in integrating conservation into public fiscal policy and procurement. Integration into the private financial sector is advancing but remains at a formative stage.

Fiscal Policy Mainstreaming: The EFT creates a tangible financial incentive for state-level conservation outcomes, supporting over 270 state projects and contributing to the gazettement of 340,000+ new hectares of protected areas. Government Green Procurement (GGP), implemented since 2013, has cumulative procurement exceeding RM6 billion, integrating environmental specifications across 20 categories and shifting markets toward sustainable products and services.

Private Sector and Financial Integration: The Central Bank of Malaysia's Climate Change and Principle-based Taxonomy (CCPT) guides financial institutions and includes a "do no significant harm" principle for biodiversity. The Climate Finance Innovation Lab (CFIL), launched in June 2025, has onboarded 30 projects with combined funding needs exceeding RM4.0 billion, developing blended finance models and de-risking instruments for nature-positive actions. However, nature-related financial disclosures remain voluntary, and no national biodiversity taxonomy yet exists to guide investment toward nature-positive outcomes.

Cross-Sectoral Engagement: Studies applying the TEEB for Protected Areas framework have estimated the annual ecosystem service value of key parks: approximately RM1.7 billion for Taman Negara, RM531 million for Royal Belum, and RM427 million for Endau-Rompin. This provides a powerful economic rationale for sustained investment.

2.4 **Objective (iv): Enhance the effectiveness and efficiency of resource use**

Malaysia is deploying increased financial resources toward measurable conservation outcomes; however, the optimal impact of these investments is hampered by implementation challenges related to governance, transparency, and tracking.

Targeted Programmes Delivering Measurable Outcomes: The NCTF has financed 112 projects worth RM22.62 million, targeting specific conservation needs

such as hornbill protection and coral reef rehabilitation. The Kuamut Rainforest Conservation Project (83,000 hectares) generated Malaysia's first domestically auctioned nature-based credits, exemplifying an effective public-private partnership.

Challenges in Tracking and Governance: A major systemic gap is the absence of an institutionalised biodiversity budget tagging system across all ministries. This prevents a holistic view of resource allocation, leaving expenditures in sectors like agriculture and infrastructure, as well as substantial private contributions, systematically untracked. This obscures the true picture of financial flows and their effectiveness, undermining strategic planning.

Building Enabling Frameworks for Efficiency: Developing robust national standards for carbon accounting and verification is a priority for instruments like Forest Carbon Offsets (FCOs). Platforms like the CFIL are contributing to efficiency by developing standardised blended finance structures to lower the cost of capital. Ecosystem service valuations demonstrate that conservation benefits can far exceed management costs, providing a powerful argument for effective resource allocation.

2.5 **Objective (v): Strengthen enabling conditions, including governance, planning, and regulatory frameworks**

Malaysia has established a clear strategic planning framework aligned with global goals, but critical regulatory and governance gaps persist.

Strategic Planning as a Foundation: The NPBD, with its dedicated Target 17 on resource mobilisation, provides the overarching national strategic framework. This domestic policy is explicitly aligned with the ambitions of the KMGBF (Target 19), demonstrating Malaysia's commitment to a coherent, multi-level approach.

Critical Governance and Regulatory Needs: The EFT operates without a dedicated legal or policy framework, undermining its permanence and the ability to enforce transparent reporting. The finalisation of robust national standards for carbon accounting and verification directly impacts the credibility of market-based instruments like FCOs. Sarawak's enactment of state-level forest carbon legislation underscores the need for cohesive national frameworks.

Targeted Capacity Building and Coordination: Variations in state-level technical capacity and project readiness constrain the development of bankable proposals and access to finance. States face barriers

in directly accessing international biodiversity finance, which is typically channelled through national accredited entities. Future implementation will require federal-level facilitation and technical support to help states meet donor requirements and develop investment-ready proposals.

2.6 Objective (vi): Ensure adequate means of implementation, including capacity building, technology, and monitoring and review

Systematic monitoring and review of financial flows represent the most significant systemic gap in Malaysia's implementation architecture. While project-level monitoring exists, the absence of a national tracking system severely undermines strategic planning, accountability, and the ability to demonstrate a clear return on investment.

Project-Level Monitoring and Verification:

At the micro level, monitoring protocols are in place and aligned with international practice. The Kuamut Rainforest Conservation Project undergoes independent verification against rigorous standards (e.g., Verra). The NCTF systematically tracks the implementation status and outputs of its funded projects. The Pulau Pinang National Park fee mechanism provides a clear model of transparent revenue tracking for conservation.

Systemic Tracking Gaps: A major institutional challenge is the absence of a dedicated, institutionalised biodiversity budget tagging system across all federal and state ministries. Current reporting captures only direct allocations to environmental ministries, leaving uncounted significant biodiversity-relevant expenditures in other sectors. Concurrently, substantial private contributions remain almost entirely untracked. This fragmented data landscape makes it impossible to comprehensively measure total financial resources, assess cost-effectiveness, or strategically align investments with national targets.

The Imperative for a Unified Monitoring Framework:

Establishing a comprehensive tracking system is a critical implementation priority. An institutionalised budget tagging mechanism, aligned with the NPBD and KMGBF targets, is required. Furthermore, the development of a publicly accessible national biodiversity finance dashboard, consolidating data from the EFT, NCTF, carbon markets, and private investments, would be a transformative tool for transparency and accountability.

3 KEY CHALLENGES AND THE WAY FORWARD

Malaysia has established a comprehensive biodiversity resource mobilisation framework through NPBD Target 17. While measurable progress has been achieved, several challenges remain.

- **Accelerating finance.** Current biodiversity finance requires accelerated scaling to meet long-term needs. The government's own assessment indicates the current rate of increase must be enhanced.
- **Strengthening implementation frameworks.** The EFT has proven highly effective. To ensure long-term sustainability, opportunities exist to strengthen its governance framework and link transfers to verified performance metrics. Variations in state-level readiness also affect access to finance.
- **Tracking, transparency, and allocation.** The absence of institutionalised biodiversity budget tagging across all ministries remains a critical gap, undermining the ability to provide a complete picture of financial resources.

Strategic priorities:

- Strengthen core public finance mechanisms, including a more stable policy basis for the EFT and robust carbon accounting standards.
- Deepen biodiversity integration into economic decision-making through enhanced finance taxonomies and TNFD adoption.
- Establish a robust system for tagging and tracking biodiversity-related expenditures across all ministries.
- Strengthen technical support to state governments for developing investment-ready proposals.

By pursuing these priorities, Malaysia aims to strengthen its biodiversity finance architecture to support national heritage and global biodiversity goals.



A woman with dark hair tied back, wearing a light-colored polo shirt with 'MALAYSIA RECORDS' and a logo on the sleeve, is kneeling in a nursery. She is smiling and looking down at her hands, which are holding small seedlings. The nursery is filled with many black plastic pots containing young plants. The background shows more plants and trees, suggesting an outdoor or semi-outdoor setting.

ANNEX 3

REPORT ON MALAYSIA'S PROGRESS IN IMPLEMENTING THE CBD'S GENDER PLAN OF ACTION 2023-2030

1 ALIGNING NATIONAL ACTION WITH GLOBAL AMBITION

Malaysia is committed to implementing the CBD's Gender Plan of Action (GPA) 2023–2030 as a strategic blueprint for equitable and effective conservation. Malaysia is proactively operationalising this global framework according to its national circumstances, which include a rich tapestry of biodiversity, cultural diversity, and a constitutional mandate for equality. Recognising women's role in environmental stewardship, Malaysia views the GPA as essential for unlocking the full potential of its society to meet national and global biodiversity targets. This national effort aligns with regional priorities identified in the ASEAN Gender Outlook 2024, which underscores the critical link between gender equality and environmental sustainability.

The implementation is anchored in the Federal Constitution's guarantee of non-discrimination (Articles 8(1) and 8(2)). By mainstreaming the GPA according to national circumstances, Malaysia seeks to advance its NPBD and the 13th Malaysia Plan. The implementation of the GPA will also contribute to Malaysia's progress on Sustainable Development Goal 5 and related goals (e.g. SDG 1 Targets 1.3-1.4, on social protection and resource rights for women, SDG 2: Target 2.3 on equal agricultural opportunities, SDG 4: Target 4.1 on eliminating gender disparities in education, SDG 8: Target 8.5 on decent work for women, SDG 10: Target 10.2 on inclusive participation). The recently launched National Action Plan on Business and Human Rights (NAPBHR) 2025-2030 provides a robust framework linking corporate responsibility directly to environmental protection, community rights, and gender equality. The plan advances gender equality in the workplace, calling for the elimination of discrimination, the promotion of fair wages and career progression for women, and the implementation of family-friendly policies.

This report details Malaysia's progress in embedding gender-sensitive approaches into the core of biodiversity governance, from grassroots initiatives to high-level policy. It highlights the achievements, examines challenges and outlines the forward trajectory to ensure the GPA's objectives and the three expected outcomes are fully realised in the Malaysian context.

• EXPECTED OUTCOME (EO) 1:
All People in Particular All Women and Girls, Have Equal Opportunity and Capacity to Contribute to the Three Objectives of the Convention
• EXPECTED OUTCOME (EO) 2:
Biodiversity Policy, Planning and Programming Decisions Address Equally the Perspectives, Interests, Needs and Human Rights of All People, in Particular of All Women and Girls
• EXPECTED OUTCOME (EO) 1:
Enabling Conditions are Created to Ensure Gender Responsive Implementation of the Post-2020 Global Biodiversity Framework

It is important to note that this is Malaysia's first report on the new 2023-2030 GPA and is meant to establish a national baseline and set a roadmap for future action. It does not claim to have completed all objectives but rather details how it will begin working toward them.

2 PROGRESS ON EO 1: EQUAL OPPORTUNITY AND CAPACITY

Malaysia is implementing a 5-pronged strategy to dismantle barriers and ensure all people, particularly women and girls, have equal opportunity and capacity to contribute to the Convention's objectives and benefit from conservation outcomes. This work spans empowering local communities, reforming national programmes, and cultivating a new generation of conservation leaders.

2.1 Empowering Women in Grassroots Conservation & Enforcement

Guided by national policy, some of Malaysia's most impactful progress originates at the grassroots, where initiatives empower women from Indigenous Peoples and Local Communities (IPLCs) as key environmental stewards. A notable example is the increasing deployment of female rangers in Sabah through partnerships between the Sabah Wildlife Department, Wilmar, and WWF Malaysia. In the Kinabatangan region, the all-women reforestation unit from the NGO Hutan is rehabilitating degraded forests, while the Gibbon Conservation Society has established an all-female, all-Indigenous wildlife ranger team in Peninsular Malaysia. In Sarawak, a collaborative programme between the Sarawak Forestry Corporation and the Smithsonian Institution in the Lanjak Entimau Wildlife Sanctuary has formally trained and employed Iban women as camera trappers, generating the first-ever biodiversity baseline for this critical corridor. These initiatives directly challenge gender norms, provide sustainable livelihoods, and operationalise GPA Objective 1.4.

2.2 Advancing Economic Empowerment through Community Enterprises

Community-based social enterprises are strategically linking biodiversity stewardship with women's economic empowerment. At the national level, the Department for Women's Development's flagship KIRANA Programme, particularly its KIRANA OMEGA component, directly aligns economic empowerment with circular economy and sustainable use principles. KIRANA OMEGA trains rural women from B40 groups in the "waste to value" concept, empowering them to transform discarded materials (e.g., fruit peels, tyres, shells) and natural resources into marketable products like natural dyes and eco-prints. This programme, guided by circular economy principles, has enabled 90 women to generate sustainable income, with 66% achieving a monthly increase above RM500. This model operationalises GPA Objective 1.4 and contributes to SDGs 1, 5, and 12 while reducing waste and promoting the sustainable valuation of natural materials.

The Turtle Conservation Society of Malaysia integrates women into river terrapin conservation through conservation-linked livelihoods, including

KUAMUT RAINFOREST CONSERVATION PROJECT: FINANCING NATURE AND CLIMATE ACTION THROUGH CARBON MARKETS

In the Kemaman River, conservation is a two-way street. The Turtle Conservation Society of Malaysia (TCS) has discovered that the best way to protect the critically endangered river terrapin is to invest in the people who live alongside it. Their community programme doesn't just ask local women to help with conservation; it makes them a vital part of it, transforming their economic stability into the turtle's greatest safeguard.

Since 2019, TCS has worked with local women to produce turtle-themed batik products. Every item sold represents a double success—a livelihood supported and a critically endangered species given a future by the community that now depends on its survival.

For Noratiqah Azemi, who joined in 2020, sewing turtle-themed merchandise was initially a way to help the turtles. But as her family grew from two children to five, the income became the bedrock of her household. She often says she is raising her family with the money she earns through conservation. For Noratiqah, protecting the turtle population is directly tied to feeding her children.

The extra money also gave her family security. Living in a flood-prone area, the sewing income allowed them to save enough to move her five children to higher, safer ground. The programme proved that when conservation pays, families can build more stable lives.

Another powerful moment came when 47-year-old Noraini Wahab received her first-ever wages. Kissing the notes, she whispered, "Alhamdulillah, Kak Nor's first earnings." For her, creating a



Photo credit: Turtle Conservation Society

product that spreads awareness about turtles also created something she had never had before: economic independence.

These stories demonstrate a simple truth at the heart of conservation: a woman with a stable income will become a lifelong guardian of the resource that provides it.

training 25 women in the production and marketing of terrapin-themed products that directly support nesting protection and community stewardship. This approach links species recovery with income generation, strengthening local support for long-term freshwater conservation while advancing the CBD's GPA.

2.3 Mainstreaming Gender in National Strategic Programmes

Gender equality is being institutionalised within major national conservation programmes. The World Bank-led Global Wildlife Program (GWP), implemented by key enforcement agencies in Malaysia, has embedded explicit gender goals, including a 40% minimum participation rate for women in all activities and mandatory gender-

sensitisation training. This systematically addresses GPA Objective 1.5. Furthermore, under the Coral Triangle Initiative, work is underway to mainstream gender into national fisheries and aquaculture policies, improving women's access to finance and technology. The UNDP-led Food Systems, Land Use and Restoration (FOLUR) programme in Sabah also mandates gender-responsive design, creating pathways for women's participation in sustainable palm oil landscape planning.

2.4 Cultivating Women's Leadership Across Sectors

Women's leadership is profoundly shaping Malaysia's conservation landscape, strengthening both technical governance and community engagement. Within government institutions,

women hold senior technical leadership positions, including Datuk Wira Anis Rizana Mohd Zainudin as the Secretary General of NRES, Dr Norwati Muhammad as Deputy Director General of the Forest Research Institute Malaysia, Hjh Hairani binti Mohamad Ismail the Deputy Permanent Secretary of the Ministry of Urban Development and Natural Resources Sarawak, Margarita Naming, the Head of Research and Development of the Sarawak Biodiversity Centre, Ms Tang Hung Huong, the Head of Biodiversity & Environmental Division, Ministry of Natural Resources and Urban Development Sarawak, Datuk Josie Lai, the Permanent Secretary at the Ministry of Tourism, Culture and Environment Sabah and Ken Kartina Khamis, the Director of the Sabah Biodiversity Centre. The Department of Environment Malaysia has had three female Director-Generals in the past.

In academia, Professor Dato' Dr. Aileen Tan Shau Hwai chairs UNESCO-IOC's WESTPAC, while Associate Professors like Dr. Fiffy Hanisdah Saikim and Dr. Ching Fui Fui lead the Universiti Malaysia Sabah's Institute for Tropical Biodiversity and Conservation (ITBC) and Bornean Marine Research Institute (BMRI) respectively.

This leadership is mirrored in civil society, with women like Dr. Anna Wong (Malaysian Nature Society) and Sophia Lim (WWF-Malaysia) heading major organisations, and experts such as Merdeka Award recipient Amaziasizamoria Jumail and Professor Chan Eng Heng leading groundbreaking field-based conservation science. Women also lead at least 19 specialised NGOs and research groups with strong scientific and community mandates.

No.	Organisation	Leader	Focus Area
1	Coralku	Dr. Natasha Zulaikha	Corals
2	Explore Gaia	Dr Ravinder Kaur	Hornbills
3	Free Tree Society	Zaizurita Abdul Rahman	Community Greening
4	Gibbon Conservation Society	Mariani Ramli	Gibbons
5	HUTAN	Dr Isabelle Lackman	Wildlife
6	Justice for Wildlife Malaysia	Dr Nor Arlina Amirah Ghani	Wildlife
7	Klima Action Malaysia	Illi Nadiyah Dzulfakar	Climate Action
8	Langur Project Penang	Dr. Yap Jo Leen	Primates
9	Management and Ecology of Malaysian Elephant	Dr. Wong Ee Phin	Asian Elephants
10	MareCet	Dr Louisa Ponnampalam	Marine Mammals
11	Pangolin Aware	Dr Elisa Panjang	Pangolins
12	Panthera Malaysia	Lam Wai Yee	Wild Cats
13	Persatuan Konservasi Belangkas Malaysia	Nurul Ashikin binti Mat Zauki	Horseshoe Crab
14	PULIHARA	Rahayu Zulkifli	Sea Turtles
15	RIMAU	Lara Ariffin	Malayan Tigers
16	Sahabat Alam Malaysia	Meenakshi Raman	Sustainable Development
17	Seratu Aatai	Dr. Nurzhafarina Othman	Bornean Elephants
18	TRAFFIC International SEA	Kanitha Krishnasamy	Illegal Wildlife Trade
19	Turtle Conservation Society of Malaysia	Dr. Chen Pelf Nyok	Freshwater turtles

SEEDING CHANGE: HUTAN'S ALL-WOMEN REFORESTATION TEAM

Hutan is a grassroots wildlife research and conservation organisation developing practical solutions to foster harmonious coexistence between people and wildlife. Established in 1998 in Sabah's Kinabatangan floodplain, one of Malaysia's richest biodiversity hotspots, Hutan now unites a team of over 100 indigenous Orang Sungai community members. Among them is an all-women reforestation team illustrating how biodiversity conservation can support women's economic participation, technical skills development, and long-term stewardship of natural resources.

Since 2008, these women have restored highly fragmented wildlife habitat within the forest-agriculture mosaic landscape, focusing on re-establishing a continuous forest corridor along the Kinabatangan River. To date, the team has planted 254,085 trees across 13 sites, ranging from protected areas and riparian zones to wildlife corridors on private land. Drawing on Hutan's long-term ecological research, the team selected 107 native tree species known to be key food sources for orangutans and other wildlife.

In a rural area where few women have access to paid employment, Hutan provides stable income, professional training, and the agency to make a difference in their own environment. These women do far more than plant trees: they carry out five years of intensive maintenance to ensure sapling survival, conduct phenology studies, monitor wildlife recolonisation, and assess carbon stocks and soil health recovery.

To ensure a supply of saplings, the reforestation team supports a network of home nurseries, creating income for village families. Through academic partnerships, Hutan provides nursery operators - primarily housewives - with specialised training to secure genetically robust seed sources and implement effective pest and disease management strategies.

This approach also positions these nurseries to eventually supply a wider restoration market, as Kinabatangan oil palm plantations source native forest saplings to restore High Conservation Value (HCV) areas to meet sustainability standards and evolving global supply chain demands.



Photo credit: HUTAN

2.5 Gender Representation in Key Environmental Institutions

Malaysia is committed to building institutional capacity that reflects gender equality. Monitoring workforce composition is a key step in identifying progress and gaps. Data from key biodiversity-related departments reveal the current landscape of gender representation.

Department/Agency	 % Female Staff	Total Staff
Biodiversity and Forestry Management Division, NRES	50.0%	38
Environment Management Division, NRES	66.7%	27
Department of Environment Malaysia	45.1%	1441
Forest Research Institute Malaysia	46.4%	629
Department of Biosafety	70.9%	24
Department of Wildlife and National Parks (Peninsular Malaysia)	21.2%	1560
Forestry Department of Peninsular Malaysia (HQ only)	37.5%	451
Sabah Forestry Department	26.9%	1,246
Sabah Wildlife Department	22.2%	189
Sabah Biodiversity Centre	78.0%	23
Sabah Parks	21.0%	748
Environment Protection Department Sabah	38.3%	60
Ministry of Natural Resources and Urban Development Sarawak	51.0%	148
Sarawak Forestry Corporation	30.0%	657
Sarawak Biodiversity Centre	60.4%	129
Natural Resources & Environment Board, Sarawak	40.0%	250
Total reported	33.1%	7620

Data as of January 2026.

This data provides a crucial baseline. While women are well-represented in scientific, policy, and biosafety roles (often >50%), their representation drops significantly in traditional field enforcement and forestry departments (<30%), highlighting a key area for targeted intervention under EO1. Malaysia's future efforts under the GPA will include focused initiatives (e.g., targeted recruitment, mentorship, ensuring safe field working conditions) to achieve gender balance across all functional levels of environmental institutions, as part of the broader institutional reforms.

3 PROGRESS ON EO 2: INCLUSIVE POLICY AND DECISION-MAKING

Malaysia is strengthening the integration of gender perspectives into the core of biodiversity governance to ensure planning and implementation are shaped by the diverse knowledge and needs of all genders, consistent with SDG 16.

3.1 Mainstreaming Gender into Biodiversity & Cross-Sectoral Policy

The NPBD provides the foundational framework, calling for inclusive partnerships with specific mention of women. Similarly, the Sabah Biodiversity Strategy and the Sarawak Biodiversity Masterplan specifically mention gender. A key forward commitment is the explicit integration of the GPA into the NPBD's 2027 update. This biodiversity-specific work is reinforced by overarching national policies. The National Women's Policy and National Child Policy create a cross-sectoral mandate for gender equality, child protection, and safe environments in conservation. Furthermore, the establishment of the All-Party Parliamentary Group Malaysia on Gender Equality (APPGMGE) in November 2025 ensures high-level political commitment to advancing gender equality across all policy areas, including environmental governance.

3.2 Policy Reforms: Governance, Safeguards and Private Sector Alignment

Malaysia is advancing critical policy reforms to create an enabling environment for inclusive conservation. The first National Action Plan on Women, Peace and Security (NAP WPS) 2025–2030 strengthens women's capacity in leadership and crisis response—skills directly applicable to environmental conflict resolution and stewardship in resource-scarce contexts.

These efforts are reinforced by transformative progress in corporate governance. The requirement for a minimum of 30% women on boards of listed companies has delivered results, with women holding 34.6% of board positions in Malaysia's Top 100 Public Listed Companies (as of 1 January 2026) and the complete elimination of all-male boards within this cohort. This benchmark provides a strong foundation for Malaysia to champion the integration of biodiversity and gender metrics into mainstream ESG reporting frameworks.

3.3 Strengthening Institutional Capacity for Inclusion

Programmes at the state level, such as Sarawak's Women's Leadership Empowerment Programme and the Sarawak Women's Empowerment Grant, implemented by the Sarawak Women and Family Department, build the confidence and financial literacy that enable women to engage effectively

in community decision-making forums, including those on natural resource management.

3.4 Ensuring Inclusive Participation in Governance

Deliberate efforts are made to include women's voices in national processes. During consultations for this report, women constituted more than 65% of all participants. Regionally, Malaysia actively participates through the Coral Triangle Initiative - Women Leaders Forum (CTI-WLF) and advocates for indigenous women's knowledge at forums like the Global Forum on Indigenous Women, demonstrating leadership in advancing gender-sensitive environmental governance.

4 PROGRESS ON EO 3: CREATING ENABLING CONDITIONS

Malaysia is building the essential systems including robust monitoring and strategic frameworks, required for the sustained and effective implementation of gender-sensitive biodiversity actions.

4.1 Developing Robust Monitoring & Reporting Systems

A cornerstone of progress is active monitoring. Malaysia has actively contributed to the co-development of the draft indicator methodology for monitoring national GPA implementation and will be strengthening national biodiversity monitoring systems under the UNEP-WCMC National Monitoring Support initiative, including the integration of gender-disaggregated data. The pilot initiative for the ASEAN region will support Malaysia in developing a national online biodiversity monitoring system, enabling the generation of crucial national data and refining the global tool.

4.2 Policy Reforms for Institutional Accountability

Malaysia has taken a foundational step by appointing Gender Focal Points in key ministries and agencies. While activities facilitated by these focal points are nascent, their designation establishes a critical network for driving internal policy alignment, capacity building, and the future development of agency-specific Gender Action Plans. This network will be instrumental in operationalising the systemic measures outlined in the national 'Way Forward'.

4.3 Mobilising Financial Resources through Strategic Alignment

Funding is being strategically addressed by aligning with innovative frameworks. The gender-targeted design of the Global Wildlife Program (GWP) provides a model for gender-sensitive budgeting in conservation. Building on this, Malaysia is examining how to apply these principles across environmental ministries. A significant opportunity

lies in leveraging private sector ESG frameworks. By encouraging companies to report on gender and biodiversity metrics, Malaysia can channel private capital and corporate sustainability efforts toward supporting the enabling conditions for the GPA, in line with Objective 3.6.

5 CHALLENGES AND WAY FORWARD

Building upon the progress and gaps identified above, Malaysia recognises that systemic change requires addressing persistent challenges. The following consolidates these into a strategic framework.

5.1 Key Challenges

To achieve systemic change, Malaysia's implementation strategy is designed to address interconnected structural and operational hurdles:

- **Gender Mainstreaming (EO1 & EO2):** Systematic mainstreaming across sectors and states remains a priority, requiring integration into core planning and budgeting.
- **Data and Systematic Gender Analysis (EO3):** A coordinated national system for collecting and using gender-disaggregated biodiversity data is an ongoing need. This gap constrains evidence-based analysis, forcing reliance on assumptions rather than data.
- **Resources for Institutional Mechanisms (EO3):** Gender Focal Points have been appointed in key ministries. To realise their potential, formalised Terms of Reference, dedicated time and budgets, and advanced training in gender mainstreaming are required—enabling them to develop and monitor internal gender action plans.
- **Financing and Critical Safeguard Gaps (EO3):** A key focus is transitioning gender-specific actions from donor support to institutionalised government budgeting. The absence of standardised PSEAH (protection from sexual exploitation, abuse, harassment) protocols is a priority. As more women enter field roles, clear reporting mechanisms, investigation procedures, and survivor support frameworks are essential duty-of-care considerations for a safe enabling environment.

5.2 Considerations for Future Implementation

To consolidate progress and transition to a systemic approach, Malaysia will explore the following integrated actions.

- **Gender-Sensitivity in Core Policy and Planning:** The 2027 revision of the NPBD will integrate GPA objectives as a cross-cutting theme, incorporating performance indicators such as the percentage of women in technical field roles and decision-making committees.

- **National Gender-Biodiversity Data:** In 2026, NRES will partner with the Department of Statistics Malaysia (DOSM) to establish a technical working group to determine core Gender-Biodiversity Indicators for integration into national surveys (e.g., agricultural census). Malaysia will also explore assessments of the gendered impacts of biodiversity policies.
- **Empower the Gender Focal Point Network:** Malaysia will prioritise formal capacity-building programmes on Gender Mainstreaming in Biodiversity Governance and establish a National Community of Practice to connect focal points with grassroots practitioners, facilitating peer learning and policy translation.
- **Institute Financial Accountability:** NRES will examine gender-sensitive budgeting guidelines for its programme portfolio, using lessons from the Global Wildlife Program. Malaysia will also engage financial regulators and the private sector to develop guidance on integrating biodiversity and gender metrics into corporate ESG reporting.
- **Gender Safeguards:** A multi-stakeholder task force (government, NGOs, communities) will develop sector-wide PSEAH Guidelines for the Conservation Sector, outlining clear standards for prevention, reporting, and response, aligned with the National Child Policy (2026-2030).

In conclusion, this strategic way forward moves from ad-hoc action to embedded system change. By linking policy mandate, evidence-based planning, institutional capacity, financial accountability, and safeguards, Malaysia seeks to ensure gender equality and biodiversity conservation are achieved as interdependent national priorities, addressing ASEAN-wide calls for better gender data and safer workplaces.

ANNEX 4

REPORT ON MALAYSIA'S PROGRESS IN IMPLEMENTING CBD'S LONG-TERM STRATEGIC APPROACH TO MAINSTREAM BIODIVERSITY

1 INTRODUCTION: ALIGNING NATIONAL ACTION WITH GLOBAL STRATEGY

This report outlines Malaysia's progress in implementing the CBD's Long-term Strategic Approach to Mainstream Biodiversity. The NPBD 2022-2030 provides the framework for embedding biodiversity across government, economy, and society, with Target 4 as the central pillar for mainstreaming.

Detailed evidence of Malaysia's mainstreaming efforts is presented in Chapter 2, particularly under NPBD Targets 3 (spatial planning), 4 (development frameworks), 6 (sustainable production), and 7 (tourism). This annex does not repeat that evidence. Instead, it summarises Malaysia's progress against the CBD's three core strategic areas for mainstreaming biodiversity, providing a high-level assessment with references to Chapter 2.

2 PROGRESS AGAINST THE 3 CORE STRATEGIC AREAS

This report is structured according to the 3 core strategic areas of the CBD's Long-term Strategic Approach to Mainstream Biodiversity; namely:

• Strategy Area I:
Mainstreaming Biodiversity Across Government and Its Policies
• Strategy Area II:
Integrating Nature and Biodiversity into Business Models, Operations and Practices
• Strategy Area III:
Mainstreaming Biodiversity Across Society

2.1 Strategy Area I: Mainstreaming Biodiversity Across Government and Its Policies

Malaysia is implementing a multi-tiered, systemic approach to integrate biodiversity into the core of development governance. This is driven by the overarching mandate of the Thirteenth Malaysia Plan (2026-2030), which frames biodiversity as a critical planetary health and life-support system, and the Madani Economic Framework, which positions environmental sustainability as foundational to the national economic vision.

Action 1: Integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts.

Malaysia has deployed a robust suite of planning and accounting tools to operationalise integration.

Spatial Planning Instruments: The Environmentally Sensitive Area (ESA) framework is the primary mechanism to guide development away from critical habitats, formally embedded in statutory National Physical Plans, State Structure Plans, and Local Plans. The ESA framework in Peninsular Malaysia covers nearly 11.3 million hectares. Mandatory Environmental Impact Assessment (EIA) under the Environmental Quality Act 1974, strengthened by requirements for Wildlife Impact Studies, applies the mitigation hierarchy for high-risk projects.

Sub-national Master Planning: Pioneering initiatives like the Sarawak Biodiversity Master Plan explicitly weave biodiversity into the state's development strategy. Sabah has integrated biodiversity-important areas into the Sabah Structure Plan 2033, contributing to 27.3% of its land area being gazetted as protected areas.

Economic and Alternative Indicators: Progress in applying the System of Environmental-Economic Accounting (SEEA) is advancing, with energy and water accounts operational and land accounts under development. The Beyond GDP Framework initiative aims to create holistic national progress indicators.

Action 2: Mainstream biodiversity in fiscal, budgetary and financial instruments.

Malaysia has deployed a robust suite of planning and accounting tools to operationalise integration.

Fiscal Instruments: The Ecological Fiscal Transfer (EFT) is being actively implemented, with annual allocations growing from RM60 million in 2019 to RM250 million in 2025, channelling cumulative RM800 million to states for conservation. Payments for Ecosystem Services (PES) are under exploration, with pilots in Sabah (Babagon Catchment) and Sarawak (Gerugur Reservoir).

Market and Policy Signals: Government Green Procurement (GGP) achieved 40.5% uptake in 2024, exceeding its 2025 target, with 15,022 items certified under the MyHijau Mark. The Central Bank of Malaysia's Climate Change and Principle-based Taxonomy (CCPT) guides financial institutions and includes a "do no significant harm" principle for biodiversity.

Building Risk Assessment Capacity: BNM, with the World Bank and UNDP, is undertaking TNFD LEAP assessments in the construction and agriculture sectors to develop national guidance for nature-related risk assessment.

Measurable Outcomes: National forest cover has remained stable above 54%, and river water quality improved from 66% to 71% clean between 2020 and 2024. An average of 33.6% of built-up areas in Malaysian cities is designated as open public space.

2.2 Strategy Area II: Integrating Nature and Biodiversity into Business Models, Operations and Practices

To halt and reverse biodiversity loss, Malaysia is catalysing a fundamental shift across its economy, moving the private sector from viewing nature as a risk to be managed to recognising it as an indispensable asset for long-term resilience and growth. The recently launched National Action Plan on Business and Human Rights (NAPBHR) 2025-2030 establishes a robust framework linking corporate responsibility directly to environmental protection, community rights, and gender equality.

Action 3: Businesses in all relevant economic sectors actively transition towards sustainable practices.

The Malaysian business community is increasingly recognised as an essential partner, with corporate action maturing from philanthropy to strategic integration and core operational change.

Sectoral Leadership and Integration:

- **Energy:** Leading corporations have adopted comprehensive internal frameworks. PETRONAS operates under a Biodiversity and Ecosystem Services (BES) Framework and conducts structured risk assessments. Tenaga Nasional Berhad (TNB) adopted a Biodiversity Framework (2024). Sarawak Energy has a Corporate Biodiversity Policy, Procedures and Guidelines.
- **Infrastructure:** Biodiversity-integrated design is evident in major projects. The East Coast Rail Link (ECRL) incorporated 28 wildlife crossings and rerouting to avoid the Central Forest Spine, reducing projected forest land loss by 90%. The Sarawak-Sabah Link Road includes an eco-friendly tunnel to minimise habitat fragmentation.
- **Agriculture and Plantations:** Certification schemes drive sustainable production. The Malaysian Sustainable Palm Oil (MSPO) scheme now covers 5.21 million hectares, representing almost 90% of Malaysia's oil palm planted area. The revised MSPO 2.0 standard (effective January 2025) prohibits conversion of natural forests and High Conservation Value (HCV) areas. The Jurisdictional Approach in Sabah aims for statewide sustainable palm oil.
- **Mining:** The forthcoming National Mineral Policy 3 incorporates ESG principles, and the Malaysian Sustainable Mining Initiative (MySMI) Certification promotes responsible practices.

Cross-Sectoral Policy Drivers: The expansion of the Sustainable Consumption and Production (SCP) framework, including the Circular Economy Blueprint for Solid Waste (2025-2035) and the Circular Economy Policy Framework for Manufacturing (2024), provides

coherent policy direction for businesses to decouple growth from environmental impact.

Action 4: Financial institutions apply biodiversity risk assessment and increase dedicated finance.

The Malaysian business community is increasingly recognised as an essential partner, with corporate action maturing from philanthropy to strategic integration and core operational change.

Metrics and Disclosure: The Blueprint for Accelerating Biodiversity Action: A Strategic Roadmap for the Business and Private Sector (2025) is a critical step towards establishing agreed metrics. Corporate frameworks and early voluntary TNFD adoption represent progress, supported by Bursa Malaysia's enhanced listing requirements and the National Sustainability Reporting Framework (NSRF).

Innovative Finance Tools: The use of green sukuk, bonds, sustainability-linked loans, and blended finance is emerging. The Climate Finance Innovation Lab (CFIL), launched in June 2025, has onboarded 30 projects with combined funding needs exceeding RM4.0 billion, developing blended finance approaches for nature-positive actions.

Partnerships for Finance: The €30 million EU-ASEAN biodiversity financing package (2025) includes a Nature Solutions Finance Hub and a Small Grants Programme for community-led projects.

2.3 Strategy Area III: Mainstreaming Biodiversity Across Society

Lasting change depends on building a widespread conservation ethic, where empowered communities, an informed public, and a new generation of stewards actively champion biodiversity as integral to national identity, well-being, and sustainable development. Malaysia's approach is a comprehensive, whole-of-society strategy guided by NPBD Goal 1 and the KMGBF.

Action 5: People everywhere have relevant information, awareness and capacities for sustainable development and lifestyles.

Malaysia's implementation is a large-scale, integrated effort structured across three mutually reinforcing domains: mobilising the nation, educating for life, and mainstreaming biodiversity into culture and economy.

ANNEX 4: REPORT ON MALAYSIA'S PROGRESS IN IMPLEMENTING CBD'S LONG-TERM STRATEGIC APPROACH TO MAINSTREAM BIODIVERSITY

National Awareness at Scale: High-impact campaigns like Save Our Malayan Tiger have raised over RM2.5 million and placed biodiversity in mainstream media. Nationwide celebrations of International Biodiversity Day reach thousands annually.

Foundation in Formal Education: Programmes like SERASI and Eco-Schools embed environmental values into school culture, with 1,500 schools in Sabah and Sarawak involved and 83 schools nationally active in the Eco-Schools network, 26 of which have achieved the Green Flag award.

Experiential and Leadership Development: Hands-on learning is provided through institutions like the Rainforest Discovery Centre (32,689 participants from 2020-2025) and national campaigns like the 100 Million Tree Planting Campaign (over 137 million trees planted, exceeding its target). Advanced programmes like the ASEAN Youth Biodiversity Leaders and Sarawak Youth Green Leaders fellowships cultivate skilled advocates.

Empowering Communities as Partners: IPLCs are transitioning from stakeholders to primary stewards. They are employed as forest rangers in the Central Forest Spine, trained as Honorary Wildlife Wardens in Sabah, and engaged as scientific partners in camera trapping surveys in Lanjak Entimau. In Sabah's marine conservation, 17 IPLC groups steward over 12,000 hectares, actively leading coral restoration.

Catalysing Local Stewardship: The Sabah Community Environmental Leadership Camp provides mini-grants for participants' own conservation projects. The Tioman Community Marine Conservation Group reported that 80% of participants gained deeper ocean knowledge and committed to behavioural change.

Mainstreaming into Culture and Economy: Awareness is linked to market choices through partnerships like the AEIOU Financial Literacy and Biodiversity Programme in schools and the documentary series *Layar Liar Malaysia*. Citizen science initiatives, such as the Friends of Bukit Kiara firefly monitoring project, translate public awareness into direct action.

Cross-Cutting Outcomes: This multi-layered strategy is building a robust pipeline from awareness to action. It directly advances multiple SDGs: SDG 4 through formal and non-formal programmes; SDGs 12, 13, 14, 15 by creating a social license and capacity for conservation action; and SDG 17 by employing partnerships as the core operational model across government, NGOs, academia, private sector, and communities.

3 KEY CHALLENGES AND THE WAY FORWARD

Despite robust policy foundations, Malaysia faces persistent challenges to mainstreaming biodiversity.

Valuation of natural capital. The economic value of biodiversity is not yet systematically integrated into policy appraisals or land-use decisions, compounded by state fiscal dependency on land-based revenue.

Integration into financial systems. While frameworks like the CCPT exist, biodiversity integration remains underdeveloped. The absence of a national biodiversity taxonomy and voluntary nature-related disclosures mean biodiversity is not yet a routine factor in investment decisions.

Implementation and enforcement gaps. Policy application is uneven. State flexibility in adapting the ESA framework has led to inconsistent classification and enforcement. The project-level focus of EIA limits its ability to address cumulative impacts. Climate-centric decarbonisation goals often sideline biodiversity safeguards.

Stakeholder empowerment. Full empowerment of IPLCs is hampered by lack of formal recognition of Native Customary Rights (NCR). Business involvement, especially SMEs, often remains limited to short-term CSR.

Strategic priorities:

- **Scale models and strengthen enforcement.** Codify proven frameworks into sector-wide standards. Mandate Strategic Environmental Assessment (SEA) for spatial plans.
- **Finalise biodiversity finance architecture.** Implement a national biodiversity taxonomy. Establish a pathway to mandatory nature-related disclosures for high-impact sectors.
- **Build coherence and cross-sectoral capacity.** Integrate biodiversity safeguards into climate roadmaps. Launch training programmes for planners, financiers, and SMEs.
- **Secure resources and empower partnerships.** Scale blended finance. Accelerate formal recognition of NCR. Use the Business Blueprint and Government Green Procurement to shift private sector action from CSR to core strategy.

Malaysia's journey hinges on implementing at scale — enforcing standards, valuing nature in the economy, building capacity, and funding equitable partnerships.



ANNEX 5

REPORT ON MALAYSIA'S PROGRESS IN IMPLEMENTING GLOBAL STRATEGY FOR PLANT CONSERVATION

INTRODUCTION

This Annex reports Malaysia's progress on the Global Strategy for Plant Conservation (GSPC) 2020–2030, which supports the KMGBF. The GSPC's 41 Actions contribute to 21 of 23 KMGBF targets. The Strategy recognises plant diversity as foundational to ecosystem integrity, climate resilience, and sustainable development. It aligns national priorities with the KMGBF.

While some KMGBF targets are supported by multiple GSPC Actions, Targets 17 (Biosafety) and 18 (Elimination of Harmful Incentives) are advanced indirectly through Malaysia's broader plant conservation activities, such as ecosystem protection and sustainable land management.

Progress is detailed below according to the GSPC's three strategic areas:

- **Strategic Area I:**
Integrating Plant Conservation into Government Policies, Planning and Management.
- **Strategic Area II:**
Sustainable Use, Production Landscapes and Climate Action for Plant Conservation.
- **Strategic Area III:**
Knowledge, Capacity, Participation and Public Awareness.

STRATEGIC AREA I: INTEGRATING PLANT CONSERVATION INTO GOVERNMENT POLICIES, PLANNING AND MANAGEMENT

This strategic area focuses on embedding plant conservation into national and sub-national governance systems, spatial planning, environmental regulation, and public sector decision-making.

Action 1: Plant Conservation in Spatial Planning and Management Processes

Malaysia has embedded plant conservation into spatial planning under NPBD Target 3. The National Physical Plan, State Structure Plans, and Environmentally Sensitive Area (ESA) framework guide development away from critical habitats, indirectly protecting plant diversity at landscape scale. Planning certainty has been enhanced by the finalised Protected Area Master List (2023) and amendments to the National Forestry Policy and prohibitions on mining in sensitive areas.

State-level leadership is advanced. The Sabah Biodiversity Strategy 2024–2034 and the Sarawak Biodiversity Master Plan (2023–2030) set ambitious conservation targets and integrate biodiversity into land-use planning.

Action 2: Ecological Restoration

Malaysia's implementation of Action 2 aligns with NPBD Target 9 through an integrated restoration model. It combines science-based prioritisation, state programmes, community partnerships, and innovative financing.

Restoration is increasingly guided by national ecosystem mapping and condition assessments. A major milestone is the advancement of the Red List of Ecosystems (RLE) assessment, with the Forest Research Institute Malaysia (FRIM) completing national mapping of terrestrial and transitional ecosystems. The Malaysian Biodiversity Centre (MBC) complements this through coordination of degraded site data to support inter-agency planning and prioritisation.

Large-scale forest restoration outcomes:

- Sarawak: 137,178 ha restored (68.6% of its 2030 target), ~52 million trees planted.
- Sabah: ~25,000 ha rehabilitated, including 14,009 ha under Innoprise–IKEA and 11,612 ha in Bukit Piton.
- Peninsular Malaysia: 1,720 ha restored with 1,034,301 native trees, exceeding targets.
- The 100 Million Tree Planting Campaign surpassed its target with over 137 million trees planted (January 2026).

Peatland restoration under the Sustainable Management of Peatland Ecosystems in Malaysia (SMPEM) project (2020–2026) strengthened hydrological rehabilitation, fire prevention, and community engagement. Peat swamp forest reserves in Pahang and Selangor recorded fire reduction, demonstrating improved ecosystem resilience.

Coastal and marine plant restoration has advanced at scale:

- Over 9 million mangrove trees were planted across 3,822 hectares nationwide. Sabah's Mangrove Action Plan (2024–2033) integrates protection, restoration, and spatial mapping, safeguarding one of Malaysia's most intact mangrove systems.
- A decade-long seagrass restoration project at Merambong Shoal (Johor) achieved a 66% seedling survival rate using multi-species planting approaches.

FRIM provides technical guidance on native species selection, forest genetic resources, and degraded land rehabilitation, including long-term research at Bidor Forest Research Station on ex-mining land. Pilot initiatives such as Sarawak's seedball restoration trials and peatland rehabilitation in Lavang Estate further demonstrate scalable, science-driven approaches. These contributions also support improved species-site matching, restoration success rates, and the long-term resilience of restored ecosystems.

The next phase focuses on long-term monitoring, sustainable financing, sectoral integration, and enhanced protection for rare ecosystems by 2030.

Action 3: Important Areas for Plant Diversity

Malaysia's protected area network provides a strong foundation for in situ plant conservation under NPBD Target 8. As of late 2025, the system comprises approximately 723 sites covering 14.83% of terrestrial and inland waters and 5.34% of coastal and marine areas. These secure major forest formations, freshwater systems, limestone karsts, mangroves, peat swamps, and montane ecosystems with high plant endemism.

Scientific prioritisation is increasingly guided by the national Red List of Ecosystems (RLE), with FRIM completing nationwide ecosystem mapping. The RLE identifies threatened ecosystem types—such as lowland dipterocarp forests, peat swamp forests, and coastal vegetation—and informs spatial planning, protected area expansion, and habitat management, strengthening links between science and policy.

Ecosystem-specific mapping is improving the visibility of under-recognised habitats. Remote sensing analysis shows *Melaleuca cajuputi*

(gelam) forests declined from 41,520 hectares in 1997 to 22,879 hectares in 2020, concentrated in Terengganu (64.5%) and Kelantan (27.8%). This mapping provides critical data for a habitat often overlooked due to its low commercial value.

Targeted identification of Important Plant Areas (IPAs) is further strengthening site-level prioritisation. In Perak, researchers used Species Distribution Modelling (MaxEnt — a machine learning method) combined with GIS-based Multi-Criteria Decision-Making (GIS-MCDM) to identify priority areas for Dipterocarpaceae.

Results indicate that 65% of species richness areas occur in central and southern Perak, and 35% in the north. The analysis identified eight IPAs, of which six are within protected areas and two are outside.

While IPAs are not a legal designation, they support in situ conservation and complement existing frameworks including Protection Forests, Protected Areas, Key Biodiversity Areas, High Conservation Value Areas, and Important Bird Areas. This work contributes to Target 5 of the GSPC and aligns with NPBD Target 8.

GELAM FOREST CONSERVATION THROUGH SCIENCE, RESTORATION AND COMMUNITY PARTNERSHIP

The Gelam forest conservation initiative in Peninsular Malaysia demonstrates an integrated, science-based approach to managing coastal and wetland ecosystems through strong partnerships and community participation. Gelam forests (*Melaleuca* spp., particularly *Melaleuca cajuputi*) are ecologically important for biodiversity, hydrological regulation, coastal protection, and local livelihoods, but are increasingly threatened by land-use change and degradation.

Between 2023 and 2025, WWF-Malaysia, in collaboration with the Terengganu State Park Management Council, Terengganu State Forestry Department, Department of Wildlife and National Parks Peninsular Malaysia (PERHILITAN), United Nations Development Programme (UNDP), Setiu Adventure Park, and Universiti Sultan Zainal Abidin (UniSZA), implemented coordinated conservation actions in Terengganu's gelam landscapes.

Four scientific studies generated baseline data on wildlife presence, habitat condition, and ecological connectivity across gelam forests and associated riparian corridors. These findings informed targeted interventions, including enrichment planting and hydrological management, to enhance ecosystem function and strengthen protection measures.

Community-based restoration under the Malaysia-UN SDG Trust Fund engaged the Gelam Cure



community in Setiu, resulting in the planting of 1,000 gelam trees, establishment of a community nursery, and training in seedling production and digital monitoring. About 20 local women and youth participated in restoration activities and sustainable gelam-based enterprises aligned with GMP standards, culminating in the establishment of the Gelam Cure Centre in 2025.

This initiative demonstrates a scalable model that integrates science, restoration, and community stewardship to conserve fragile wetland ecosystems while enhancing local livelihoods.

State-level expansion has strengthened botanically important landscapes. Sabah protects 27.3% of its terrestrial areas (targeting 30%), including the Kinabatangan Biosphere Reserve (413,866 hectares). Sarawak has gazetted 2.1 million hectares of Totally Protected Areas, including Tutoh-Apoh and Bako National Parks. Peninsular Malaysia retains 4.85 million hectares of Permanent Reserved Forest, with 1.98 million hectares (40.7%) designated as Protection Forests, alongside the gazettement of Perlis State Park (961 hectares).

Management effectiveness is increasingly embedded to secure durable botanical outcomes. Between 2023 and 2025, 16 protected areas in Peninsular Malaysia underwent Management Effectiveness Tracking Tool (METT) assessments.

National workshops in November 2024 and June 2025 advanced operationalisation of Other Effective Area-based Conservation Measures (OECMs). These expand conservation pathways to include community-managed forests, water catchments, and High Conservation Value areas within production landscapes.

Together, these measures strengthen landscape-scale protection for Important Areas for Plant Diversity and provide a structured foundation for closing remaining representation gaps by 2030.

STRATEGIC AREA II: SUSTAINABLE USE, PRODUCTION LANDSCAPES AND CLIMATE ACTION FOR PLANT CONSERVATION

This strategic area addresses the sustainable use of plant resources, conservation in production landscapes, and the role of plants in climate mitigation and adaptation.

Action 4: Plant Species Conservation and Conservation of Genetic Diversity

Malaysia has strengthened the scientific and institutional basis for conserving threatened plant species and genetic diversity under NPBD Target 11. Red List assessments for Peninsular Malaysian plants, dipterocarps, and fungi have improved prioritisation. Systematic forest biodiversity expeditions (2021–2025), involving over 900 researchers, have expanded baseline data on plant diversity and distributions.

Taxonomic research remains a cornerstone of species conservation. The publication of Flora of Peninsular Malaysia Series II: Seed Plants, Volume Eight documents 13 plant families comprising 139 species, with nearly 30% assessed as threatened.

The volume reflects strong collaboration between FRIM taxonomists and international institutions, and highlights important discoveries, including new species (*Polyosma collina*), new national records (*Aeginetia indica*), the rediscovery of the rare *Nymphoides aurantiaca*, and the recognition of new plant families in Peninsular Malaysia. Importantly, it also identifies Orobanchaceae as the family with the highest proportion of threatened species, underscoring critical conservation priorities. Such taxonomic and conservation assessments provide essential baseline knowledge for habitat mapping, species recovery planning, and targeted conservation interventions.

Ex-situ conservation is supported through botanical gardens, seed banks, arboreta, and germplasm centres. FRIM maintains significant living collections, seed banks, and forest genetic resource repositories, supporting threatened native tree species conservation, provenance research, and long-term genetic safeguarding for restoration and climate resilience. MARDI maintains extensive living collections and seed banks comprising over 20,000 accessions of crops and wild plant species, strengthening safeguards for genetic diversity relevant to food security, restoration, and climate adaptation. Propagation, safeguarding, and restoration programmes are being implemented through institutions such as Putrajaya Botanic Gardens and Penang Botanic Gardens, and state agencies to secure highly threatened species.

In Sabah, DNA barcoding of fungi across major conservation areas and the development of a Bornean Fungi Action Plan represent important advances in addressing previously underrepresented taxonomic groups. These initiatives enhance the genetic foundation for restoration, recovery, and climate adaptation, contributing directly to KMGBF Target 4.

Action 5: Sustainable Harvesting and Trade in Plants

Regulation of plant harvesting and trade has been strengthened through integrated enforcement and sustainability frameworks under NPBD Target 12, reducing pressure on threatened plant species. Malaysia continues to enforce CITES controls on high-risk taxa such as *Aquilaria spp.* and *Gonystylus spp.*, supported by forestry legislation, strengthened penalties under amended wildlife and trade laws, and improved inter-agency coordination.

FRIM provides scientific support through timber identification services, forest genetic resource research, sustainable harvesting guidelines, and Reduced Impact Logging (RIL) protocols that

underpin Sustainable Forest Management (SFM) certification standards. Its research on *Aquilaria* domestication and silviculture contributes to reducing pressure on wild populations.

The Sarawak Forestry Corporation (SFC) and Forest Department Sarawak (FDS) enforce harvesting regulations within Totally Protected Areas and Permanent Forest Estates, monitor compliance in licensed forests, and oversee CITES-related permitting for ramin and other regulated taxa. In Sabah, the Sabah Forestry Department (SFD) implements Sustainable Forest Management across Forest Reserves and applies certification requirements that include habitat retention, protection of High Conservation Value areas, and monitoring of endangered, rare, and threatened (ERT) plant species. Together, these institutions ensure that certified forests and production landscapes function as buffers and refugia for native flora.

Action 6: Monitoring and Controlling Invasive Species

Malaysia has advanced early-stage implementation of a coordinated invasive alien species (IAS) framework under NPBD Target 13, guided by the National Action Plan on IAS (2021–2025). National coordination mechanisms strengthened quarantine controls, and pilot surveillance systems have been established.

FRIM contributes through research on forest health, invasive plant ecology, restoration responses, and long-term ecosystem monitoring. Its data supports evidence-based risk assessments and adaptive management approaches.

In Sabah, the Sabah Forestry Department (SFD) integrates invasive species management into forest reserve management plans, while the Sabah Biodiversity Centre (SaBC) supports coordination, research permitting, and biodiversity data consolidation relevant to IAS risk assessment and ecosystem monitoring. In Sarawak, the Forest Department Sarawak (FDS) and Sarawak Forestry Corporation (SFC) conduct field surveillance within Totally Protected Areas and Permanent Forest Estates, integrating IAS considerations into management planning and enforcement operations. These institutional roles strengthen early detection, site-level response capacity, and protection of native plant communities across key landscapes.

Action 7: The Impact of Pollution on Plants

Pollution pressures affecting plant diversity are addressed through strengthened environmental regulation, environmental impact assessment, and sectoral standards under NPBD Target 9 and broader sustainability policies. Protection and restoration of peatlands, riparian buffers, wetlands, and coastal ecosystems have delivered co-benefits for water quality and soil stability, indirectly reducing pollution stress on plant habitats. These integrated measures contribute positively to KMGBF Target 7.

Action 8: Native Plant Use in Climate Mitigation and Adaptation

Malaysia prioritises native plant ecosystems as nature-based climate solutions under NPBD Targets 9 & 10. Examples include community-scientist forest restoration in Lower Kinabatangan, Orang Asli-led agroforestry in Johor, and Bidor Forest Research Station where a 121-ha ex-mining site now hosts over 110 native tree species.

Scientific assessments guide prioritisation, showing nearly 50% of 458 evaluated native vascular plants are threatened. Innovations like seedball technology and complementary invasive species controls further support these climate-focused restoration efforts.

Action 9: Plants for Peoples' Needs

Community-based conservation and sustainable use of plant resources continue to support food security, livelihoods, and cultural values, particularly among Indigenous Peoples and Local Communities (IPLC). Across Malaysia, community-led restoration, agroforestry, and customary land stewardship initiatives are embedded within landscape-scale conservation and restoration programmes.

FPIC-based approaches underpin several community conservation initiatives documented under NPBD Targets 8 and 9. For example, participatory mapping and community stewardship models have supported the conservation and restoration of forest and riparian landscapes across multiple sites, including river-basin and biosphere reserve contexts covering more than 400,000 hectares in Sabah alone. Indigenous agroforestry restoration initiatives integrate native plant species, traditional cropping systems, and livelihood models, directly linking plant conservation with income generation, food security, and cultural continuity. These approaches align plant conservation with human well-being and contribute directly to KMGBF Target 9.

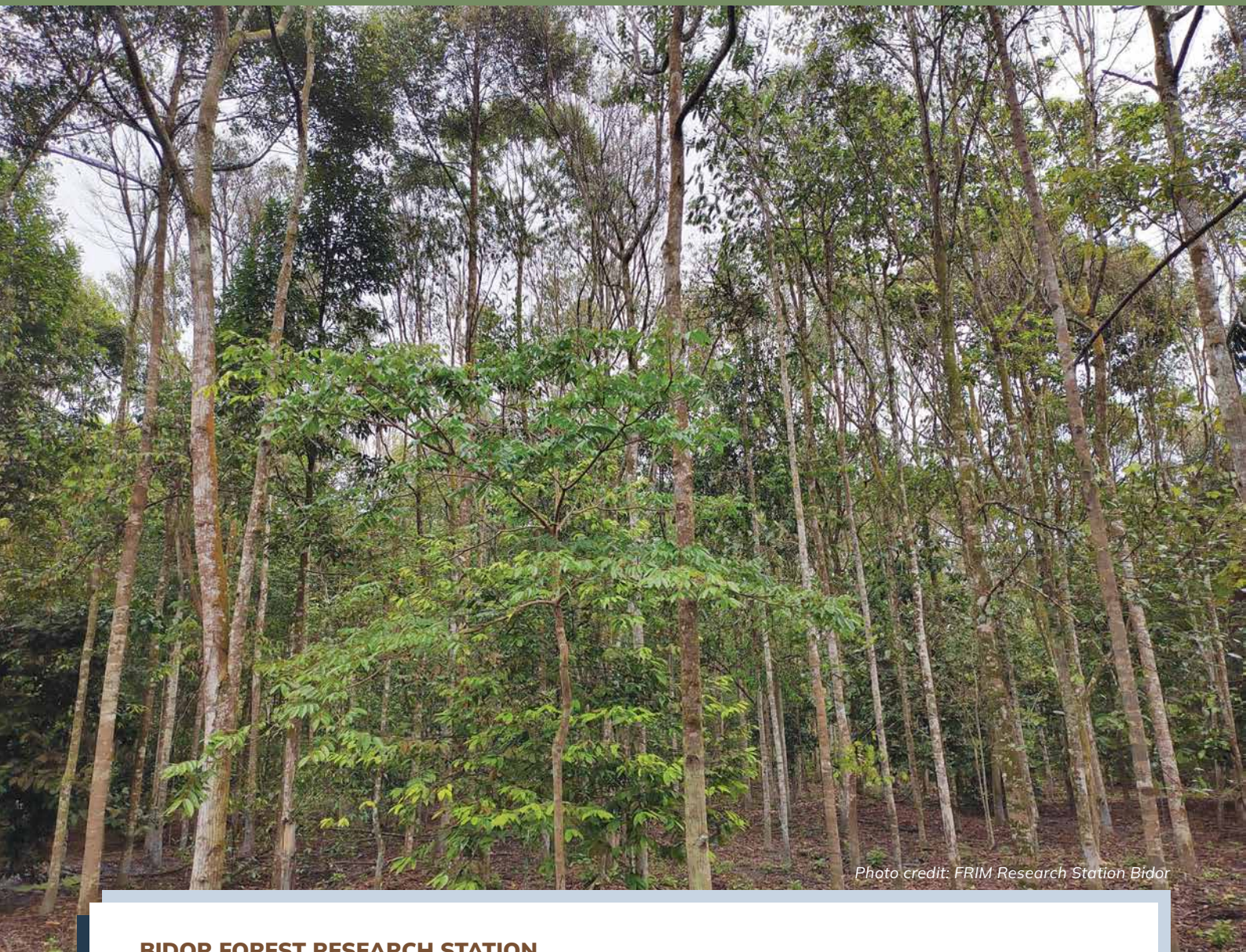


Photo credit: FRIM Research Station Bidor

BIDOR FOREST RESEARCH STATION

The FRIM Research Station in Bidor, Perak, stands as a flagship example of science-based ecological restoration on severely degraded land. Established on an ex-tin mining site, the 121-hectare area has been transformed over two decades into a thriving man-made forest ecosystem.

Its achievements are both ecological and technical. The site now supports over 110 native tree species, along with diverse bird and fungal communities, demonstrating successful biodiversity recovery under highly challenging conditions. It has also contributed significantly to research on carbon sequestration and restoration methodologies.

What sets Bidor apart is its evidence-based afforestation model. Techniques were developed

to address extreme soil infertility, heavy metal contamination, and harsh microclimates—conditions typical of post-mining landscapes. The phased planting strategy, beginning with hardy pioneer species followed by enrichment planting, has proven highly effective.

A key learning point is that even the most degraded landscapes can be restored with the right combination of science, patience, and adaptive management. The Bidor model is highly scalable, particularly in similar regions with post-mining or industrial degraded lands. Its recognition in the Malaysia Book of Records underscores its potential as a national and regional demonstration site for restoration excellence.

Action 10: Sustainable Management of Production Land

Malaysia implements the sustainable management of production landscapes through mandatory certification schemes for forestry, palm oil, and agriculture, reinforced by High Conservation Value (HCV) and ecological corridor protection under NPBD Targets 8, 9, and 10. In Peninsular Malaysia, 4.85 million hectares of Permanent Reserved Forest are retained, with 1.98 million hectares (40.7%) legally designated as protection forests.

Certified production forests and plantations are required to retain riparian buffers, steep slopes, peatlands, and areas supporting endangered, rare, and threatened (ERT) plant species. Restoration set-asides and corridor rehabilitation within these landscapes contribute to connectivity objectives, such as those under the Central Forest Spine initiative. These measures ensure production landscapes function as buffer zones, refugia, and ecological corridors for native flora, directly advancing KMGBF Target 10.

Action 11: Native Plants and Ecosystem Functions and Services

Plant diversity underpins ecosystem services essential to human well-being in Malaysia, including flood regulation, water purification, soil stability, coastal protection, and climate resilience. Ecosystem-based management and restoration initiatives have delivered measurable service outcomes across multiple ecosystems. Peatland restoration reduced burned areas in peat swamp forest reserves of Pahang and Selangor, significantly lowering air and water pollution risks and protecting peat-adapted plant communities.

STRATEGIC AREA III: KNOWLEDGE, CAPACITY, PARTICIPATION AND PUBLIC AWARENESS

This strategic area focuses on enabling conditions for plant conservation through information systems, capacity building, and inclusive participation.

Action 12: Urban Green Infrastructure and Urban Plant Diversity

Malaysia continues to expand urban green infrastructure—including parks, botanical gardens, forest reserves, water catchments, and river buffers—to conserve plant diversity while enhancing climate resilience and community well-being.

In Sarawak, public parks are gazetted under the Park and Green Ordinance 1993. In Peninsular Malaysia, approximately 2.9 million hectares of water catchment protection zones outside Totally Protected Areas have been identified as potential Other Effective Area-Based Conservation Measures (OECMs), many in urban-adjacent landscapes.

A study of three parks in Kelantan recorded high plant diversity (Species Diversity Index: 0.88–0.96) and confirmed that urban green spaces support native flora, provide wildlife habitat, and improve microclimatic conditions. To support evidence-based management, the Flora & Fauna Inventory Information System (SMIFF) was developed to help local authorities maintain biodiversity assets.

These initiatives contribute directly to KMGBF Target 12.

Action 13: Access and Benefit-Sharing

Malaysia implements access and benefit-sharing (ABS) measures in line with the Nagoya Protocol, governing access to plant genetic resources for research, breeding, and commercial use. The national ABS framework is anchored in the Access to Biological Resources and Benefit Sharing Act 2017, complemented by state-level legislation and operational systems in Sabah and Sarawak. ABS implementation is supported by designated competent authorities and established administrative procedures, including online permitting systems such as SaBAES (Sabah) and institutional mechanisms such as SORAS led by the Sarawak Biodiversity Centre.

FPIC-based engagement with IPLC is a core operational requirement, particularly where traditional knowledge is involved. As of January 2026, five Benefit-Sharing Agreements (BSAs) involving plant genetic resources have been signed (four in Sarawak and one in Sabah), covering applications in personal care, cosmeceuticals, nutraceuticals, pet care products, and phytoextraction. These BSAs involve more than 20 Indigenous communities and include capacity building, direct payments, and revenue-sharing from product sales. Collectively, these measures strengthen equitable participation, safeguard traditional knowledge related to crops and medicinal plants, and enhance governance of plant genetic resources, contributing to KMGBF Target 13.

Action 14: Tools for Mainstreaming Plant Conservation

Malaysia has strengthened biodiversity integration into planning, assessment, and decision-making tools. Spatial planning instruments, Environmental Impact Assessments (EIAs), and sustainability certification schemes increasingly reflect plant diversity considerations. National data consolidation through MyBIS, the Protected Area Master List (723 protected areas as of 2025), and emerging OECM frameworks improves visibility and consistency of plant-related information across federal and state agencies.

Complementary spatial tools include the Ecosystem Integrity Index (EII). Refined for lowland dipterocarp forests using satellite imagery (Sentinel-2, Landsat-8) and field plots, the EII—integrated with Aboveground Carbon Density Index—distinguishes intact forest from oil palm landscapes and detects logging and deforestation.

Action 15: Sustainable Practices in Plant Use

Sustainable practices in plant use are advanced through mandatory and voluntary certification schemes in forestry, palm oil, and agriculture, supported by regulatory safeguards and sustainability standards. Building on the protection framework described in Action 10, certification requires the identification and protection of High

Conservation Value (HCV) areas, retention of environmentally sensitive sites, and monitoring of endangered, rare, and threatened (ERT) plant species within production units.

Private-sector participation is reinforced through compliance requirements, market incentives, and supply-chain accountability mechanisms, encouraging improved sourcing and reduced ecological impact. The operationalisation of Malaysia's ABS framework further extends sustainability principles into downstream value chains, ensuring commercial use of plant genetic resources is conditional on legal access and equitable benefit-sharing.

Action 16: Sustainable Consumption

Sustainable consumption of plant-based resources is increasingly supported through certification schemes and regulatory controls which extend sustainability requirements beyond production into downstream value chains. Certification standards such as the Malaysian Timber Certification Scheme (MTCS) and Malaysian Sustainable Palm Oil (MSPO) promote responsible sourcing and consumer awareness. These mechanisms encourage responsible consumption patterns, improve transparency along plant-based value chains, and reduce unsustainable demand by embedding social and biodiversity safeguards into markets. Together, they support behavioural change, strengthen accountability, and contribute to KMGBF Target 16.

Action 19: Financial Resource for Plant Conservation

Malaysia has established a diversified financial architecture for biodiversity, substantially increasing resources for plant conservation in alignment with NPBD Target 17. The following table summarises the scale and growth of key financial streams:

Financial Stream	Key Metric (2021-2025)	Significance for Plant Conservation
Total Biodiversity Expenditure	Increased ~40% to RM2.63 billion (2025)	Demonstrates overall growth in resource mobilisation for biodiversity objectives.
Public Funding (Ecological Fiscal Transfer - EFT)	Annual allocation: RM60M → RM250M; Cumulative: RM800M	Directly enabled the gazettment of ~340,000 ha of new Protected Areas (terrestrial & marine).
Market-Based & Innovative Finance	Sovereign Sustainability Sukuk: USD 1.3B; Corporate SRI Sukuk: USD 8.45B (2024). First nature-based credit auction on Bursa Carbon Exchange (July 2024).	Scales sustainable finance; channels capital towards ecosystem services and forest conservation.
Private Sector Environmental Spend	Increased to RM3.64 billion (2025)	Highlights a strategic opportunity, with <1% currently allocated to wildlife and habitat conservation.

This core financial framework is reinforced by operational instruments including the National Conservation Trust Fund for Natural Resources (NCTF), which has financed 112 projects (RM22.62 million), and strategic initiatives like BIOFIN and state-level Payments for Ecosystem Services (PES) pilots that aim to improve finance targeting and mobilise nature-positive investment. Collectively, these mechanisms are strengthening the scale, diversity, and durability of funding required to advance KMGBF Target 19.



Photo credit: Sanjitpaal Singh / JITSPICS.COM

Action 20: Capacity Building

Between 2021 and 2025, Malaysia conducted 13 Scientific Expeditions on Forest Biodiversity nationwide, engaging over 900 participants from government agencies, universities, and research institutions. These strengthened expertise in plant diversity assessment and ecosystem monitoring. Specialised skills in plant taxonomy, conservation horticulture, seed banking, and genetic resource management remain strategic priorities. Ongoing collaboration with universities and international partners continues to build institutional and human capacity, supporting KMGBF Target 20.

Action 21: Public Awareness Programmes, Plant Information Systems and Citizen Science

National databases consolidate biodiversity records and protected area information, providing a baseline for ecosystem and species-level planning. FRIM manages the BRAHMS herbarium database for specimen and taxonomic records, complemented by thematic databases on bamboo and medicinal plants, the national MyBIS platform, and the FRIM Research Depository (FRED).

In addition, FRIM maintains specialised plant databases on priority taxa, including bamboo and medicinal and aromatic plants, namely [Bamboo Database] and [Herbs Database], which compile species-level data on taxonomy, distribution, characteristics, and uses.

Research outputs—including floristic inventories, Red List assessments, and ecological studies—alongside community-based monitoring and participatory mapping, expand data coverage and local stewardship. Improved access to biodiversity information supports evidence-based decision-making and public engagement, contributing to KMGBF Target 21.

Action 22: Plant Conservation and Traditional Knowledge

Traditional knowledge related to plant use, cultivation, and conservation is increasingly recognised through community-based conservation, restoration, and land stewardship initiatives. Indigenous Peoples and local communities contribute to the conservation of crop diversity, medicinal plants, forest species, and agroforestry systems. FPIC-based approaches underpin several community-led initiatives within forest, riparian, and coastal landscapes, including large-scale biosphere reserve contexts covering over 400,000 hectares. These approaches strengthen cultural continuity, enhance local stewardship, and ensure that plant conservation efforts respect customary practices and rights.

Action 23: Gender Equality

Malaysia is integrating gender-responsive approaches into its biodiversity and plant conservation programmes to promote inclusive participation, in alignment with KMGBF Target 23. As detailed in Annex 3 (CBD Gender Plan of Action), this work is supported by a structured national framework for gender mainstreaming.

Under this framework, women play essential roles in community-based plant conservation, including native plant nursery management, species monitoring, restoration planting, and developing sustainable livelihoods linked to non-timber forest products. The ongoing mainstreaming of gender equality across conservation and restoration initiatives strengthens social inclusion and enhances the overall effectiveness of plant conservation outcomes, ensuring the GSPC contributes to more equitable environmental governance.

STRATEGIC CHALLENGES AND FORWARD PATHWAYS

Malaysia has established strong enabling conditions for plant conservation, but mainstreaming the GSPC faces interconnected challenges. The pathways below address these challenges.

Deepening focus: ecosystems to plant-specific conservation. Plant-specific data remains uneven, constraining targeted recovery for non-tree flora and genetic resources outside protected forests. Malaysia will integrate plant indicators into national surveys, expand Red List assessments, and develop species recovery plans for the 2027 NPBD update.

Strengthening governance: multi-level coordination. Malaysia's federal structure creates coordination complexities, with inconsistent capacity across states for forestry, agriculture, and infrastructure. Malaysia will champion GSPC objectives within the 2027 NPBD update and establish federal-state technical committees for cross-cutting issues such as invasive species management and the Central Forest Spine initiative.

Ensuring sustainability: long-term, durable finance. Biodiversity finance remains predominantly project-based, limiting continuity and scaling. Malaysia will consolidate and expand public mechanisms like the EFT and NCTF, while engaging the financial sector to integrate biodiversity and gender metrics into corporate ESG reporting, channeling private capital toward nature-positive investments.

Building foundational capacity: specialised skill gaps. Plant conservation requires expertise in taxonomy, horticulture, seed banking, and genetic resource management — areas with current capacity constraints. Malaysia will enhance technical capacity through targeted training programmes, academic partnerships, and its network of research institutions.

By pursuing this integrated pathway, Malaysia will move from foundational ecosystem protection to effective, long-term plant-specific conservation required by the GSPC 2020-2030.





