More policies and laws, is it better for biodiversity conservation in Malaysia?

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Abstract
Malaysia is a megadiverse country, and it ratified the Convention on Biological Diversity (CBD) in 1994. Since then, Malaysia has initiated procedures to fulfill its obligations to this multilateral environmental agreement. Among the key developments are the formulation of national biodiversity policies and mainstreaming biodiversity in Malaysia. Drafting biodiversity-related policies and laws across different sectors is a means to an end in conserving biodiversity. However, the declining forest cover and the relatively high number of threatened species in Malaysia may indicate that biodiversity conservation is not working.

KEYWORDS
biodiversity laws, biodiversity policies, convention on biological diversity, governance, Malaysia

1 | INTRODUCTION
Malaysia is well known for its high level of biodiversity. Malaysia is recognized as one of the 17 megadiverse countries in the world in a list supported by Conservation International (CI) (Mittermeier, Robles-Gil, & Mittermeier, 1997). A main referral criterion for this list is a minimum number of 5,000 endemic species found in the country.

To date, Malaysia has ratified approximately 17 biodiversity-related multilateral environmental agreements (MEAs) to provide protection for its biodiversity. These MEAs complement each other in different aspects regarding their implementation methods to protect biodiversity. An example of an MEA that Malaysia has ratified is the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in 1978. This MEA was followed by the formulation of the International Trade in Endangered Species Act in 2008, which established an enforcement and jurisdiction basis for protecting plants and animals listed on the CITES Appendix I, II and III.

Another MEA directly related to biodiversity that Malaysia signed in 1992 is the Convention on Biological Diversity (CBD), and this MEA was ratified in 1994. Adherence to CBD's three overarching objectives is required: (1) the conservation of biological diversity, (2) the sustainable use of the components of biological diversity, and (3) the fair and equitable sharing of benefits arising from the utilization of genetic resources (Convention on Biological Diversity, 2020). As a signatory of the CBD, Malaysia is officially bound by the CBD and needs to initiate domestic procedures to implement the treaty. The CBD has become the driving force for the direction and efforts of conservation in Malaysia.

This paper presents an overview of biodiversity management after the ratification of the CBD in 1994 and also presents some dysfunction in the country's biodiversity governance and management, whereby the dysfunctionality is more correlated with the governance...
issue than the capacity factor (Lira-Noriega & Soberón, 2015). Malaysia is a country that started when Malaya (which is now Peninsular Malaysia) gained independence from Britain in 1957, with Sabah and Sarawak on Borneo Island joining in 1963 to formally form current day Malaysia.

As a country utilizing an electoral system, every 5 years (at maximum), general elections are held for Malaysians to exercise their rights to vote and to give a mandate to political parties to form a government. The first parliamentary election was held in 1959, and the 14th (and latest) general election occurred in 2018 (Figure 1).

2 | BIODIVERSITY MANAGEMENT BEFORE THE 14TH GENERAL ELECTION

The emphasis on biodiversity conservation is firmly rooted in the Malaysia’s 5-year plans, following the establishment of the guardian ministry and national policies on biodiversity. The Malaysia’s 5-year plans are development plans that direct the country’s agenda and resources with supporting policies, strategies and action plans for implementation, which began with the first Malaysia Plan (MP) from 1966 and lasted until 1970. The principle of biodiversity conservation as the building block of economic growth for Malaysia was established in the first MP and has been repeatedly emphasized in subsequent MPs (Abdul Ghani Aziz, 2013).

Malaysia is in the implementation phase of the 11th MP (2016–2020). In this plan and from its emphasis in previous MPs, the significance of biodiversity conservation has become more prominent and is now one of the six objectives, which is under the theme of “enhancing environmental sustainability through green growth.” A priority on conserving natural resources has been identified and has focused on empowering indigenous people and local communities in conservation as well as conserving both terrestrial and marine ecosystems.

The First National Policy on Biological Diversity was launched in 1998 under the purview of the Ministry of Science, Technology and Innovation (MOSTI) and contained 15 strategies and 85 action plans. In 2004, the Ministry of Natural Resources and Environment (NRE) was established as the guardian ministry for biodiversity conservation, and policy implementation was transferred from MOSTI to NRE. Then, the NRE initiated steps for mainstreaming biodiversity. The policy was subsequently revised to the National Policy on Biological Diversity 2015–2016, which consists of the structure of the goals,
targets, key indicators, actions and sub-actions (Table 1). Each level is intended to support the delivery of the structure above, and they are all measurable.

The policy revision was driven by the CBD’s Strategy Plan for Biodiversity 2011–2020, which is composed of 20 Aichi Biodiversity Targets (ABTs) as outcomes. All the parties, including Malaysia, of the convention agreed to translate the ABTs into a national policy using the ABTs as the framework. The resulting goals and targets in the revised policy are identical to the ABTs as they are a means for Malaysia to deliver ABTs. Some targets in the national policy could deliver one or more ABTs (Table A1).

Between the first policy in 1998 and the revised policy in 2016, Malaysia has been mainstreaming biodiversity with two levels of initiatives. First, biodiversity mainstreaming took place at the national level and became an emphasis in the development agenda in the country. For example, biodiversity conservation in the context of the nation’s sustainable development began to be promoted in the seventh MP (1996–2000) (Ministry of Natural Resources and Environment, 2006).

Second, the promotion of biodiversity conservation led to incorporating biodiversity elements in national policies across different sectors, including drafting legislation and amending acts, for example, the National Strategies and Action Plans on Agricultural Biodiversity Conservation and Sustainable Utilization by the Ministry of Agriculture and Agro-based Industry (MOA) and the National Ecotourism Plan 2016–2025 by the Ministry of Tourism, Arts and Culture Malaysia (MOTAC). All of these policies have made biodiversity a prominent feature for planning in different sectors.

3 IMPLEMENTATION OF THE FIRST NATIONAL POLICY ON BIOLOGICAL DIVERSITY 1998

The first National Policy on Biological Diversity 1998 was drafted 4 years after Malaysia ratified the CBD and was a simple policy that had 15 strategies. These strategies covered the implementation of knowledge management and sharing at the national and international levels, capacity building (e.g., personnel and institutional framework), policies and laws, private sector involvement, funding mechanisms, and a center for excellence in developing products derived from species richness in Malaysia.

Because of the inadequacies that were realized during the implementation of the first National Policy on Biological Diversity 1998, due to its concept generality for example an action plan in “attracting highly competent scientists to develop high technology in the field of biological diversity”, in 2014, Malaysia started the process of reviewing the policy. There were 29 multistakeholder consultations with representatives from government agencies, civil society, universities and certification bodies, such as the Roundtable on Sustainable Palm Oil (RSPO), in addition to hundreds of informal meetings with relevant stakeholders. The result was the more ambitious National Policy on Biological Diversity 2016–2025 that covered 17 targets. In contrast to the previous policy, the revised policy has a fixed 10-year time frame for implementation and clear deliverables and also identified relevant stakeholders (e.g., government agencies, NGOs and the private sector) for the listed action plans. More importantly, the policy is aimed at involving all walks of life (i.e., children to adults from different

| Goals | Number of targets | Number of key indicators | Number of actions | Number of sub-actions |
|-------|------------------|-------------------------|------------------|-----------------------|
| 1. We have empowered and harnessed the commitment of all stakeholders to conserve our biodiversity | 2 | 7 | 7 | 31 |
| 2. We have significantly reduced the direct and indirect pressures on biodiversity | 3 | 11 | 11 | 54 |
| 3. We have safeguarded all our key ecosystems, species and genetic diversity | 8 | 23 | 23 | 92 |
| 4. We have ensured that the benefits from the utilization of biodiversity are shared equitably | 1 | 1 | 1 | 10 |
| 5. We have improved the capacity, knowledge and skills of all stakeholders to conserve biodiversity | 3 | 13 | 13 | 58 |
| Total | 17 | 55 | 55 | 245 |
backgrounds) in biodiversity conservation, for example, through communication, education and public awareness (CEPA) activities and citizen science.

The 17 targets have included themes from the 1998 policy but with new areas, such as the empowerment of local and indigenous communities, ecotourism, protected area networks, vulnerable ecosystems, invasive alien species, agrobiodiversity, illegal wildlife trade, and the Nagoya Protocol on Access to Genetic Resources. However, the implementation status of the first policy in 1998 was not checked by the NRE, and the progress and development of the action plans in the first policy were not monitored or measured quantitatively. Therefore, the policy was subsequently replaced with the revised policy, which was the same for other policies for which the results are not available. The question is whether with a more ambitious revised policy in place, will these targets be more closely monitored?

4 | ENVIRONMENTAL- AND BIODIVERSITY-RELATED POLICIES AND LAWS

Malaysia has many environmental laws (Embong, 2015). There are at least 40 environment-related acts covering everything from terrestrial to marine to pollution and urbanization. Several new legislations have been passed (and some enacted) in the past decade, for example, the Biosafety Act 2007, International Trade in Endangered Species Act 2008 and Access to Biological Resources and Benefit Sharing Act 2017, to assist Malaysia in implementing the CBD. At the same time that new laws are created, certain existing laws are revised to anchor their relevance in the current scenario.

Before 2010, the Protection of Wildlife Act (PWA) 1972 protected wildlife in Malaysia. After 38 years, the act was replaced with the Wildlife Conservation Act (WCA) 2010. The penalty amount was increased to reflect the seriousness of wildlife crime; for example, the maximum fine amount was increased from RM 15,000 under the PWA to RM 500,000 under the WCA for offences such as hunting fully protected wildlife without a special permit. With the government treating wildlife offences as criminal activities, heavier punishments are applied. The minimum fine amount and maximum years of imprisonment were increased to reflect the government’s commitments to protecting wildlife.

Another revised legislation is the Environmental Quality Act 1974, in which some activities are related to agriculture, fisheries, forestry, and resort and recreational development. However, there is a long list of legislation processes that are due for revision in response to emerging challenges and increasing issue complexity, such as the Land Conservation Act 1960, National Parks Act 1980, National Forestry Act 1984 and Fisheries Act 1985. More laws such as these are considered obsolete and need to be reviewed or replaced. But, these acts of legislation are sectoral and segmented and make enforcement challenging (Wan Talaat, Mohd Tahir, Mohd Rusli, & Husain, 2013).

Malaysia has continued to show commitment to biodiversity conservation by formulating policies and passing laws. However, there are noticeable shortcomings in implementing these policies and laws (Mohammad, 2011; Naqiyuddin Bakar, 2018; Rahimullah Miah, Sayok, Sarok, & Belal Uddin, 2017; Wan Talaat et al., 2013). These shortcomings include the limitations of existing legislative frameworks, unclear administration of biodiversity management, and lack of an integration of policy in biodiversity management.

5 | THE 14TH GENERAL ELECTION CHANGED BIODIVERSITY GOVERNANCE

Since Malaysia gained independence in 1963, the country has been under the ruling of a political coalition, Barisan Nasional (BN), which is known as the National Front in English (Figure 1). The situation changed in the 14th General Election in 2018, when Pakatan Harapan (PH), which is known as the Alliance of Hope in English, took over. This change has led to landmark restructuring in biodiversity governance in Malaysia.

As a result, direct impacts on biodiversity governance were observed that occurred from a centralized, umbrella ministry toward decentralization management in conservation with its jurisdiction scattered over a few ministries. In 2004, the NRE was established in an effort to strengthen the institutional framework in implementing the National Policy on Biological Diversity 1998. For the first time, all biodiversity-related departments were brought under one ministry for better coordination and delivery of biodiversity goals. These departments were the Forestry Department, Department of Wildlife and National Parks, Department of Irrigation and Drainage, Department of Marine Parks, and Division of Environment and Climate Change. Some departments were transferred from other ministries to the NRE. For example, the Unit of Marine Parks fell under the MOA, a unit under the Department of Fisheries, which was moved and upgraded to become the Department of Marine Parks under the NRE to reflect its importance (Note: A unit is smaller than a department at the administrative level). Then, the Department of Biosafety was created in response to Malaysia’s ratification of the Cartagena Protocol on Biosafety. The institutional framework is an
enabling factor for biodiversity governance as part of capacity building (Selnes & Kamphorst, 2013), and the NRE was a milestone achievement for conservation in Malaysia in terms of streamlining administration.

In 2018, Malaysia had the 14th General Election. After the election, the portfolio of some ministries changed. First, the NRE was restructured into the Ministry of Land, Water and Natural Resources (KATS, an abbreviation of the Ministry’s name Kementerian Air, Tanah and Sumber Asli in the Malay language). As part of the restructuring outcomes, the Department of Marine Parks was moved back to the MOA and became a unit within its administrative capacity. The Environment and Climate Change Division was moved to the new Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC), which was previously known as the Ministry of Energy, Green Technology and Water, along with dropping the word “environment” for NRE.

For the first time, climate change is incorporated at the highest level, which is the ministerial level. However, the new structure may only indicate red tape in bureaucracy in regard to coordinating work for climate change. Management structures, protocols and fiscal planning will likely vary among ministries. Such a shift is not unusual in Malaysia’s administration, in which a department is moved to another ministry or a new department is created for the justification of the ministry’s new portfolio (often after a general election or when a new government is formed).

After a week of political crisis in February 2020, a new political coalition, Perikatan Nasional (PN), which is known as the National Alliance in English, became the ruling government with the appointment of the eighth Prime Minister as the National Alliance in English, became the ruling government with the appointment of the eighth Prime Minister. This event marked the latest structural change in biodiversity governance, and new cabinet ministers were accordingly announced. Additionally, the ministry that is responsible for natural resources now has a new name, which is the Ministry of Energy and Natural Resources (KATS, an abbreviation for Kementerian Tenaga dan Sumber Asli in the Malay language). MESTECC has reverted to its precedent ministry, which is the Ministry of Science, Technology and Innovation (MOSTI). In addition, a new Ministry of Environment was created. These ministries’ portfolios were not yet known at the time this manuscript was submitted for publication, partly because the country has been on partial lockdown since March 18, 2020.

6 CONTINUED OVERLAP AND COMPARTMENTALIZATION IN BIODIVERSITY MANAGEMENT

Governance and capacity are two priority issues that have been identified with regards to biodiversity policy implementation in Malaysia (Chee & Lim, 2014; Nagulendran et al., 2016; Naqiyuddin Bakar, 2018). Collaboration and coordination between cross-sectoral agencies is recommended to strengthen institutional frameworks in biodiversity management and other MEAs (Ministry of Natural Resources and Environment, 2006, 2008). Still, overlapping and compartmentalized biodiversity governance is not new in Malaysia (Saad, Hiew, & Gopinath, 2012), either before or after the 14th General Election and thus create gaps in policy implementation.

For marine parks and marine protected areas, three ministries have independent and, at the same time, redundant jurisdictions, namely, (1) MOA, (2) MESTECC, and (3) KATS. These jurisdictions are constituted by ministerial laws (i.e., MOA with respect to Fisheries Act 1985 and MESTECC with respect to Exclusive Economic Zone Act 1984 for marine environment preservation). As the Malaysia focal point for the CBD and the main custodian of the National Policy on Biological Diversity 2016–2025, KATS is focusing on biodiversity conservation goals.

Similar to the marine ecosystem, the energy and climate change issues have three ministries with relevant jurisdictions. The ministries that have shared responsibility in regard climate change issues are MESTECC, KATS and the Ministry of Primary Industries (MPI). The third ministry is relevant for certain major commodities, such as palm oil, rubber and timber.

Additionally, Malaysia is a federation of 13 states and three federal territories. Under the Federal Constitution, Article 74 defines the legislative powers of the federal and state governments. The State List on the Ninth Schedule includes land, mining, agriculture and forests in which the state has jurisdiction; while the Concurrent List consists of biodiversity protection and national parks. The latter refers to shared jurisdictional responsibilities among the federal and state governments. Because biodiversity conservation falls within the Concurrent List, a platform of Environment Ministers and State Executive Council Members Responsible for Environment (MEXCOE) was established for biodiversity-related ministers as well as representatives from the State Executive Council and State Economic Planning Unit to discuss environmental issues. Even with this high-level forum, it was determined that states have not incorporated biodiversity as an agenda in their development plans (Ismail, 2012). Furthermore, state laws on the environment have precedent as stipulated in the Federal Constitution.

The secretariat for MEXCOE was within the Division of Environment and Climate Change under the NRE (Figure 2). After the change of the ministries’ portfolios in 2018, KATS (previously known as NRE) lost the MEXCOE platform to MESTECC with the shift of the
division. A consideration by KATS was to establish a National Biodiversity Council as an alternative to continue the functions of MEXCOE for coordination and cooperation in conserving biodiversity, and there was no replacement platform. Meanwhile, the National Biodiversity Roundtable (NBR) took a long time to hold its first meeting, occurred in August 2019, 4 years after the Policy was formulated and almost halfway through the total timeframe of the policy. Some platforms that should exist are still missing aspects, such as working groups and a National Steering Committee.

Scenarios that are influenced and determined by political developments have created two obstacles in biodiversity conservation. First, red tape exists in the administrative coordination between ministries, and continuity is in doubt in terms of the uncertainty regarding previous efforts, while new efforts may need to start from scratch. These limitations of the disconnections and redundancies at the vertical (i.e., federal-state and MEXCOE) and lateral (i.e., between agencies) levels have weakened biodiversity management. Unorganized governance and patchy collaboration remain key factors causing failure in policy implementation (Hudson, Hunter, & Peckham, 2019).

7 | CAPACITY ISSUES

The successful implementation of MEAs is dependent on a country’s organizational capacity and enforcement (Bellamy & Hill, 2010). Apart from the aforementioned biodiversity governance, there are other issues related to capacity that are hindering the progress of biodiversity management. First, there seems to be little work and progress in increasing the involvement of indigenous peoples and local communities in conservation efforts at the local level. The exception is Sabah, where some NGOs are actively engaging with local communities in natural resource management. PACOS Trust, an NGO in Sabah, works in community conservation through projects such as sustainable harvesting of river fish. In Peninsular Malaysia, involving indigenous people indicates involving the Department of Orang Asli Development (JAKOA) (note: Orang Asli is a term in the Malay language that refers to indigenous peoples) so that they will be in agreement with biodiversity management. However, biodiversity conservation is not part of JAKOA’s development policies (Yaakob, 2014). Therefore, they do not have plans and resources (i.e., personnel and budget) to support community conservation involving indigenous people.

Programming and work continuity become fragmented with the rotation of personnel every 3–5 years in civil service at the federal ministry level. Administrative reforms were proposed under the fourth Prime Minister, who was in the office from 1981 to 2003 for 22 years (Hussain & Brahim, 2006). In addition, new staff members may not be aware of previous developments on certain subject matter and may create new initiatives. The constant rotation of civil servants means learning, expertise, and experience are lost due to the lack of institutional memory. Since land, water, and natural resources are under states’ jurisdiction and implementation, previous plans and discussions are discontinued between the federal and state governments when there are changes in
personnel. Then, state governments have to start consulting again with the federal government when new personnel are hired. Little advancement in biodiversity management is expected with this cycle repeating every few years. With the constant move-out and move-on of personnel and no one to be accountable for, policy implementation will not succeed (Hudson et al., 2019).

The global development of biodiversity management has evolved toward establishing monitoring mechanisms to measure the effectiveness of activities and programs. However, this development is not yet available in Malaysia. Implementation and enforcement are often conducted without knowing and linking the outcomes, such as impacts on biodiversity at the species and ecosystem levels as well as at the spatial and temporal scales. Moreover, gaps remain in regard to some challenges in equipment, manpower, expertise, and skills in existing law enforcement practices (Ariffin, 2015, 2018; United Nations Office on Drugs and Crime, 2017). It is unclear whether Malaysia is ready to build capacity in biodiversity monitoring instead of utilizing present institutional capacities and responsibilities. For example, there is a recommendation for a real-time task force (United Nations Office on Drugs and Crime, 2017). Continuing implementation is necessary, but it is unclear whether this implementation is meeting the goal of biodiversity conservation in terms of preserving species diversity and ecosystem health.

**8 | CONCLUSION**

Malaysia has met its requirements by establishing the necessary policies, strategies and action plans to demonstrate the country’s obligations to the CBD. However, from 2000 to 2017, Malaysia lost 25% of its tree cover (Global Forest Watch, 2019). Malaysia also became ranked as the country with the fourth highest amount of threatened species on IUCN Red List of Threatened Species dated March 2019 (International Union for Conservation of Nature, 2019). Biodiversity governance in Malaysia is still complicated regarding delivery of the National Policy on Biological Diversity 2016–2025 with the involvement of different ministries and agencies, especially with the changing political scenario. Management approaches, priorities in planning and decision-making, and fiscal and budgetary structure vary from ministry to ministry. Plagued with dragging capacity issues, mainstreaming biodiversity in different sectors by formulating biodiversity-related policies or making biodiversity a prominent feature has not currently brought impactful outcomes in conserving biodiversity in Malaysia.

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**CONFLICT OF INTEREST**

The author declares no conflict of interest.

**AUTHOR CONTRIBUTIONS**

The author is the sole author to this manuscript.

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No ethics approval required for the paper as it presents a perspective and summary on the status of biodiversity conservation in Malaysia.

**DATA AVAILABILITY**

No primary data is collected for this manuscript.

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**APPENDIX**

| No. | Aichi Biodiversity Target 2020                                                                 | No. | Targets on Malaysia’s National Policy on Biological Diversity 2016–2025                                                                 |
|-----|-----------------------------------------------------------------------------------------------|-----|----------------------------------------------------------------------------------------------------------------------------------|
| 1   | By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably | 1   | By 2025, more Malaysians are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably |
|     |                                                                                               | 2   | By 2025, the contributions of indigenous peoples and local communities, civil society and the private sector to the conservation and sustainable utilization of biodiversity have increased significantly |
| 2   | By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting system | 3   | By 2025, biodiversity conservation has been mainstreamed into national development planning and sectoral policies and plans |

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| No. | Aichi Biodiversity Target 2020                                                                 | No. | Targets on Malaysia’s National Policy on Biological Diversity 2016–2020 |
|-----|-----------------------------------------------------------------------------------------------|-----|-----------------------------------------------------------------------|
| 3   | By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions | 3   | By 2025, biodiversity conservation has been mainstreamed into national development planning and sectoral policies and plans |
|     |                                                                                               | 4   | By 2025, our production forests, agriculture production and fisheries are managed and harvested sustainably |
| 4   | By 2020, at the latest, governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits | 3   | By 2025, biodiversity conservation has been mainstreamed into national development planning and sectoral policies and plans |
|     |                                                                                               | 4   | By 2025, our production forests, agriculture production and fisheries are managed and harvested sustainably |
|     |                                                                                               | 5   | By 2025, tourism is sustainably managed and promotes biodiversity conservation |
| 5   | By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced | 6   | By 2025, at least 20% of terrestrial areas and inland water, and 10% of coastal and marine areas, are conserved through a representative system of protected areas and other effective area-based conservation measures |
|     |                                                                                               | 7   | By 2025, vulnerable ecosystems and habitats, particularly limestone hills, forests on ultrabasic soils, wetlands, coral reefs and sea grass beds, are adequately protected and restored |
|     |                                                                                               | 8   | By 2025, important terrestrial and marine ecological corridors have been identified, restored and protected |
| 6   | By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits | 4   | By 2025, our production forests, agriculture production and fisheries are managed and harvested sustainably |
| 7   | By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity | 4   | By 2025, our production forests, agriculture production and fisheries are managed and harvested sustainably |
| 8   | By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity | 3   | By 2025, biodiversity conservation has been mainstreamed into national development planning and sectoral policies and plans |
|     |                                                                                               | 4   | By 2025, our production forests, agriculture production and fisheries are managed and harvested sustainably |
|     |                                                                                               | 5   | By 2025, tourism is sustainably managed and promotes biodiversity conservation |
| 9   | By 2020, invasive alien species and pathways are identified and prioritized, priority species controlled or eradicated, and measures are in place to prevent their introduction and establishment | 11  | By 2025, invasive alien species and pathways are identified, priority species controlled and measures are in place to prevent their introduction and establishment |

(Continues)
| No. | Aichi Biodiversity Target 2020 | No. | Targets on Malaysia’s National Policy on Biological Diversity 2016–2020 |
|-----|--------------------------------|-----|---------------------------------------------------------------|
| 10  | Place to manage pathways to prevent their introduction and establishment | 12  | A comprehensive biosafety system inclusive of a liability and redress regime is in place to manage potential adverse impacts of modern biotechnology on the conservation and sustainable use of biodiversity and human health |
| 10  | By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning | 6   | By 2025, at least 20% of terrestrial areas and inland water, and 10% of coastal and marine areas, are conserved through a representative system of protected areas and other effective area-based conservation measures |
|     | 6   | By 2025, vulnerable ecosystems and habitats, particularly limestone hills, forests on ultrabasic soils, wetlands, coral reefs and sea grass beds, are adequately protected and restored |
| 11  | By 2020, at least 17% of terrestrial and inland water, and 10% of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascapes | 8   | By 2025, important terrestrial and marine ecological corridors have been identified, restored and protected |
|     | 8   | By 2025, important terrestrial and marine ecological corridors have been identified, restored and protected |
| 12  | By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained | 9   | By 2025, the extinction of known threatened species has been prevented and their conservation status has been improved and sustained |
|     | 10  | By 2025, poaching, illegal harvesting and illegal trade of indigenous wildlife, fish and plants are under control and significantly reduced |
| 13  | By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity | 13  | By 2025, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives is adequately conserved |
| 14  | By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable | 6   | By 2025, at least 20% of terrestrial areas and inland water, and 10% of coastal and marine areas, are conserved through a representative system of protected areas and other effective area-based conservation measures |
|     | 7   | By 2025, vulnerable ecosystems and habitats, particularly limestone hills, forests on ultrabasic soils, wetlands, coral reefs and sea grass beds, are adequately protected and restored |
| No. | Aichi Biodiversity Target 2020                                                                                                                                                                                                 | No. | Targets on Malaysia’s National Policy on Biological Diversity 2016–2020                                                                                       |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15  | By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15% of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification                      | 6   | By 2025, at least 20% of terrestrial areas and inland water, and 10% of coastal and marine areas, are conserved through a representative system of protected areas and other effective area-based conservation measures |
| 16  | By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation | 14  | By 2025, Malaysia is party to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization and has national legislation that is in force and operational |
| 17  | By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan | 2   | By 2025, the contributions of indigenous peoples and local communities, civil society and the private sector to the conservation and sustainable utilization of biodiversity have increased significantly |
| 18  | By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and full integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels | 14  | By 2025, Malaysia is party to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization and has national legislation that is in force and operational |
| 19  | By 2020, knowledge, the science base and technologies relating to biodiversity, its values functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied | 15  | By 2025, capacity for the implementation of the national and sub national-level biodiversity strategies, the CBD and other related MEAs has significantly increased |
| 20  | By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan 2011–2020 from all sources and in accordance with the consolidated and agreed process in the Strategy Resource Mobilization should increase substantially from the current levels. This target will be subject to changes contingent to resources needs assessments to be developed and reported by Parties | 16  | By 2025, knowledge and the science base relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are significantly improved and applied |
|     |                                                                                                                                                                                                                                  | 15  | By 2025, capacity for the implementation of the national and sub national-level biodiversity strategies, the CBD and other related MEAs has significantly increased |
|     |                                                                                                                                                                                                                                  | 17  | By 2025, there is a significant increase in funds and resources mobilized for the conservation of biodiversity from both government and non-government sources |

Source: Quek, 2018.