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**OCEAN ACCOUNTS PARTNERSHIP FOR
MALAYSIA
FINAL SCOPING REPORT**

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By

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Professor Dr Mary George has been appointed as Consultant for UNESCAP for the project on National Ocean Accounts in Malaysia, from January to December 2019. This Report is prepared in fulfilment of the requirements as part of the project.

Abbreviations

AMMin	ASEAN Ministerial Meeting on Minerals
AMTWG	The ASEAN Maritime Transport Working Group
ASEAN	Association of Southeast Asian Nations
AWGCME	ASEAN Working Group on Coastal and Marine Environment
AWGWRM	ASEAN Working Group on Water Resources Management
BMRI	Borneo Marine Research Institute
BOBLME	Bay of Bengal Large Marine Ecosystem Project
CBD	Convention on Biological Diversity 1992
CC-COE	Climate Change Center of Excellence
CCOP	The Coordinating Committee for Geoscience Programmes in East and Southeast Asia
CEPA	Communication, Education, Participation and Awareness
COASTFISH	Coastal Fisheries and Poverty Reduction Initiative
COBSEA	Coordinating Body on the Seas of East Asia
CTI	Coral Triangle Initiative
CTI-NPOA	Coral Triangle Initiatives Malaysia Plan of Action
DEM	Discrete Elements Method-NAHRIM
Dept.	Department
DID	Drainage and Irrigation Department
DOA	Department of Agriculture
DOE	Department of Environment
DOF	Department of Fisheries
DOFM	Department of Fisheries Malaysia
DoFS	Department of Fisheries Sabah
DRR	Disaster Risk and Reduction
EAFM	Ecosystem Approach to Fisheries Management
EQMP	Environmental Quality Monitoring Programme
EQMP-DOE	Environmental Quality Monitoring Programme of the Department of Environment
FAO	Food and Agriculture Organization

FMP	Fisheries Management Plan
G2G	Government to Government
GEF	Global Environment Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (German Company)
IAHR	International Association for Hydro-Environment Engineering and Research
IAPG	Inter Agency Planning Group
IEM	Institute of Engineers Malaysia
IMO	International Maritime Organisation
IOTC	Indian Ocean Tuna Commission
IPCC	Intergovernmental Panel on Climate Change
ISMP	Integrated Shoreline Management Plan
IUU fishing	Illegal, Unreported and Unregulated Fishing
IWRM	Integrated Water Resource Management
JCM	Joint China Malaysia
KATS	Kementerian Tanah, Air dan Sumber (Ministry of Water, Land and Natural Resources)
LKIM	Lembaga Kamajuan Ikan Malaysia (Fisheries Development Board of Malaysia)
Local univ.	Local Universities
MaCGDI	Malaysian Centre for Geospatial Data Infrastructure
Marine Dept	Marine Department Malaysia
MCS	Monitoring, Control and surveillance
MEA	Ministry of Economic Affairs
MEAs	Multilateral Environmental Agreements
MESTECC	Ministry of Energy, Science, Technology, Environment and Climate Change
MIMA	Malaysian Institute of Maritime Affairs
MMEA/APM M	Malaysian Maritime Enforcement Agency
MNRE	Ministry of Natural Resources and the Environment (former Ministry)
MOA	Ministry of Agriculture and Agro-based Industry
MoU	Memorandum of Understanding
MSJCE	Malaysia-Singapore Joint Committee on Environment

MSP	Marine Spatial Planning
NAHRIM	National Hydraulic Research Institute of Malaysia
NC2	Malaysia's 2nd National Communication Report to UNFCC
NCC	Technical Working Groups, CTI National Coordinating Committees
NCC	National Coordinating Committees
NCES	National Coastal Erosion Studies
NEM	New Economic Model
NGOs	Non-governmental organisations
NPOA CTI	National Plan of Action for the Coral Triangle Initiative
NPP-CZ	National Coastal Zone Physical Plan (Town & Country Planning Department)
NQAF	National Quality Assurance Framework
NSC	National Security Council
PEMSEA	Partnerships in Environmental Management of the Seas in East Asia
PLAN Malaysia	Federal Department of Town and Country Planning
RFC	The Revolving Fund Committee
RFN3	Third National Physical Plan
RFZPPN	Rancangan Fizikal Zon Pesisir Pantai Negara /National Physical Zone Coastal Plan
SEAFDEC	South-East Asia Fishery Development Center
Semporna PCA	Semporna Priority Conservation Area
SOA	State Oceanography Administration
TIHPA	Turtle Islands Heritage Protected Area
TNC	Malaysia's Third National Communication and Second Biennial Update Report to UNFCC
UM	University of Malaya
UMS	Universiti Malaysia Sabah
UNCLOS 1982	United Nations Convention on the Law of the Sea, 1982
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development
WorldFish	

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Executive Summary

National Ocean Accounts for Malaysia using the System of Environmental-Economic Accounting Framework

The project on National Ocean Accounts for Malaysia using the System of Environmental-Economic Accounting (SEEA) framework is a collaboration between the UNESCAP and the Department of Statistics Malaysia (DOSM) under the guidance of UNESCAP. Though discussions were underway since December 2018, the project materialized in January 2019. The UNESCAP has stated that the objective of this study is to develop technical guidelines and to conduct national case studies on ocean accounting. Two 3-day technical workshops are proposed to be held in Malaysia for selected stakeholders: one for capacity building and setting priorities, and another for compiling and analysing data. The result would be a pilot Ocean Account and enhanced partnerships among the Government of Malaysia, and regional and international stakeholders to integrate and apply available data for sustainably managing the ocean. This work has several benefits: first, it will assist with monitoring Malaysia's 11th Five-Year Development Plan and other initiatives, strategies and policies concerning the ocean. Secondly, the usefulness of ocean accounting in national and international fora will be seen. As Malaysia has used the SEEA framework before in addition to the System of National Accounts, this Project will add on to work done previously in collaboration with UN Statistics Division and ESCAP in fulfillment of the common commitment to Resolution 73/5.

This Project is important as the tremendous stressors on the oceans and its resources have been well-documented globally. These range from unauthorized and uninformed resource extractions to environmental challenges such as worsening eutrophication of coastal marine waters and ocean acidification that impact on mangroves, marine parks, biodiversity and conservation efforts, including the climate change phenomena that result in global ocean warming and sea-level temperature rise, floods in coastal areas, heavy siltation of coastal areas and of the sea-bed. It is necessary to determine the current state of knowledge and data in ocean governance in Malaysia.

To achieve the above objective, 20 stakeholders were selected for the first technical workshop for capacity-building and to set priorities. An assessment of their ocean-related concerns, data holdings and gaps in knowledge if any, was carried out to enable the Government of Malaysia to draft informed evidence-based policies and strategies, and a regulatory framework for the sustainable development of the oceans to meet the needs of inter-generational equity. The recent reshuffle in the Cabinet seems to have affected the Marine Parks Division of the Department of Fisheries as no information on the situation of marine parks in Malaysia was available on the official portal at the time of writing this Scoping Report. Efforts to contact Marine Parks Division personnel after the first technical workshop were also unsuccessful. The new ministry, Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC) as the custodian of data generated by the former National Oceanography Directorate of the former Ministry of Science, Technology and Innovation, was also unable to deliver any of the former data, due to technical server problems. A search for data on the MESTECC website yielded a result of 470 hits for the environment and when narrowed down to the marine sector far less. When the sites were

opened up, they very often contained statistical breakdown of topics but no situational reports. When there are multiple stakeholders with jurisdiction over ocean-related resource management, often on the ground, there is a conflict of jurisdiction over the territory with different levels of ownership and sometimes, rights of possession, its resources and its uses leading to bad governance. This is because institutional capabilities are not supervised periodically and the success or failure of their plans are often not documented leading to bad policies that are often not changed and worse still, mechanisms to change the bad policies are often not in place.

The Scoping Report is prepared on the basis of an initial scoping study done by desktop research on stakeholders and ocean-related resources, deliberations of the first technical workshop, pre-workshop meetings and compilation of replies to an ESCAP questionnaire. It was found that ocean governance was uncoordinated and fragmented as there were at least 10 ocean-related ministries and about 31 agencies involved in the management of the seas bordering Malaysia, namely, the Straits of Malacca, the Straits of Johore, the South China Sea and the Sulu-Sulawesi Seas. Furthermore, several policies on the environment were in place but there was no oceans policy. In Malaysia, where ocean-related subject-matter jurisdiction is split under the Federal Constitution between the Federal and State Governments through the Federal List, State List and Concurrent List, it is important for good ocean governance to adopt a management tool such as Marine Spatial Planning so that essential conversations addressing bad policies, strategies and action plans may be had that eventually serve to change bad policies or enhance good policies. There was also no indication of a regulatory impact assessment having been carried out either. While the Scoping Report was being prepared, the Prime Minister of Malaysia, Tun Dr Mahathir Mohamad raised the call for Malaysia to “be a true maritime nation” at the Langkawi International Maritime Exhibition in March 2019. This was an important development as it reaffirmed the urgency of having a streamlined ocean governance structure, a national oceans policy, adoption of marine spatial planning as a tool of management, a one-voice doctrine on the oceans and the need to conduct a regulatory impact assessment. The Scoping exercise has determined that none of these vital measures are in place in Malaysia today.

Specifically, a review of the country’s capacity to implement SDG 14 demonstrated that though oceans were integrated into national policies and indicative plans, in the governance landscape of SDG 14, there were implementation gaps leading to fragmented governance. An examination of the state of the resources such as fisheries, aquaculture, marine parks/ coral reefs (and ocean acidification), mangrove conservation, marine protected areas and biodiversity protection showed that though work had been done, it was not enough to put the country on the sustainable development pathway to satisfy inter-generational equity. In other words, there is no knowledge on how to pursue resource use from a sustainable perspective. Neither was there any study on marine ecosystem services rationing and protection as the seas bordering Malaysia were all part of larger marine ecosystems. This is particularly worrisome from the fisheries perspective because Illegal, Unreported and Unregulated (IUU) fishing still persists; the Asia-Pacific Fisheries Commission is unable to tackle IUU fishing here absent a regional fisheries management organization specifically for the region; and aquaculture production is declining for unknown reasons. Marine parks regulations exist but data on the official portal is not available and it is learnt from scientific research papers that coral reefs still suffer from bleaching, Reef check has been

privatized. The regulatory framework for mangrove conservation needs to be strengthened. The number of marine protected areas has increased but it is unknown whether deserving sites are protected. The imposition of no-take zones and moratoriums need to be publicized and recorded in a national register but this has not been done. Terrestrial biodiversity protection seems to be well underway but this is not matched for marine biodiversity. An examination of the state of the land-based sources of marine pollution, identified the volume of effort required to tackle this problem. A glimmer of hope in this context was that the marine water quality index had improved. However, monitoring was privatized and it was found that the private company had the relevant data holdings. Questions such as, was daily monitoring carried out or was monitoring done upon a careful selection of the timings to avoid bad results for the testing of marine waters, just before a flood or before the start of a coastal construction development were not highlighted. The Scoping Report highlights the Voluntary Reporting by Malaysia on Land-Based Sources of Pollution (LBS) on 28th September 2018, and the remaining challenges for land-based sources including tackling marine debris. Marine pollution from ships was well-regulated though port reception facilities could be much improved. Legal efforts to control atmospheric shipping emissions, and invasive alien species were in place, however, the scientific and technical aspects, could perhaps be better developed. There is a legal framework in place to handle shipping accidents and oil spills up to the ASEAN regional level. An examination of Malaysia's SDG partnerships and commitments such as the Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security and on climate change and disaster risk reduction were encouraging. However, the success of each of these partnerships was not further assessed.

Fifty-three stakeholders at the First National Workshop on Ocean Accounts for Malaysia, organized on 4th and 5th April 2019 at the DOSM, reviewed, responded and considered the priorities for further development by the Pilot. Four topics were adopted from these broad challenges (See Table 1). These were (1) Living resources (Straits of Malacca); (2) Protecting marine habitat (Peninsular Malaysia); (3) Ocean conservation (indicators); and (4) Klang Straits (land-based).

The topic '*Living Resources of the Straits of Malacca*' in terms of work to be done required the compilation of existing data for the area. The six-month output would require drawing up an Inventory of available data and the running of Test accounts for extent & conditions. It was a Proposal for analytical project. It required a collaboration between DOSM and the State & local authority, Forestry, Department of Fisheries, Ministry of Water, Land and Natural Resources (KAT), Marine Parks, Ministry of Agriculture and Agro-based Industry (MOA), Fisheries Development Board of Malaysia (LKIM), Malaysian Institute of Maritime Affairs (MIMA), Local universities such as the University of Malaya (UM) and the National University of Malaysia (Local univs.), the Department of Minerals and Geoscience, the National Hydraulic Institute of Malaysia (NAHRIM) and the Drainage and Irrigation Department (DID). The priority accorded was 22 votes. This topic reflected on all SDG 14 targets, directly and indirectly. Challenges to mangroves, coral reefs, mud flats were highlighted. The impact of climate change and erosion, pollution and oil spills from ship collisions on these habitats were considered. The way forward was to increase the number and size of the marine protected areas, regulate mangroves and coral reef protection and enhance safety of navigation. The geographical area under consideration was the Straits of

Malacca. There was existing data on fish production (capture fisheries), fish price, a vessel list and vessel movements. There were also records of increase in fish stock, an increase in fishermen's livelihoods, and guarantee of food security for consumption.

For the topic 'Protecting marine habitat (Peninsular Malaysia)' the work to be done included getting data on Fish catch/stock, Ship movement and Mapping unprotected resources (tbd). The six-month output would require an Initial map of unprotected reserves, Test accounts for extent & aquatic resources and Assessment of pressures. It required a collaboration between the DOSM and Marine Parks, Fisheries and Marine Department, the Department of Environment (DOE), State and local authority, and DID. The priority accorded was one vote. This topic addressed concerns in living resources in the ecosystem of the coastal stretch of Terengganu in line with SDG 14 in the east coast of Peninsular Malaysia and port and fisheries activities in the area of the Klang valley (from the sea to river) as there were port activities contributions to marine pollution with impact on mangroves and fisheries.

The topic 'Ocean Conservation (indicators)' required work to be done on the water quality, CO2 emissions, and land-based pollution. The six-month output required an Agreement on indicators, Mapping of spatial data, and Test accounts for conditions. It required a collaboration between DOSM and DOE, KATS, Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC), DOA, and the Marine Department. The priority accorded was seven votes. This topic was concerned about the depletion of fish stocks and oil and gas resources; coral reefs; tourism and enhanced livelihood of the local communities.

The final topic 'Klang Straits (land based)' in Peninsular Malaysia required work to be done in two areas: (1) Distinguish land-based activities; and (2) Estimate pollutants. The six-month output would be an Inventory of available data; Integration of scientific data; and Test accounts for water emissions, wastewater, solid waste. It required a collaboration between DOSM and the DOE, KATS, Marine Department, DID, Port Authorities, NAHRIM, DOA, Forestry, UM and MIMA. The priority accorded was 12 votes. This proposal was concerned about the marine region which provides major ecosystem services to the Klang valley. Ports, invasive alien species, fisheries and aquaculture, indigenous population dependent on fisheries, land-based sources of marine pollution, mudflats and mangroves were considered in this topic.

Though the topic "Living Resources of the Straits of Malacca" garnered the most votes. However, it was not finalized by the DOSM.

TABLE 1: LIST OF TOPICS

Topic	Work to be done	6-month output	DOSM and...	Priority
Living resources (Straits of Malacca)	<ul style="list-style-type: none"> • Compile existing data for the area 	<ul style="list-style-type: none"> • Inventory of available data • Test accounts for extent & conditions • Proposal for analytical project 	State & local authority, Forestry, DOF, KATS, Marine Parks, MOA, LKIM, MIMA, Local univ., Minerals and Geoscience, NAHRIM, DID	22
Protecting marine habitat (2) (P.M'sia)	<ul style="list-style-type: none"> • Fish catch/stock • Ship movement • Mapping unprotected resources (tbd) 	<ul style="list-style-type: none"> • Initial map of unprotected res. • Test accounts for extent & aquatic resources. • Assessment of pressures 	Marine Parks, Fisheries and Marine Dept, DOE, State and local authority, DID,	1
Ocean conservation (indicators)	<ul style="list-style-type: none"> • water quality, CO2 • land-based pollution 	<ul style="list-style-type: none"> • Agreement on indicators • Mapping of spatial data • Test accounts for conditions 	DOE, KATS, MESTECC, DOA, Marine Dept.	7
Klang Straits (land-based)	Distinguish land-based activities and estimate pollutants	<ul style="list-style-type: none"> • Inventory of available data • Integration of scientific data • Test accounts for water emissions, wastewater, solid waste 	DOE, KATS, Marine Dept, DID, Port Authorities, NAHRIM, DOA, Forestry, UM, MIMA	12

In conclusion, the First Workshop deliberated on the stressors on the ocean surrounding Malaysia and its resources. As only one topic will be confirmed for the Pilot, that will be an important case study as it will be a prototype to conduct many more studies in the future, given the many issues and topics of concern. The importance of the SEEA framework for ocean accounting is vital. Many agencies are involved and there is a need to streamline ocean governance through a single Ministry, increase data holdings substantially, monitor governance for efficiency, adopt a national ocean policy and Marine Spatial Planning at the national level and use statistics for better policy-making and analysis. This will assist in assessing the effectiveness of the policies, plans, strategies, institutions and rules over periods of time. Evidence-based decision-making is desperately needed. Finally, the topic for the Pilot needs to be confirmed.

ESCAP MATRIX: Country: Malaysia

Date of Assessment: 6 May 2019

<p>1. Vision</p>	<p>Prime Minister, Tun Dr Mahathir Mohamad, prioritized the need for Malaysia to be ‘a true maritime nation.’</p> <p>To achieve this nation, the nation needs to:</p> <ol style="list-style-type: none"> 1. Track progress towards Sustainable Development Goal 14 and its Targets. 2. Establish an Ocean Accounts Partnership to bring together relevant government agencies, expert institutions and regional and international partners to integrate information from across scientific domains, policy frameworks and institutions to monitor progress on SDG14. 3. Improve cross-sectoral policies that optimize the sustainable use of the ocean while minimizing the risk of ecological collapse and natural disasters. 4. Discard the current <i>laissez-faire</i> approach, speak with ‘one voice’ and adopt a responsible stewardship of the oceans and fulfil international obligations assumed by the nation. <p>Steps required to do this:</p> <ol style="list-style-type: none"> 1. Build Capacity 2. Set priorities 3. Compile and analyse data. 4. Enhance partnerships among the Government of Malaysia and regional and international stakeholders. 5. Monitor Malaysia’s 11th Five-Year Development Plan. 6. Demonstrate benefits of ocean accounting in national and international for a building on existing work with Malaysia. 7. Commit to Resolution 73/5.
<p>2a. Concerns</p>	<p>Marine Department Malaysia</p> <ul style="list-style-type: none"> • Provide safe and secure administration for shipping/ports and maritime affairs; • Safe and Secure Maritime Transportation System; • Drive National Maritime Growth; • Empower Marine Environment Protection System; • Provide for Safety of Navigation Service; • Provide training and certification of seafarers; • Prevention of pollution from ships; and • Implementation of IMO conventions. <p>Department of Fisheries:</p> <ul style="list-style-type: none"> • Over fishing • Degradation of resources • Pollution and • Encroachment by foreign fishing vessels

The National Hydrography Center / Navy

- Hydrographic surveys;
- Operation and Submarine charts for Defence; and
- MAL charts and Tide Tables for the Public.

The National Disaster Management Agency (Prime Minister's Department)

Flooding as 10.1 % (33.298 square miles) of the country's total area was flood-prone areas; 5.67 million people lived in flood-prone areas; the Yellow Floods of 2015 affected 541,896 victims and 136,447 families; currently only 1,335 evacuation centers; twenty-five persons died; RM 2.9 billion losses, 2,076 houses destroyed and 6,698 houses damaged; high recovery cost - RM 3.4 billion; high post-disaster contracts - RM1.51 billion (USD378million); as the National Focal Point for Disaster Management need to coordinate eleven roles and responsibilities of the Agency and responsible for formulation of the National Disaster Management Policy.

Issues and challenges:

- coordination as DRR required a multi-sectoral approach as stakeholders are from infrastructure, urban development, education, health, agriculture;
- need to strengthen coordination and capacity building as currently staff capacity and experienced staff were limited in number and there was a gap in knowledge.
- decision-making difficult as R&D activities required a science-based, evidence-based approach to support the decision-making through collaboration and engagement.

The Department of Minerals & Geoscience Malaysia

- No particular concern was identified.

Objective is to take the lead in mineral and geoscience development by 2020; enhance nation's economic competitiveness and quality of life through mineral and geoscience information; provide mineral commodity information to enhance the growth of the mineral-based industries; encourage the optimal use of geoscience information and services for sustainable development of the country; ensure mineral resources developed in a systematic, safe, efficient and environmentally friendly manner and secure maximum returns to the country; encourage and diversify the use of local mineral resources; provide expert services in the fields of minerals, geoscience and mining at the national and international levels; conduct Marine Geology Surveys to identify mineral resources in offshore areas; identify and evaluate environmental impact of development in offshore areas; and collect and compile baseline geological information and mineral resources in offshore areas;

Marine Geology Unit gathers and compiles baseline data on geology and mineral resources in coastal and offshore areas in Malaysia's Continental Shelf & Exclusive Economic Zone. Functions included amongst others, the conduct of Geophysical Survey, Seabed Sediment Sampling, Coastal Geology Mapping (Langkawi & Penang), Offshore Sand Resources Study, Coastal Reclamation, Shoreline Restoration, and Sand Dredging, Sea-level Changes, Extended Continental Shelf and production of Digital Maps in ArcGIS; and Advise and

	<p>Inform on maritime and continental shelf issues to the National Security Council, the Ministry of Foreign Affairs, the Survey and Mapping Department, the National Hydrographic Center, the Fisheries Department and the State Government Agencies.</p> <p>Department of Agriculture:</p> <ul style="list-style-type: none"> • Problems of attitude, manpower, and budget allocation. <p>Ministry of Economic Affairs:</p> <ul style="list-style-type: none"> • Problems of conservation of coastal and marine ecosystem, pollution, detrimental socio-economic activities to the ecosystems and the governance of the ocean, unsustainable practices, insufficient enforcement and uncontrolled development activities <p>Ministry of Energy, Science, Technology, Environment and Climate Change</p> <p><u>Coastal and marine area gazette as protected area</u></p> <ul style="list-style-type: none"> • Disagreement with artisanal & commercial fishermen; • Lack of manpower to effectively manage & protect areas; • Compliance by tour operators & tourists; • Not much data to support conservation effort; • Disparity between Parks Enactment & Fisheries Law; • Lack of data & means to collect them; and • Overlapping jurisdiction. <p><u>Ocean governance – ocean policy, marine spatial plan</u></p> <ul style="list-style-type: none"> • Lack of manpower & asset; • Loophole due to overlap jurisdiction (MMEA Marine Dept, DOFM); and • Lack of expertise to design MSP. <p><u>Sustainable marine resources</u></p> <ul style="list-style-type: none"> • Translation of principles and concepts of EAFM into policies & projects; • Lack of human resources; and • Need to strengthen stakeholders participation at all levels. <p><u>Transboundary</u></p> <ul style="list-style-type: none"> • Delineate seascapes and identify priority seascapes for investment; • Lack of shared program among neighboring country; and • Adopt inter-government agreement to protect migratory areas for endangered animals (sea turtles, whale sharks, etc.). <p><u>Carrying capacity on MPA</u></p> <ul style="list-style-type: none"> • Lack of study on carrying capacity of MPA; and • Needs baseline studies on marine resources of MPA. <p><u>Enforcement</u></p> <ul style="list-style-type: none"> • Formulate nationwide syllabus for marine park ranger training; and • Purchase of monitoring & enforcement equipment. <p><u>Coastal community adaptation to climate change</u></p> <ul style="list-style-type: none"> • Need for sufficient data and Increase expertise and awareness <p>National Hydraulic Institute of Malaysia</p> <p>Concerns related to the hydro-environment ecosystem which is interconnected and needs to be addressed as a chain of networks such as:</p>
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	<ul style="list-style-type: none"> • River mouth management caused by sediment transport processes; • Coastal erosion and accretion which occur seasonally; • Sea level rise; • Phenomenal storm surge; • Coastal land use losses due to natural and anthropogenic factors; and • Redundancy / overlapping and cross – sectional interest in policies. <p>Department of Environment (Marine and Water Division)</p> <ul style="list-style-type: none"> • The priorities that need to be addressed are land-based pollution, oil spill pollution and coastal development. <p>Department of Minerals and Geoscience</p> <ul style="list-style-type: none"> • As the vision of the Department of Minerals and Geoscience is the exploration of non-living seabed resources such sand and other minerals except for oil and gas, the main concern is the environmental impact that is caused from the seabed mining such as sand and other minerals. <p>Maritime Institute of Malaysia</p> <ul style="list-style-type: none"> • Concerns related to the Blue Economy as adopted at the 14th IORA Ministerial Meeting in Perth in October 2014. • Blue Economy added pollution of the marine environment. • Blue Economy required resilient Infrastructure to withstand the adverse impacts of climate change. • Blue Economy raised questions: was the current infrastructure resilient? How was resiliency of future projects ensured? How were risks managed at a systemic level? • Many gaps though concept relevant to Malaysia with a focus on fisheries, aquaculture, renewable ocean energy, seaports and shipping and seabed exploitation and minerals. • Uncertainty over the various contributions of various sectors to the ocean economy of Malaysia for the year 2015 where the figures were taken from DOSM Statistics that required reconfirmation due to the lack of precise data. <p>Institute of Ocean and Earth Sciences (IOES), University of Malaya No particular concern was identified. Emphasised Research, Academic Training and Technology Development, Globalization, Consultancies, Innovation and International Accreditation. Focused on Marine Biotechnology, Marine Biodiversity and Coastal Studies, Maritime Community, Law, Policy & Governance, Air-Ocean-Land Interaction Studies & Climate Change, Marine Research Station at Bachok, Kelantan.</p>
2b. Priorities	<p>National Policy on Biological Diversity 2016-2025</p> <p>Target 3: By 2025, biodiversity conservation has been mainstreamed into national development planning and sectoral policies and plans (MNRE)</p> <p>Target 4: By 2025, our production forests, agriculture production and fisheries are managed and harvested sustainably. (MNRE, MOA)</p> <p>Target 5: By 2025, tourism is sustainably managed and promotes biodiversity conservation. (Ministry of Tourism and others)</p>

Target 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 (MNRE).

Target 7: By 2025, vulnerable ecosystems and habitats, particularly limestone hills, wetlands, coral reefs and seagrass beds, are adequately protected and restored. (MNRE, MOA)

Target 8: By 2025, important terrestrial and marine ecological corridors have been identified, restored and protected.(MNRE)

Target 9: By 2025, the extinction of known threatened species has been prevented and their conservation status has been improved and sustained (MNRE).

Target 10: By 2025, poaching, illegal harvesting and illegal trade of wildlife, fish and plants are under control and significantly reduced (MNRE)

Target 11: By 2025, invasive alien species and pathways are identified, priority species controlled and measures are in place to prevent their introduction and establishment (MOA).

Target 12: By 2025, By 2025, a comprehensive biosafety system inclusive of a liability and redress regime is operational to manage potential adverse impacts of modern biotechnology on biodiversity and human health.(MNRE)

Target 13: By 2025, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives is adequately conserved (MOA).

Target 14: By 2025, Malaysia has an operational ABS framework that is consistent with the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation (MNRE)

Target 15: By 2025, capacity for the implementation of the national and subnational biodiversity strategies, the CBD and other related MEAs has significantly increased. (MNRE)

Target 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.(MNRE)

Target 17: By 2025, there is a significant increase in funds and resources mobilised for the conservation of biodiversity from both government and non-government sources. (MNRE)

In the context of fisheries, a priority action that could strengthen ocean governance is integration between multi-departments in terms of assets, budget and manpower.

To pursue a pilot study on ocean accounts under the SEEA Framework within a six-month time frame:

- 1.1 Provide statistics on oceans and ocean resources.
- 1.2 Equip decision-makers with information on how to sustainably use the oceans to satisfy inter-generational equity in fisheries, control marine pollution in particular land-based sources including marine litter, conserve deserving sites as marine protected areas and assess disaster reduction and resilience of a nation

	<p>and particularly in the Blue Economy when the seas and oceans are industrialised.</p> <p>Abbreviations: CBD-Convention on Biological Diversity 1992 MNRE-Ministry of Natural Resources and the Environment MOA-Ministry of Agriculture and Agro-based Industry</p>
<p>2c. Plans</p>	<ul style="list-style-type: none"> • 11th Five-year Malaysia Development Plan • National Plan of Action for the Coral Triangle Initiative (NPOA-CTI) 2009 • National Policy for Biological Diversity 2016-2025 • Fisheries Act 1985, the Convention on the Protection of Wetlands of International Importance especially for Waterfowl Habitat, 1971 • National Stratified Random Sampling for Fisheries • National Oil Spill Contingency Plan (NOSCP) • National Coastal Zone Physical Plan • National Plan of Action to Prevent, Deter and Eliminate IUU Fishing • National Plan of Action for Management of Fishing Capacity in Malaysia 2014–2018 • Heart of Borneo Initiative • ASEAN-GAP Good Agricultural Practice • Ministry of Economic Affairs: 11th Malaysian Development Plan: Mid Term Review <i>RMK-11</i>, Pillar 5, Strategy B2: Conserving Coastal and Marine Ecosystems • Ministry of Energy, Science, Technology, Environment and Climate Change: Coral Triangle Initiative (CTI): Memorandum of the Council of Ministers (<i>Jemaah Menteri</i>) 2009 & 2012, the CTI-CFF Leaders Agreement dated 15 May 2009 and the Joint China Malaysia (JCM) – Memorandum of Understanding (MoU) 2009 – 2019; the National Agro-Food Policy - <i>Dasar Agromakanan Negara</i>, the National Biological Diversity Policy - <i>Dasar Kepelbagaian Biologi Kebangsaan</i>, the Zero-Single Use Plastics Roadmap and the National Plan of Action for the Coral Triangle Initiative - (NPOA) CTI • National Hydraulic Institute Malaysia (NAHRIM) plans include the Integrated Coastal Zone Management for Malaysia (Malaysian Chapter); the Integrated Shoreline Management Plan (ISMP) based on the recommendation and findings of the National Coastal Erosion Studies (NCES, 1985) updated in 2015; for World Ocean Navigational policies, the United Nations Convention on the Law of the Sea (UNCLOS) 1982; The Town and Country Planning Department of Malaysia - National Physical Zone Coastal Plan - <i>Rancangan Fizikal Zon Pesisir Pantai Negara (RFZPPN</i> to be updated in 2021), that will cover coastal areas in states that do not have their own ISMP yet. For ocean scientific related policies – the Intergovernmental Panel on Climate Change (IPCC). The International Journal of Marine and Coastal Law that specifically addressed the issues in Malaysia entitled “Current Issues of Marine and Coastal Affairs in

	<p>Malaysia” (ISSN: 0927-3522; Publisher: Brill/Nijhoff; Website: https://doi.org/10.1163/157180897X00077). NAHRIM Key Performance Indicators (KPI) and SOP for conducting research - the Guidelines for Preparation of Coastal Engineering Hydraulic Studies and Impact Evaluation (Fifth Edition: 2001), Malaysia Water Quality Index (WQI) and MS ISO 9001.</p> <ul style="list-style-type: none"> • Malaysia disaster management reference handbook 2016, https://www.preventionweb.net/publications/view/47331, 27 Feb. 2019 • Department of Environment (Marine and Water Division) Malaysian Marine Water Quality Standards under the 11th Malaysia Plan; DOE Strategic Plan 2011-2020 and the Environmental Quality Report. • The Department of Minerals and Geoscience: National Mineral Policy 2, Geological Survey Act, 1974 (Act 129), Mineral Development Act, 1995 (Act 525), the Continental Shelf Act, 1966 (Act 83) and the State Mineral Enactments. • Maritime Institute of Malaysia – No plans given • Institute of Ocean and Earth Sciences, UM – No plans given • Department of Minerals and Geoscience Malaysia: The Marine Geology Department Surveys from 1986-2015; Marine Geology Project (2016-2020) which comprises the National Marine Sand Resources Study Phase III – Pahang and Johore Offshore and A Study for the Sustainable Offshore Sand Mining in the One Fathom Bank (OFB) and its Surrounds, Off Port Klang, Selangor.
3a. Stakeholders	<p>Data providers:</p> <ul style="list-style-type: none"> • Department of Statistics Malaysia (DOSM) • Ministry of Economic Affairs • Ministry of Water, Land and Natural Resources • Ministry of Science, Technology, Environment and Climate Change • Ministry of Transport • Ministry of Agriculture and Agro-based Industry • Fisheries Development Board Malaysia • Malaysian Centre for Geospatial Data Infrastructure (MaCGDI) • National Disaster Management Agency • National Hydrography Institute • Department of Fisheries • Division of Marine Parks • Department of Environment • Department of Survey and Mapping • Department of Agriculture • Marine Department Malaysia • Malaysia Maritime Enforcement Agency • Malaysia National Oceanographic Data Centre (MyNODC) • University of Malaya • University Malaysia Terengganu

	<ul style="list-style-type: none"> • ESCAP • National Hydraulic Institute of Malaysia And Drainage and Irrigation Department • Department of Environment – Water and Marine Division • ASEAN Working Group on Coastal and Marine Environment (AWGCME) • The Coordinating Body on the Seas of East Asian (COBSEA) • Revolving Fund Committee (RFC) • ASEAN Maritime Transport Working Group (AMTWG) • Malaysia-Singapore Joint Committee on Environment (MSJCE); • National Oil Spill Control Committee comprising 17 agencies /stakeholders • Environmental Quality Monitoring Programme of the Department of environment <p>Data users:</p> <ul style="list-style-type: none"> • Prime Minister’s Department • Ministry of Finance • Ministry of Economic Affairs • Ministry of Water, Land and Natural Resources • Ministry of Science, Technology, Environment and Climate Change • Ministry of Agriculture and Agro-based Industry • University of Malaya • Malaysian Institute of Maritime Affairs • National Oil Spill Control Committee • Public - Environmental Quality Report • Farmers, Fishermen, Researchers and Politicians – DOF data • Researchers, fishermen, local authority, policy makers, academicians – MESTECC data • Government agencies, universities, students and international researchers, private sectors either for Joint – Ventures research or consultation project – NAHRIM data.
3b. Role of DOSM	<ul style="list-style-type: none"> • Principal statistics provider of the nation; • Role in Pilot: Leader in establishing an appropriate mechanism and in enlisting the coordination and cooperation of all relevant Ministries, Departments and Agencies to conduct the Pilot Ocean Accounts Project for Malaysia using the SEEA Framework; and • To act as the Secretariat for the Ocean Accounts Project for Malaysia; • To demonstrate earlier DOSM efforts in water and energy accounts for Ocean Accounts to leverage on; • To lead the development of a regional and global approach for ocean statistics: the first of its kind in the world.
3c. Mechanisms	<p>Ministry of Economic Affairs: the National SDG Council and the RMK12 IAPG Committee.</p> <p>National Disaster Management Agency:</p>

	<p>Three level mechanism:</p> <ol style="list-style-type: none"> i. The Central Disaster Management Committee was chaired by the Deputy Prime Minister/Minister at the Prime Minister’s Department and it was responsible for setting the policy and strategy in disaster management, mobilized assets, and gave monetary assistance and human resources. ii. The State Disaster Management Committee was chaired by the State Secretary and it assisted the District level in terms of assets, monetary assistance and human resources. iii. The District Disaster Management Committee was chaired by the District Officer who coordinated actions, deployed sufficient assets and human resources, and managed the media. <p>Pilot:</p> <ul style="list-style-type: none"> • adoption of a topic for the Pilot Study; • to support the needs of Malaysia for integrated statistics to support integrated policies. • DOSM leadership to form a core working group. • On advice from the government, international, regional and sub-regional technical partners, academics, funding partners and others would be invited to join. • ESCAP to leverage its experience in implementing SEEA and other capacity development projects in the Pacific to support the Government of Malaysia in implementing SDG 14 and establish a national Ocean Accounts Platform that integrates selected existing statistics conceptually and spatially along SDG 14-related national priorities by convening national workshops to take stock of existing data and statistics, training on the basics of SEEA and Ocean Accounts, and supporting the development of a national work plan to strengthen statistics on oceans, and provide technical assistance on the compilation of Ocean Accounts. <p>Expected outcomes</p> <p>The pilot study will enhance Malaysia’s capacity to develop and support integrated policies to sustainably manage the ocean, in line with SDG 14 by leveraging existing partnerships, governance frameworks and data. Over the short-term this will identify overlaps, gaps and inconsistencies in policies and data. Over the longer term, it will improve the efficiency of data collection and the coherence of analysis to better report on and monitor these policies.</p>
4a. Data Source	<p>Data sources:</p> <p>Department of Fisheries:</p> <ul style="list-style-type: none"> • The Annual National Stratified Random Sampling; • Annual Fisheries Statistics (Department of Fisheries); • SEAFDEC Reports; • The Fisheries Research Institute; • Land-based sources of marine pollution: Environmental Quality Report (Department of Environment); • Marine Parks published papers and articles;

	<ul style="list-style-type: none"> • National Disaster Management Agency reports; and • Compendium of Environment Statistics 2018. <p><u>Unofficial data sources for Fisheries Department</u></p> <ul style="list-style-type: none"> • Fishermen; • NGOs; • Wholesalers; • Retailers; • Downstream players; and • Departments’, District and State staff. <p><u>Existing compilations</u></p> <ul style="list-style-type: none"> • Annual Fisheries Statistics; • Environmental Quality Report 2017 (DOE); and • Compendium of Environment Statistics 2018. <p>Department of Agriculture:</p> <ul style="list-style-type: none"> • Crop Statistics (Food Crops Sub-Sector); • Fruit Crops Statistics; • Vegetables and Cash Crops Statistics; • Industrial Crops Statistics; • Herbs and Spices Statistics; • Paddy Statistics of Malaysia; • Paddy Production Survey Report Malaysia (Main Season); and • Paddy Production Survey Report Malaysia (Off Season). <p>Ministry of Economic Affairs:</p> <ul style="list-style-type: none"> • Ministries and agencies related to the governance of the ocean. <p>Ministry of Energy, Science, Technology, Environment and Climate Change</p> <ul style="list-style-type: none"> • Implementing agencies namely Department of Fisheries Malaysia (DOFM), Department of Fisheries Sabah (DoFS), Sabah Parks, Borneo Marine Research Institute (BMRI), Universiti Malaysia Sabah (UMS). Data sources also include data Reporting during Technical Working Group Meeting. Publications include scientific articles, factsheet, and reports: Tool: NPOA dashboard. <p>National Hydraulic Institute of Malaysia (NAHRIM)</p> <ul style="list-style-type: none"> • Hydrographic survey, oceanographic elements, geo-hydrology, atmospheric data – rainfall and climate change related and water quality studies. The main publications are Technical Reports, Journal, Working Group and Proceedings. <p>The Department of Environment (Water and Marine Division)</p> <ul style="list-style-type: none"> • The main data sources are the EQMP and enforcement data. • The Environmental Quality Report. <p>The Department of Minerals and Geo-Science</p> <p>Main data are from surveys of the seabed and coastal sediment, seismic, side scan sonar and environment. The Department publishes Technical report and conference papers. Data used by DOSM, Department of Director-General for Land and Mines, National Hydrography Center, Department of Fisheries,</p>
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	<p>Fisheries Research Institute, Universiti Malaysia Terengganu, National Security Council, Department of Mapping and Survey Malaysia, Malaysian Centre for Geospatial Data Infrastructure (MaCGDI) and National Hydraulic Research Institute of Malaysia (NAHRIM).</p> <p>The Department has also participated in an SDG indicator mapping exercise/ SDG capacity assessment/ Voluntary National Report/ Data inventory/ Review of the National Statistical System/ Institutional mapping/ other international activities. The Department supports the Mineral Industries Statistical.</p> <p>Maritime Institute of Malaysia – Publications (but not stated). Institute of Ocean and Earth Sciences, UM – Publications (but not stated).</p>
4b. Statistical Context	<ul style="list-style-type: none"> • DOSM: National Quality Assurance Framework (NQAF) and Survey of Environmental Protection Expenditure, 2015. • MESTECC states it has no collaboration with the DOSM • The DOE (Water and Marine Division) uses statistics in its line of work as seen in the Marine Water Quality Index as specified in EQR and in the oil spill incidents reporting statistics. • The Department of Minerals and Geo-Science: In a statistical context, the Department publishes the Malaysia Mineral Statistical Report yearly.
4c. Other International Activities	<ul style="list-style-type: none"> • Marine Department Malaysia: Regional co-operative arrangements for the control of oil spills, Partnership on Oil Spill Preparedness and Response in the Gulf of Thailand, Cambodia and Vietnam, Joint Oil Spill Combat in the South China Sea including Brunei Bay (Brunei Darul Salam) and Malaysia and ASEAN Oil Spill Preparedness and Response. • Department of Fisheries: The international partners were SEAFDEC, FAO, IOTC, USAID, ASEAN, WorldFish, UNEP, GEF, BOBLME; Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security; Enhancing South-South cooperation for capacity building in science: Towards Economic Resilience to Natural Shocks in the Pacific and Southeast Asia; Eradicating Fish Bombing in Sabah by 2020; IHO Hydrography Capacity Building Programme for Coastal States; and UNESCAP: Ocean accounts. • Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC): Protected Areas - Goal 3 Coral Triangle Initiative (CTI) at national & regional level, Tun Mustapha Park, Gazettement of Tun Mustapha Park on May 2016 and also Declared as “Shark Sanctuary”; Ocean Governance - Semporna PCA started with MSP has yet to be implemented to other area; Sustainable marine resource - Semporna PCA started with MSP has yet to be implemented to other area; Transboundary - Goal 1 Coral Triangle Initiative (CTI) at national & regional level and Turtle Islands Heritage Protected Area (TIHPA); and Coastal community adaptation to climate change - Goal 4 Coral Triangle Initiative (CTI) at national & regional level

	<p>National, sub-regional and international organisations of collaboration- USAID, UN, ADB, GIZ, State Oceanography Administration (SOA). Institutional mechanisms: Technical Working Groups, CTI National Coordinating Committees (NCC).</p> <ul style="list-style-type: none"> • National Hydraulic Institute of Malaysia - International Association for Hydro-Environment Engineering and Research (IAHR); Malaysia’s Initial National Response Strategies to Climate Change to UNFCC, 2nd National Communication Report to UNFCC (NC2), Malaysia Third National Communication and Second Biennial Update Report to UNFCC (TNC), COBSEA, UNEP, Coral Triangle Initiatives Malaysia Plan of Action (CTI-NPOA), National Mangrove Planting Programme, Institute of Engineers Malaysia (IEM), Third National Physical Plan (RFN3) and National Coastal Zone Physical Plan (NPP-CZ) (Town & Country Planning Department), Integrated Water Resource Management (IWRM) and other relevant meeting organized in National or state level, representing ministry and country in conferences and workshop organized globally especially related to Climate Change. NAHRIM is actively involved in National Action Plan for disaster related problem e.g. coastal flooding, hydraulic studies, EIA meeting and climate related problem through various workshop and working group. • Department of Environment (Water and Marine Division) - The Division participates in the ASEAN Working Group on Coastal and Marine Environment (AWGCME), the Coordinating Body on the Seas of East Asian (COBSEA), the Revolving Fund Committee (RFC), the ASEAN Maritime Transport Working Group (AMTWG) and the National Oil Spill Control Committee • Department of Minerals and Geo-Science - The Coordinating Committee for Geoscience Programmes in East and Southeast Asia (CCOP); ASEAN Ministerial Meeting on Minerals (AMMin); Department of the Director-General for Land and Mines; The National Hydrography Center; Department of Fisheries; Fisheries Research Institute; Universiti Malaysia Terengganu; National Security Council; Department of Mapping and Survey Malaysia; Malaysian Centre for Geospatial Data Infrastructure (MaCGDI); and National Hydraulic Research Institute of Malaysia (NAHRIM) • Maritime Institute of Malaysia - Under Ministry of Transport • Institute of Ocean and Earth Sciences, University of Malaya – international collaborations
<p>5. Priority Accounts and Statistics</p>	<ul style="list-style-type: none"> • Test accounts for extent & conditions; • Test accounts for extent & aquatic resources; • Test accounts for conditions; and • Test accounts for water emissions, wastewater, solid waste.
<p>6. Opportunities</p>	<p>Department of Fisheries:</p> <ul style="list-style-type: none"> • Development of 38 mm cod-end mesh size for trawl net in all fishing zones;

	<ul style="list-style-type: none"> • The fish zoning system that reduced the conflict between traditional and commercial fishing; • Create awareness; and • Development of a Communication, Education, Participation and Awareness / (CEPA) programme and establishment of a new act to replace obsolete law. <p>Department of Agriculture: To increase awareness of agricultural farmers, management, policy makers etc.</p> <p>Ministry of Economic Affairs: To establish a coordination and monitoring committee to oversee ocean governance and statistics.</p> <p>Ministry of Energy, Science, Technology, Environment and Climate Change – To have one FOCAL POINT for maritime governance</p> <p>National Hydraulic Institute of Malaysia (NAHRIM) To adopt the National Endorsement on budget for the establishment of LONG TERM Physical and Oceanographic data monitoring; To strengthen ocean governance and statistics; To establish PERMANENT STATION for wave and current data monitoring;</p> <p>The Department of Environment (Water and Marine Division) Establish marine geospatial planning and mapping. Strengthen communication and collaboration amongst relevant ministries/departments/agencies and through financial support from the federal government.</p> <p>The Department of Minerals and Geo-Science Develop Maps and Indicators. Translate the mandate given by Prime Minister to be a “True Maritime Nation.”</p> <p>Maritime Institute of Malaysia Continues participation at the IORA Forum on the Blue Economy through the Ministry of Foreign Affairs</p> <p>Institute of Ocean and Earth Sciences, University of Malaya Continues to find grants for its mission and purposes.</p> <p>Generally: To use Malaysia’s Open Data Portal for ocean accounts.</p>
7. Constraints	<p>Department of Fisheries: High expenditure incurred in MCS (Monitoring, Control and Surveillance); Budget allocation; Human resource; Education and awareness of fishermen; and A lack of skill and knowledge on the part of the fishermen.</p> <p>Department of Agriculture: Improvement of farm productivity and production of safe and quality food; Welfare, safety and health of workers and employees and preserving the environment.</p> <p>Ministry of Economic Affairs: See Column on Concerns</p> <p>Ministry of Energy, Science, Technology, Environment and Climate Change –</p>

	<p>A lack of an anchor in maritime governance. See Column on Concerns</p> <p>National Hydraulic Institute of Malaysia (NAHRIM)</p> <p>Long Term Data Ocean Monitoring as it required sufficient yearly budget.</p> <p>Department of Environment (Water and Marine Division) Cross-sectoral jurisdiction, technical capacity and manpower and logistic supports.</p> <p>Department of Minerals and Geo-Science No Sustainable Development Index (SDI) in mining and Quarrying for the ocean/seabed and current gaps in seabed mining. Constraints to developing maps and indicators are the lack of a National Ocean Policy, the lack of a new ministry or department that will look into the maritime issues and legislation and management of oceans in a holistic manner.</p> <p>Maritime Institute of Malaysia Uncertainties over the adoption of Blue Economy for Malaysia and lack of data for economic value from the oceans.</p> <p>Institute of Ocean and Earth Sciences, University of Malaya No particular issue mentioned.</p>
<p>8. Priority Actions</p>	<p>Department of Fisheries: Develop GIS and spatial data regarding the ocean that addresses post-harvest losses, waste and fish distribution; strengthen awareness and education among the stakeholders and finally, strengthen ocean governance concentrating relevant agencies in the same ministry.</p> <p>Department of Agriculture: Promote Zero Paraquat Campaign. (Paraquat is a very poisonous); land use map; MAKGEO-Padi system; and drones/ satellites.</p> <p>Ministry of Economic Affairs: Establish a coordination and monitoring committee on ocean governance and statistics as opposed to 32 agencies now.</p> <p>Ministry of Energy, Science Technology, Environment and Climate Change</p> <ul style="list-style-type: none"> i. Protected area – Expand all current MPAs & introduce 3 new MPAs: 2.041 million ha in total (14.3% Aichi goal), Engage with local communities and stakeholders for management of MPA, Increase baseline data to support conservation effort ii. Ocean governance - Strengthen legislation on marine environment pertaining fisheries stock, Enhance smart partnership with stakeholders, Reconcile legislation at federal & state level, Strengthen Monitoring, Control & Surveillances (MCS) on ocean program and Need support from government and stakeholders to implement MSP iii. Sustainable Marine Resource - Socialize and build support for Coastal Fisheries and Poverty Reduction <i>Initiative</i> (COASTFISH) (initiatives) to craft a national COASTFISH framework and program(s), Establish Fisheries Management Plan (FMP), Actively participate in terrestrial engagement with climate change impacted marine environment, and Educate public on conscious consumption of seafood and marine resources iv. Transboundary - Establish Sulu Sulawesi as Malaysia’s priority, Develop concrete joint management action/plans based on connectivity

	<p>and characteristics between the Sulu-Sulawesi countries, and Establish more G2G collaboration</p> <ul style="list-style-type: none"> v. Carrying Capacity on MPA - Training on environment management vi. Enforcement - Strengthen Monitoring, Control & Surveillances (MCS), Community enforcement to take bulk of responsibility for caring of marine parks, and Establish mechanisms/laws to enable this to happen vii. Coastal Community Adaptation to Climate Change - Climate Change Center of Excellence (CC-COE) and adopt a Blue Carbon Framework viii. General - Maps and Indicators should be developed to address its mandate/ concerns; prioritises the establishment of a central body to coordinate the governance of maritime affairs in the country, as an immediate action to strengthen ocean governance and statistics. <p>NAHRIM: Adopt Open source DEM with high resolution.</p> <p>Department of Environment (Water and Marine Division): Conduct training to strengthen technical capacity and action.</p> <p>Department of Minerals and Geo-Science: Form a task force and revisit the draft National Ocean Policy (NOP) and paper to form the National Institute of Oceanography (NIO) which was already completed in 2009.</p> <p>Maritime Institute of Malaysia: Assessment of resiliency of the Blue Economy Concept and Economic output from the oceans</p> <p>Institute of Ocean and Earth Sciences, University of Malaya: - Pilot</p> <p>Adopt a viable topic, from the list of four below, for the Pilot to successfully complete study;</p> <ul style="list-style-type: none"> a. Living resources (Straits of Malacca) b. Protecting marine habitat (2) (Peninsular.Malaysia) c. Ocean conservation (indicators) d. Klang Straits (land-based) <p>In all four topics, possible relevant stakeholders were identified.</p> <p><u>Living resources of the Straits of Malacca</u> garnered the highest vote. The Straits of Malacca is a very busy ecosystem with many port activities and fisheries, aquaculture practices. Marine pollution and pollution from land-based sources of marine pollution is high and there are reports of loss of mangroves. For example, the stakeholders would be the Marine Department Malaysia for ships, the Department of Environment and the Malaysian Maritime Enforcement Agency for enforcement, the Forestry Department for the mangroves, the Department of Fisheries, the Fisheries Development Authority of Malaysia for fisheries, and the Local Authority.</p> <p><u>Protection and rehabilitation of marine habitats</u> reflects on all SDG 14 targets, directly and indirectly. Topic addresses concerns to mangroves, coral reefs, mud flats, effects of climate change, erosion, and pollution especially from ship collisions. The geographical area under consideration was the whole of Peninsular Malaysia.</p> <p><u>Ocean Conservation.</u> The reasons for choosing this topic were to, avoid the depletion of fish stocks (including oil and gas); protect coral reefs; increase tourism activities and enhance livelihood of the local communities and avoid</p>
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	<p>detrimental activities from taking place. The main stakeholders and users of data were possibly: Ministry of Water, Land and Natural Resources, Ministry of Environment, Science, Technology, and Climate Change. Geographical area: East Coast Area in Peninsular Malaysia.</p> <p><u>Protection of the Resources of the Klang Straits</u>, Klang valley, Peninsular Malaysia. This marine region provides major ecosystem services to the Klang valley. The presence of major ports and the threat of invasive alien species, fisheries and aquaculture, presence of a mixed indigenous population dependent on fisheries, a heavy pollution load from the Klang River and threatened mudflats and mangroves comprises the major issues in this topic. The primary users of this data would be the Department of Forestry, Department of Fisheries, Fishery Development Institute of Malaysia, Marine Department, Port Authorities, Department of Environment, coastal populations, academics, students and NGOs. A very large amount of data was available on this topic. Geographical area: Klang Straits, off the Straits of Malacca, Peninsular Malaysia.</p>
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Chapter One: Introduction

Chapter One of the Scoping Report sets out the background for the start of the UNESCAP Ocean Accounts Project for Malaysia and the Global view on the implementation of the SDG 14 targets. It assesses whether oceans are integrated into national and indicative plans and policies, and if there are policy and implementation gaps, good practices of the State and the stakeholders involved.

1.1 Background

The UNESCAP has made a complex area that is otherwise incomprehensible, easier to understand with a description of the problem that is confronting the ocean and its resources and what it takes for countries in the Asia-Pacific region to assess their capacity and compliance with delivering the SDG14 targets.¹ Malaysia as a country in the Asia-Pacific region has benefited from the oceans. However, the stressors on the environment are increasing at an alarming rate and remedial measures for ocean and coastal ecosystems need to be put in place very urgently. Agenda 2030 SDG 14 is a step in the right direction that reminds States of the problems and remedies that need attention. As ocean studies are interdisciplinary in nature with multiple institutions, UNESCAP has formulated an ocean resource assessment approach through Ocean Accounts using the SEEA-SNA framework. This is in line with Resolution 73/5 on “Strengthening Asia Pacific’s support for the United Nations Conference to Support Implementation of Sustainable Development Goal 14” adopted by the Economic and Social Commission for Asia Pacific. UNESCAP wrote, “Based on our Assessment of capacity development needs of the countries in Asia and the Pacific for the implementation of Sustainable Development Goal 14, the region needs strengthening of technical capacity, coordination, governance, data and statistics, awareness, stakeholder engagement and partnerships.”² Globally, vital information to monitor and evaluate progress towards SDG 14 is available, but it is fragmented across scientific domains, policy frameworks and institutions. ESCAP and UN Environment are leading a global effort to develop statistical guidance based on the System of Environmental Economic Accounting (SEEA). The Ocean Accounts Platform will provide guidance on electing, prioritizing and standardizing data of national, regional and global importance, so that it can be integrated and thereby provide a comprehensive view. This requires a conversation among scientists, policy makers and statisticians.

As a developing nation, Malaysia’s concerns on nation-building are still ongoing. There is a compelling argument to assess the capacity development needs of Malaysia for the implementation of Sustainable Development Goal 14. There is a need to track the progress towards Sustainable Development Goal 14 and its Targets, and an Ocean Accounts Partnership for Malaysia will bring together relevant government agencies, expert institutions and regional and international partners. The vision is to build on exiting activities with minimum government outlay (2-3 meetings or

¹ See <https://oceanaccounts.unescap.org> for details of the first Asia and the Pacific Regional Expert Workshop on Ocean Accounts.

² See Asia and the Pacific Regional Expert Workshop on Ocean Accounts, 1 Aug 2018 to 3 Aug 2018, Bangkok, Thailand, <https://www.unescap.org/events/asia-and-pacific-regional-expert-workshop-ocean-accounts>, 19 April 2019.

workshops over one year). Through ocean accounts, Malaysia will be able to integrate information from across scientific domains, policy frameworks and institutions to monitor progress on SDG14. Ultimately, it would as UNESCAP has stated, serve Malaysia to improve cross-sectoral policies that optimize the sustainable use of the ocean while minimizing the risk of ecological collapse and natural disasters. It is also noteworthy that international statistical standards for ocean accounts do not yet exist. There is international agreement on its requirement. The most feasible solution proposed is to adapt existing guidance provided by the System of Environmental-Economic Accounting (SEEA).

Malaysia has some experience with national accounts. In the past, the Department of Statistics Malaysia (DOSM), in collaboration with the Universiti Putra Malaysia, United Nations Statistics Division (UNSD), and ESCAP, compiled SEEA accounts for water and energy. This work, it is noted, was guided by the Planning and Development of Environment Statistics Committee, consisting of a Steering Committee chaired by the Economic Planning Unit (EPU) and a Technical Committee, chaired by DOSM. It is hoped that the Ocean Accounts Partnership would be able to leverage this collaboration. The project involves the establishment of a national Ocean Accounts Platform that integrates selected existing statistics conceptually and spatially along SDG 14-related national priorities by:

- Convening national workshops to take stock of existing data and statistics, training on the basics of SEEA and Ocean Accounts, and supporting the development of a national work plan to strengthen statistics on oceans, and
- Providing technical assistance on the compilation of Ocean Accounts.

ESCAP is also engaging international, regional and sub-regional partners to support a region-wide approach to the sustainable management of ocean and marine resources. This will create opportunities to meet and share experiences on SDG 14 reporting and Ocean Accounts development with other Partners.

1.1.1 Description of Ocean Accounts

The UNESCAP Ocean Accounts Partnership for Malaysia (Pilot Study Proposal) explained the meaning of “ocean accounts” and what the pilot study could offer.

What are Ocean Accounts?

Decision makers require reliable indicators of the state, value and capacity of the ocean to provide benefits into the future. There are many related sources of data, derived from many organizations. These data are generally fragmented, held by different organizations and are difficult to integrate. For example, we may have estimates of: fish stocks from scientific studies, reported fish catch from fisheries departments and the value of the fisheries industry from the national statistical office. Unless the concepts and classifications for these data are aligned, we cannot reliably estimate maximum sustainable yield, unreported fishing or the total contribution of fisheries to the economy.

Ocean Accounting is a proposed statistical framework for aligning relevant data and statistics, based on the principles and standards of the SEEA. The SEEA provides standards

for compiling physical data on the environment and linking it with monetary data in the System of National Accounts (SNA). It can be applied not only to data on fish stocks, but also to sources of land-based pollutants and the value of ecosystem services such as coastal protection and recreation.

Aligning environmental and economic statistics provides a powerful analytical base with which to understand the real value of the ocean to the economy and to develop policies that ensure that the value of this natural capital is captured for the long-term benefits of the country.

1.2 Global progress on SDG 14

The global progress made on Sustainable Development Goal 14, Life below water, to sustainably use the seas, oceans and marine resources,³ is deduced from the SDG 14 reports for 2017 and 2018. The 2017 report states that pollution and eutrophication of coastal waters had worsened, though the region of South-East Asia had not been included in the statistics; and marine fish stocks had declined. It was unclear from the figures given if small-scale fisheries had received some measure of protection. No specific statistics were offered on ocean acidification/ marine acidity. The Secretary-General in *The Sustainable Development Goals Report 2018*⁴ commented on the progress of Goal 14, Life below water. The main areas of concern were Overfishing, Growing ocean acidification, Worsening coastal eutrophication (marine pollution in particular land-based sources of marine pollution) and Marine protected areas.

Progress of Goal 14 in 2018

Advancing the sustainable use and conservation of the oceans continues to require effective strategies and management to combat the adverse effects of overfishing, growing ocean acidification and worsening coastal eutrophication. The expansion of protected areas for marine biodiversity, intensification of research capacity and increases in ocean science funding remain critically important to preserve marine resources.

- The global share of marine fish stocks that are within biologically sustainable levels declined from 90 per cent in 1974 to 69 per cent in 2013.
- Studies at open ocean and coastal sites around the world show that current levels of marine acidity have increased by about 26 per cent on average since the start of the Industrial Revolution. Moreover, marine life is being exposed to conditions outside previously experienced natural variability.
- Global trends point to continued deterioration of coastal waters due to pollution and eutrophication. Without concerted efforts, coastal eutrophication is expected to increase in 20 per cent of large marine ecosystems by 2050.
- As of January 2018, 16 per cent (or over 22 million square kilometres) of marine waters under national jurisdiction—that is, 0 to 200 nautical miles from shore—were covered by

³ Goal 14 provides:

14. The increasingly adverse impacts of climate change (including ocean acidification), overfishing and marine pollution are jeopardizing recent gains in protecting portions of the world's oceans.

⁴ Source: Report of the Secretary-General, "Progress towards the Sustainable Development Goals", [E/2017/66](#); Report of the Secretary-General, [The Sustainable Development Goals Report 2018](#)

protected areas. This is more than double the 2010 coverage level. The mean coverage of marine key biodiversity areas (KBAs) that are protected has also increased—from 30 per cent in 2000 to 44 per cent in 2018.

- Source: Report of the Secretary-General, The Sustainable Development Goals Report 2018

Two Strategic Goals, B and C, under the Aichi Targets cross-refer to SDG 14 on the marine protected areas. Strategic Goal B is to reduce the direct pressures on biodiversity and promote sustainable use⁵ and Strategic Goal C is to improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity.⁶

Some of the international UN inter-agencies and institutions involved in ocean matters and data holding are as follows:

BOBLME: Bay of Bengal Large Marine Ecosystem

CSD: Commission on Sustainable Development

DOALOS: Division for Ocean Affairs and the Law of the Sea

DOALOS: The Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects

GESAMP: Joint Group of Experts on the Scientific Aspects of Marine Environment Protection

⁵ Target 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.

Target 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.

Target 7

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

Target 8

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

Target 9

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

Target 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 Target 11

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

Target 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.

Target 13

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

GEF: Global Environment Facility
GMA: Global Marine Assessment
GPA: Global Program of Action for the Protection of the Marine Environment from Land-based Activities
ICES: International Council for the Exploration of the Sea
ICP: United Nations Open-ended Informal Consultative Process on Oceans and Law of the Sea
IMO: International Maritime Organisation
IOC: International Oceanographic Commission
IOTC: Indian Ocean Tuna Commission
IPCC: Intergovernmental Panel on Climate Change
IPOA: International Plan of Action
ITLOS: International Tribunal for the Law of the Sea
IUCN: International Union for the Conservation of Nature and Natural Resources
One Shared Ocean
RFC: Revolving Fund Committee
UNEP: Global Programme of Action for the Protection of the Marine Environment from Land-Bases Activities (GPA)
UNCHE: United Nations Conference on the Human Environment 1972
UNCED: United Nations Conference on Environment and Development, Rio de Janeiro, 1992
UN Environment: Coordinating Body on the Seas of East Asia (COBSEA);
UNEP: United Nations Environment Programme
UNFSA: United Nations Fish Stock Agreement 1995
UNGA: United Nations General Assembly
USAid
International Coral Reef Initiative (ICRI)
World Bank: the Pacific Islands Regional Oceanscape Program (PROP) International WorldFish
OECD: Ocean Economy
WMO: World Meteorology Organisation
WSSD: World Summit on Sustainable Development, Johannesburg, 2002
WWF: World-Wide Fund for Nature
GEO: Blue Planet Regional
APEC (Asia-Pacific Economic Forum): Ocean and Fisheries Working Group
ASEAN: Southeast Asian Fisheries Development Centre (SEAFDEC)
SEAFDEC: South-East Asia Fishery Development Center
CROP: Council of the Regional Organisations in the Pacific
FAO: Asia-Pacific Fisheries Commission (APFIC)
PEMSEA: Partnerships in Environmental Management of the Seas in East Asia Academic
ICSU: International Council for Science
Journal of Ocean and Coastal Economics
International Journal of Marine and Coastal Law
Journal of Ocean Development and International Law

ASEAN Institutions:

ASEAN Working Group on Coastal & Marine Environment (AWGCME);
ASEAN Working Group on Water Resources Management (AWGWRM);

ASEAN Maritime Transport Working Group (AMTWG); and
Coordinating Body on the Seas of East Asia (COBSEA)
Partnerships in Environmental Management of the Seas in East Asia (PEMSEA)

Sub-regional:

Malaysia-Singapore Joint Committee on Environment (MSJCE)

1.3 First Pilot Study for Ocean Accounts in Malaysia

The main task of the Scoping exercise is to build capacity, assess priorities and data to find a topic of concern to conduct a pilot study on national accounts for Malaysia after consideration of several topics that affect the oceans. The selection of the topic for the pilot is the next step of the process. There is a six-month time frame to complete the Pilot. The project will support the needs of Malaysia for integrated statistics to support integrated policies. It leverages on ESCAP's experience in implementing SEEA and other capacity development projects in the Pacific to support the Government of Malaysia in implementing SDG 14 and establish a national Ocean Accounts Platform that integrates selected existing statistics conceptually and spatially along SDG 14-related national priorities by convening national workshops to take stock of existing data and statistics, training on the basics of SEEA and Ocean Accounts, and supporting the development of a national work plan to strengthen statistics on oceans, and provide technical assistance on the compilation of Ocean Accounts.

Expected outcomes

In the short-term, the exercise has identified gaps in policies and data. The pilot study will enhance Malaysia's capacity to develop and support integrated policies to sustainably manage the ocean, in line with SDG 14 by leveraging existing partnerships, governance frameworks and data. Over the longer term, it is expected to improve the efficiency of data collection and the coherence of analysis to better report on and monitor these policies.

Chapter 2: Review of Malaysia's capacity to implement SDG 14

The first treaty to comprehensively provide for an ocean governance framework for implementation in domestic law is the 1982 Law of the Sea Convention (1982 Convention). Malaysia ratified the 1982 Convention on 14th October 1996. Having ratified the 1982 Convention, Malaysia has been enriched by many sovereign rights, several types of jurisdiction and control over large maritime spaces and resources in the bordering seas: the Straits of Malacca and Singapore, the Straits of Johore, the South China Sea and the Sulu-Sulawesi Seas. While the 1982 Convention has granted a plethora of rights for the benefit of the coastal State, there is also a swathe of concomitant obligations that the nation fulfills on a daily basis, currently, through fragmented oceans governance. The 1982 Convention has 320 Articles spread over 17 Parts and nine Annexes on the rule of law, an important feature for ocean governance. The 1982 Convention has empowered Malaysia to claim 12 nms of territorial sea, 200 nms of exclusive economic zone, and 200 nms of continental shelf. However, Malaysia has not so far adopted a contiguous zone which signifies that under the 1982 Convention it lacks control to prevent infringement of its customs, fiscal, immigration or sanitary laws and regulations beyond its territorial sea. The purpose of the contiguous zone is to defend the territorial sea. Ratification of the 1982 Convention means that Malaysia has a responsibility to implement the Convention in its national legal system and ocean governance framework. To meet the challenges and issues in ocean governance in the 21st century in Malaysia under the 1982 Convention and for the sustainable development of the oceans for inter-generational equity, the recent remark by Prime Minister, Tun Dr Mahathir Mohamad, prioritizing the need for Malaysia to be 'a true maritime nation' must be heeded. Ocean governance challenges arise in various maritime zones of the 1982 Convention, namely, territorial sea, straits used for international navigation, contiguous zone, the exclusive economic zone, the continental shelf and in some cases even on the high seas. The example of the territorial sea and straits used for international navigation is highlighted here.

The inner limits of the territorial sea are delimited by reference to a variety of basepoints and baselines such as normal baselines, straight baselines, internal waters, and low-tide elevations. Special rules are to be observed in the delimitation of the territorial seas between States. There is a duty to deposit nautical charts and lists of geographical coordinates of baselines measuring the breadth of the territorial sea with the Secretary-General of the United Nations. All ships are subject to certain general rules. Merchant ships, government ships operated for commercial purposes, warships and other ships operated for commercial purposes are subject to special rules. Ships, submarines, and other underwater vehicles continue to enjoy a passage regime known as suspendable innocent passage regime.

Coastal State laws are of paramount importance to regulate and protect innocent passage, safety of navigation, regulation of maritime traffic, navigational aids and facilities, cables and pipelines and the marine environment. In addition, Malaysia has to adopt rules for conservation of living resources, prevention of infringement of fisheries law (which is connected to estuarine and mangrove protection), and control of pollution. Finally, marine scientific research and hydrographic surveys, and prevention of infringement of customs, fiscal, immigration or sanitary laws have to be regulated. However, there is a proscription against the design, construction, manning or equipment of foreign ships unless they are giving effect to generally accepted international rules and standards. Generally accepted international rules and standards refer to standards laid down by international intergovernmental organisations such as the International

Maritime Organisation. Due regard and due diligence provisions require attention to be paid to the establishment of sea-lanes and traffic separation schemes, passage of nuclear-powered ships and ships carrying nuclear or other inherently dangerous or noxious substances. Monitoring and enforcement require specific rules on criminal and civil jurisdiction. Territorial sea governance requires input from the Prime Minister's Office, the Ministry of Foreign Affairs, the Ministry of Transport (Marine Department), the Ministry of Agriculture and Agro-based Industry, and the Ministry of Energy, Science, Technology, Environment and Climate Change (seven Departments), and the Ministry of Water, Land and Natural Resources (12 Departments), the Navy, the Marine Police and the National Maritime Enforcement Agency. This maritime zone which represents a microcosm of ocean governance under the 1982 Convention is, however, not applicable to the Straits of Malacca and Singapore, a national artery of trade and commerce mandating a special sub-set of governance for its special status.

Malaysia has since ratification of the 1982 Convention, signed up to many sustainable development initiatives globally including SDG 14 Targets, though the general view is that sustainable development efforts were underway as far back as 1970. Various stakeholders in government are responsible for SDG 14 implementation.

Malaysia was committed to realising Agenda 2030 and its goals. Malaysia's development agenda had always been people-focused, and it ran parallel to the aspirations of the SDGs. The Eleventh Malaysia Plan, 2016-2020 themed "Anchoring Growth on People" continued the Government's development focus of balancing the needs of both the people economy and the capital economy. The 11th MP had six strategic thrusts: inclusiveness towards an equitable society, well-being for all, human capital development, green growth for sustainability and resilience, infrastructure to support economic expansion and economic growth for greater prosperity. These six thrusts mirror the 17 SDGs. Since the adoption of the 2030 Agenda, Malaysia took steps to localise and implement SDGs, within the national context. First, in 2016, Malaysia established a governance structure headed by the Prime Minister then for monitoring and reporting the SDGs. Second, the National SDG Roadmap was finalised which will constitute the main reference for SDG implementation in Malaysia.⁷

However, climate-related ocean disasters are a concern to Malaysia with incidents of coastal flooding, erosion and storms occurring frequently (see Appendix 2 for further details). Malaysia has also suffered an Indian Ocean tsunami in 2004. As Malaysia has been subject to very heavy

⁷Source: MALAYSIA Permanent Mission to the United Nations, <https://sustainabledevelopment.un.org/content/documents/25758malaysia.pdf>, 18 February 2019;

Source: MALAYSIA Focal Point: <https://sustainabledevelopment.un.org/memberstates/malaysia>, 18 February 2019. Statement by H.E. Datuk Seri Abdul Rahman Dahlan Minister in the Prime Minister's Department at the General Debate of the High-Level Political Forum on Sustainable Development 2017. The Statement is not a legal document as it stands. It reflects the political commitment on the SDG and goals and highlights that these efforts are well-captured in the 11th Malaysia Development Plan, synchronising the two. Two Goals, 1 and 5 on Poverty Reduction and Gender Equality respectively are highlighted for consideration. However, no comment is offered on SDG 14 in the statement below. The Minister in the Prime Minister's Department, on 18 July 2017, in New York in his introductory remarks stated that he wished to align with the statements of Ecuador on behalf of the Group of 77 and China.

flooding, it has sought solutions on optimal flood management options and ways and means to be forewarned and to reduce the risks and damages flowing therefrom. It is a State party to the earlier 2005 Hyogo Framework for Action⁸ and the successor instrument the 2015 Sendai Framework in addressing the floods of Malaysia. Malaysia's voluntary reporting under the Hyogo Framework for Action is commendable as mechanisms in place and constraints were identified. However, the voluntary reporting under the Sendai Framework, could be further strengthened. Appendix Three captures the details of Malaysia's response in 2017 to the Sendai Framework and discusses the national implementation of the international standards in the Sendai Framework for the mitigation and forecast of floods in Malaysia. For example, the Public Works Department, Malaysia developed the national slope master plan 2009-2023. The policy and institutional framework seem to be in place. The governance framework in terms of the various layers of relationship between the Federal, State and Local Council was less clear. The legal framework and preparedness is almost lacking. A series of questions on the latter have been prepared to start the process of adopting relevant laws and governance structure for the control and forecast of floods in Malaysia. The more comprehensive questionnaire is the UNISDR Questionnaire set out in Appendix Three. However, the final output from the UNISDR Questionnaire as answered by Malaysia is unknown. The replies could be enhanced through evidence-based replies. DRR has always been in the mainstream of Malaysia's development policy as manifested by the substantial resources that were provided to reduce underlying risk factors and promote sustainable development in the nation's primary development plan – the "Five Year Malaysia Plan". Now in the 11th Malaysia Plan, disaster risk management covered both structural and non-structural measures. The five phases of disaster prevention, mitigation, preparedness, response, and recovery were given emphasis to tackle the problem of floods and other emerging hazards in a holistic manner.

⁸UNISDR, Policy, Plans and Statements, <https://www.preventionweb.net/english/professional/policies/index.php?typid=0&stypid=0&cid=105&x=9&y=7>, 27 April 2019. Malaysia has made 18 statements internationally on disaster risk reduction. Two public statements were made in 2015 and 2017 and they are indicative of state practice. The former Deputy Prime Minister of Malaysia at the Third United Nations World Conference On Disaster Risk Reduction at Sendai Japan, 15 March 2015, highlighted the enormous importance of the Conference as nations sought to protect their economy and people from the devastating effects of natural disasters, a feature faced by both developed and developing nations. To this end, the signing of the Hyogo Framework for Action showed a strong commitment by the international community to address disaster risk reduction and to engage in a determined, result-based plan of action. As the Hyogo Framework was coming to an end, the successor document needed to further strengthen the focus on reducing disaster risks and link up with the post-2015 development agenda, and the global agreement on climate change in order to further improve our efforts to build resilience of nations. The floods of 2014 were the worst the nation had faced hitherto as it affected more than half a million people and wrought damage upon public infrastructure estimated at RM2.851 billion. New areas were inundated and flood water rose at an unprecedented level. It therefore, behoves the global community of States to mandatorily adopt a more holistic and innovative approach (es) to address disaster risks as there are close inter-relationship and inextricable links that exist between disaster risks and other key challenges of poverty reduction, urbanization, sustainable development, and environmental stability in light of the reality of global climate change.

2.1 Stakeholders and data holdings

General Election (GE) 14 in May 2018 saw a reorganization of some of the government ministries and departments. This had some effect on ocean governance although the nation did not have a dedicated oceans and fisheries ministry or national ocean policy. This change and overview of the new mandate is given below.

The new mandate of the Government of Malaysia

Previous	2019	2019
Ministry and Agencies	Ministry	Agencies
Prime Minister's Department National Security Council Economic Planning Unit Malaysian Maritime Enforcement Agency (MMEA)	Prime Ministers Department	National Security Council - MMEA
	Ministry of Economic Affairs	Department of Statistics Malaysia (DOSM) (incl BPPAS, BPE, BPAN)
Ministry of Agriculture and Agro-based Industry	Ministry of Agriculture and Agro-based Industry	Department of Fisheries, Fisheries Development Authority Marine Parks Division Department of Agriculture
Ministry of Information, Communication and Culture Department of Natural Heritage	Ministry of Information, Communication & Culture	Department of Natural Heritage
Ministry of Science, Technology and Innovation National Oceanographic Directorate Malaysia National Oceanographic Data Centre (MyNODC) Meteorological Department Remote Sensing Agency	Ministry of Energy, Science, Technology, Environment and Climate Change	Ocean Renewable Energy? My NODC Malaysian Centre for Geospatial Data Meteorological Department Remote Sensing Agency Departments under MESTECC: <ul style="list-style-type: none"> - Atomic Energy Licensing Board (LPTA) - Department of Chemistry Malaysia (JKM) - Department of Environment Malaysia (DOE)

		<ul style="list-style-type: none"> - Malaysian Nuclear Agency (NUCLEAR MALAYSIA) - Malaysian Meteorological Department (MMD) - Malaysian Remote Sensing Agency (ARSM) - National Space Agency (ANGKASA)
Ministry of Defence Royal Navy National Hydrographic Centre	Ministry of Defence	Royal Navy National Hydrographic Centre
Ministry of Rural and Regional Development Sustainable Islands and Island Communities	Ministry of Rural Development	Council of Trust for the People Community Development Department
Ministry of Water, Land & Nat Resources Malaysian Centre for Geospatial Data Infrastructure MaCGDI Department of Survey and Mapping Msia	Ministry of Water, Land & Nat Resources	MaCGDI Department of Survey and Mapping Malaysia Note: Ministry of Water, Land and Natural Resources (KATS) <ul style="list-style-type: none"> - Department Of Director General Of Lands And Mines (Federal) (JKPTG) - Department of Biosafety - Department of Irrigation & Drainage - Department of Marine Park Malaysia - Department of Wildlife and National Parks (DWNP) - Forest Research Institute Malaysia (FRIM) - Forestry Department Peninsular Malaysia (FDPM) - Malaysian Centre for Geospatial Data Infrastructure (MaCGDI) - Mineral and Geoscience Department Malaysia (JMG) - National Hydraulic Research Institute of Malaysia (NAHRIM) - National Institute of Land and Survey (INSTUN)

		- The Department of Survey and Mapping Malaysia (JUPEM)
Ministry of Natural Resources and Environment Centre for Geospatial Data Infrastructure Department of Environment	Functions now taken over by two others: 1. Ministry of Land, Water and Natural Resources 2. Ministry of Energy, Science, Technology, Environment, and Climate Change	Centre for Geospatial Data Infrastructure Department of Environment
Ministry of Foreign Affairs Multilateral Economic and Environmental Division	Ministry of Foreign Affairs	Maritime Affairs South-East Asia Regional Centre for Counter-Terrorism National Authority on Chemical Weapons Convention
Ministry of Tourism Coastal and Marine Tourism	Ministry of Tourism, Arts and Culture	Agro Tourism
Ministry of Transport Marine Department Port Authority Malaysian Institute of Maritime Affairs	Ministry of Transport	Marine Department Port Authority Malaysian Institute of Maritime Affairs
Ministry of Housing and Local Government Town and Country Planning Department	Ministry of Housing and Local Government	Town and Country Planning
Ministry of Energy, Green Technology and Water - Ocean Renewable Energy	Ministry of Energy, Science, Technology, Environment and Climate Change	
Ministry of Higher Education All institutions of higher learning	Ministry of Education	University of Malaya University Malaysia Terengganu Other institutions of higher learning

Malaysia started the sustainable development journey in the 1970s when the New Economic Policy (NEP) was introduced to eradicate poverty and restructure societal imbalance. All the subsequent 5-year Malaysia development plans have underscored the elements of sustainable development encompassing sustainable economic growth, growth with equitable distribution to all sections of society, access to basic infrastructure and utilities, access to education and healthcare services and mainstreamed environmental conservation.

The National Policy on the Environment⁹ 2002 through a set of principles and strategies paved the way for the sustainable exploitation of its natural resources and development of its national economy. Through sustainable development, it ensures the continuous economic, social and cultural progress and enhancement of the quality of life of Malaysians. The objectives focus on: (1) A clean, safe, healthy and productive environment for present and future generations; (2) Conservation of the country's unique and diverse cultural and natural heritage with effective participation by all sectors of society; and (3) Sustainable lifestyles and patterns of consumption and production. Eight principles harmonise the economic and environmental goals to foster long-term economic growth and human development, and to protect and enhance the environment. It complements and enhances the environmental dimensions of other national policies, such as those on forestry and industry and recognises the international conventions.

These principles are:

- Stewardship of the Environment;
- Conservation of Nature's Vitality and Diversity;
- Continuous Improvement in the Quality of the Environment;
- Sustainable Use of Natural Resources;
- Integrated Decision-Making;
- Role of the Private Sector;
- Commitment and Accountability; and
- Active Participation in the International Community

In 2009 Malaysia embraced the 1992 Rio Summit model of sustainable development comprising the three pillars of economic, social and environmental development. In 2009, Malaysia formulated the New Economic Model (NEM) which further cemented Malaysia's commitment to pursue sustainable development based on three pillars, namely high income, inclusivity and sustainability, which mirrors the three elements of the SDG, namely economy, social and environment. Even now, the NEM continues to provide the basis for the 5-year Malaysia development Plan until 2020. The current 5-year Malaysia Plan i.e. the 11th Malaysia Plan (2016-2020) is premised on the three pillars of NEM. The 11th Malaysia Plan, themed "Anchoring Growth on People," states that people are at the epicenter of all development efforts and no section of society is left behind in participating and benefiting from the nation's development.

Sustainable development is not a new concept in Malaysia for it has gone from strength to strength with recent participation in international transboundary conservation efforts such as the Heart of Borneo and Coral Triangle Initiatives. For Malaysia it is not a new start but continuing a process already in motion. For SDG 13, 14, 15, & 1 as of 2015, the nation maintained:

- more than 50% forest cover, 10.76% as terrestrial protected areas and 1.06% as marine protected areas;
- reduction of carbon intensity by 33% since 2009, increasing renewable energy capacity;

⁹ Source: Official Portal of the Department of Environment, <https://www.doe.gov.my/portalv1/en/tentang-jas/pengenalan/dasar-alam-sekitar>, 21 April 2019.

- participation in international transboundary conservation efforts for forests like the Heart of Borneo initiative;¹⁰ and
- Malaysia's participation in the international transboundary conservation efforts, Coral Triangle Initiative for marine areas.¹¹

Agenda 2030 intensified the resolve to promote sustainable development as Malaysia aligned the SDG principles with the 11th Malaysia Plan that entrenched SDGs in all facets of Malaysia's development.

The Government of Malaysia committed, during UN General Assembly in 2015, that Malaysia would adopt and implement Agenda 2030 on sustainable development.

The 17 SDGs were implemented in a systematic and measurable manner as Malaysia as,

- established a multi-stakeholder, participatory governance structure;
- held two national SDG symposia to promote participation of stakeholders;
- conducted studies on data readiness and gap analysis;
- undertook a mapping exercise involving non-government and civil society organisations and the private sector to align SDGs with the 11th Malaysia Plan initiatives; and
- established a National SDG Roadmap to guide implementation of Agenda 2030 and the SDGs.

The next steps focused on:

- localization of SDGs at sub-national levels by replicating the national multi-stakeholder governance structure at state levels;
- mobilization of resources and funding through partnerships i.e. crowd sourcing, social entrepreneurship, CSR programmes, support and funding from international sources; and
- strengthening data readiness and filling data gaps to develop a comprehensive dataset for SDG implementation.

¹⁰ Malaysia's achievements on the Sustainable Development Goals:

- SDG 1&2: Absolute poverty reduced from 49.3% (1970) to 0.6% (2014) with no reported cases of hunger;
- SDG 3: Child and maternal mortality rates are almost at the level of developed countries; eradicated endemic small pox and polio and reversed the spread of HIV/AIDS. Drastic reductions in water-borne diseases, deaths from treatable childhood diseases and malaria;
- SDG 4&5: More than 90% enrolment rates for primary and secondary school levels for both boys and girls and 33% for higher education with gender ratio slightly in favour of girls;
- SDG 6: Over 95% coverage for water and sanitation, and electricity supply at national level;
- SDG 7,12 & 16: Laws, regulations, policies and plans in place to better protect and ensure sustainable use of natural assets;
- SDG 8: Full employment since 1992;
- SDG 10: Income inequalities reduced, as indicated by lower Gini Coefficient from 0.513 (1970) to 0.401 (2014);

¹¹Source: Voluntary National Review, MALAYSIA, 2017, <https://sustainabledevelopment.un.org/memberstates/malaysia>, 18 February 2019.

On 30 August 2017, the Sustainable Development Solutions Network (SDSN) Malaysia released a publication on initiatives that help to achieve the SDGs and on the best practices that are aligned with the 11th Malaysia Plan (2016-2020) and the SDGs.

Forty-three countries including Malaysia presented a Voluntary National Review (VNR) of its SDG progress at the 2017 session of the High-level Political Forum on Sustainable Development (HLPF). Malaysia highlighted its achievements as follows:

- formulation of a National SDG Roadmap to guide SDG implementation;
- establishment of a multi-stakeholder, participatory governance structure to support SDG implementation;
- organized two national SDG symposia;
- held a mapping exercise with civil society and the private sector to align the SDGs with the 11th Malaysia Plan initiatives;
- published a work titled ‘Rising to the Challenge: Malaysia’s Contribution to the SDGs,’ that considered opportunities for scaling up, institutionalizing and mainstreaming the initiatives that contribute to both the 11th Malaysia Plan and the SDGs.¹² Universiti Kebangsaan Malaysia, Universiti Teknologi Petronas and WWF-Malaysia contributed to the publication; and
- the SDSN Malaysia chapter was launched in October 2013 to achieve its development goals and to mobilize knowledge, scientific and technical expertise to support sustainable development solutions.¹³

From the above, it can be deduced that at a broad governmental level, Malaysia has in policy implemented the SDG goals as a first step, as the implementation of the SDGs has been aligned with the 11th Malaysia Plan. The National SDG Roadmap sets out the priorities and plan of action for implementation.

2.2 Concerns and Plans

The concerns and plans of the various stakeholders are set out below. The stakeholders considered here are the Marine Department, the Malaysian Institute of Maritime Affairs, the Department of Fisheries, the National Hydrography Center, the National Disaster Management Agency, the Institute of Ocean and Earth Sciences, the Department of Minerals and Geoscience, the Department of Agriculture, the Ministry of Economic Affairs, the Ministry of Energy, Science, Technology, Environment and Climate Change, the National Hydraulic Institute of Malaysia and the Department of Environment. A major plan for all stakeholders is the 11th Five-year Malaysia Development Plan. There are many data providers to these stakeholders, namely,

- Department of Statistics Malaysia (DOSM);

¹² Publication Showcases Malaysia’s SDG Implementation : High-Level Political Forum on Sustainable Development, <http://sdg.iisd.org/news/publication-showcases-malaysias-sdg-implementation/>, 27 February 2019.

¹³ Publication Showcases Malaysia’s SDG Implementation: High-Level Political Forum on Sustainable Development, <http://sdg.iisd.org/news/publication-showcases-malaysias-sdg-implementation/>, 27 February 2019.

- Ministry of Economic Affairs;
- Ministry of Water, Land and Natural Resources;
- Ministry of Science, Technology, Environment and Climate Change;
- Ministry of Transport;
- Ministry of Agriculture and Agro-based Industry;
- Fisheries Development Board Malaysia;
- Malaysian Centre for Geospatial Data Infrastructure (MaCGDI);
- National Disaster Management Agency;
- National Hydrography Institute;
- Department of Fisheries;
- Division of Marine Parks;
- Department of Environment;
- Department of Survey and Mapping;
- Department of Agriculture;
- Marine Department Malaysia;
- Malaysia Maritime Enforcement Agency;
- Malaysia National Oceanographic Data Centre (MyNODC);
- University of Malaya;
- University Malaysia Terengganu;
- ESCAP;
- National Hydraulic Institute of Malaysia And Drainage and Irrigation Department;
- Department of Environment – Water and Marine Division;
- ASEAN Working Group on Coastal and Marine Environment (AWGCME);
- The Coordinating Body on the Seas of East Asian (COBSEA);
- Revolving Fund Committee (RFC);
- ASEAN Maritime Transport Working Group (AMTWG);
- Malaysia-Singapore Joint Committee on Environment (MSJCE);
- National Oil Spill Control Committee comprising 17 agencies /stakeholders; and
- Environmental Quality Monitoring Programme of the Department of environment.

The main data users are:

- Prime Minister’s Department
- Ministry of Finance
- Ministry of Economic Affairs
- Ministry of Water, Land and Natural Resources
- Ministry of Science, Technology, Environment and Climate Change
- Ministry of Agriculture and Agro-based Industry
- University of Malaya
- Malaysian Institute of Maritime Affairs
- National Oil Spill Control Committee
- Public - Environmental Quality Report

- Farmers, Fishermen, Researchers and Politicians – DOF data
- Researchers, fishermen, local authority, policy makers, academicians – MESTECC data
- Government agencies, universities, students and international researchers, private sectors either for Joint – Ventures research or consultation project – NAHRIM data.

The Department of Statistics Malaysia (DOSM) was the principal statistics provider of the nation. The DOSM was the leader of the Pilot Project in establishing an appropriate mechanism and in enlisting the coordination and cooperation of all relevant Ministries, Departments and Agencies to conduct the Pilot Ocean Accounts Project for Malaysia using the SEEA Framework. The DOSM also functions as the Secretariat for the Ocean Accounts Project for Malaysia. It has previous experience in water and energy accounts for the Ocean Accounts project to leverage on. The DOSM takes the leadership in the development of a regional and global approach for ocean statistics: the first of its kind in the world.

In terms of the statistical context of the agencies, the DOSM publishes the National Quality Assurance Framework (NQAF) and Survey of Environmental Protection Expenditure, 2015. The MESTECC states it has no collaboration with the DOSM. The DOE (Water and Marine Division) uses statistics in its line of work as seen in the Marine Water Quality Index as specified in EQR and in the oil spill incidents reporting statistics. The Department of Minerals and Geo-Science publishes the Malaysia Mineral Statistical Report yearly.

For priority accounts and statistics, the following are relevant:

- Test accounts for extent & conditions;
- Test accounts for extent & aquatic resources;
- Test accounts for conditions; and
- Test accounts for water emissions, wastewater, solid waste.

Generally, it was hoped to use Malaysia's Open Data Portal for ocean accounts.

2.2.1 Marine Department

The objective of the Marine Department Malaysia (Ministry of Transport) is to provide safe and secure administration for shipping/ports and maritime affairs; safe and secure Maritime Transportation System; drive National Maritime Growth; empower Marine Environment Protection System; provide for Safety of Navigation Service; provide training and certification of seafarers; prevent pollution from ships; and implementation of IMO conventions. The National Oil Spill Contingency Plan (NOSCP) was adopted for the purpose of oil spill control. The Marine Department Malaysia has entered into regional co-operative arrangements for the control of oil spills, Partnership on Oil Spill Preparedness and Response in the Gulf of Thailand, Cambodia and Vietnam, Joint Oil Spill Combat in the South China Sea including Brunei Bay (Brunei Darul Salam) and Malaysia and ASEAN Oil Spill Preparedness and Response.¹⁴

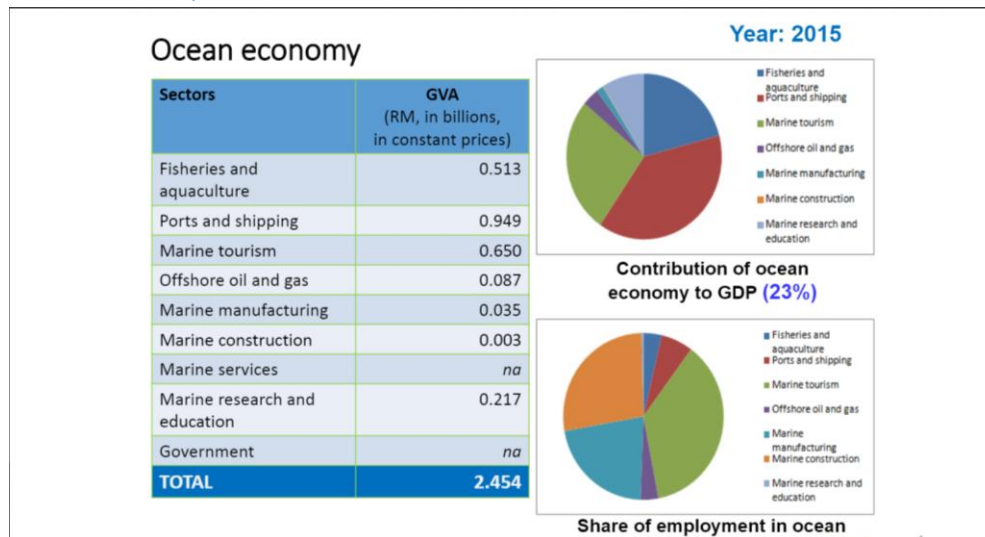
¹⁴ Marine Department Replies to ESCAP Questionnaire and Presentation by the Agency at the First National Ocean Accounts Workshop for Malaysia, 4th and 5th April 2019, Department of Statistics Malaysia, Putrajaya. For details see Appendix Two.

2.2.2 Malaysian Institute of Maritime Affairs

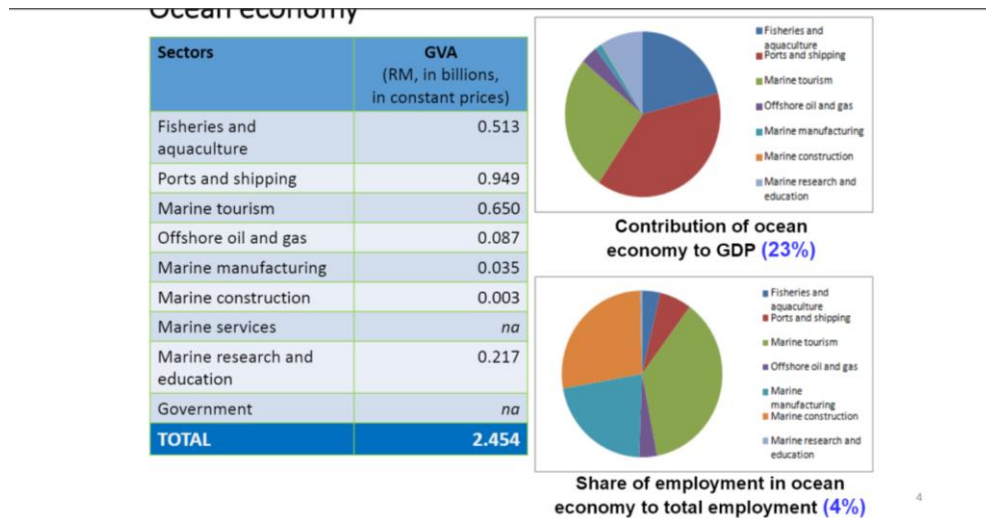
The Malaysian Institute of Maritime Affairs (MIMA, Ministry of Transport) identified the Blue Economy adopted at the 14th IORA Ministerial Meeting in Perth in October 2014 as the main concern. This was because it not only caused more marine pollution but also required resilient Infrastructure to withstand the adverse impacts of climate change. However, all was not well with the concept of it. Several questions remained unanswered such as: was the current infrastructure resilient? How was resiliency of future projects ensured? How were risks managed at a systemic level? The MIMA stated that many gaps existed within the concept of the Blue Economy, though the concept was relevant to Malaysia with its focus on fisheries, aquaculture, renewable ocean energy, seaports and shipping and seabed exploitation and minerals. However, there was uncertainty over the various contributions of various sectors to the ocean economy of Malaysia for the year 2015. In an effort to arrive at statistics on the ocean economy, MIMA used DOSM Statistics that required further reconfirmation due to the lack of precise data.

MIMA hoped to continue participation at the IORA Forum on the Blue Economy through the Ministry of Foreign Affairs. The constraint was that there were uncertainties over the adoption of Blue Economy for Malaysia and lack of data for economic value from the oceans. MIMA hoped to assess the resiliency of the Blue Economy Concept and Economic output from the oceans.¹⁵

Table 3: Ocean Economy



¹⁵ MIMA Presentation by the Agency at the First National Ocean Accounts Workshop for Malaysia, 4th and 5th April 2019, Department of Statistics Malaysia, Putrajaya. For details see Appendix Two.



2.2.3 Department of Fisheries

The main concerns of the Department of Fisheries (Ministry of Agriculture and Agro-based Industry) are over fishing, degradation of resources, pollution and encroachment by foreign fishing vessels. The plans adopted by the Department of Fisheries are the National Plan of Action for the Coral Triangle Initiative (NPOA-CTI) 2009; the National Policy for Biological Diversity 2016-2025; the Fisheries Act 1985; the Convention on the Protection of Wetlands of International Importance especially for Waterfowl Habitat, 1971; National Stratified Random Sampling for Fisheries; the National Plan of Action to Prevent, Deter and Eliminate IUU Fishing; and the National Plan of Action for Management of Fishing Capacity in Malaysia 2014–2018.

The data sources of the Department of Fisheries are given below:

- The Annual National Stratified Random Sampling;
- Annual Fisheries Statistics (Department of Fisheries);
- SEAFDEC Reports;
- The Fisheries Research Institute;
- Land-based sources of marine pollution: Environmental Quality Report (Department of Environment);
- Marine Parks published papers and articles;
- National Disaster Management Agency reports; and
- Compendium of Environment Statistics 2018.

Unofficial data sources for Fisheries Department

- Fishermen;
- NGOs;
- Wholesalers;
- Retailers;
- Downstream players; and
- Departments', District and State staff.

Existing compilations

- Annual Fisheries Statistics;
- Environmental Quality Report 2017 (DOE); and
- Compendium of Environment Statistics 2018.

The Department of Fisheries has international partners such as SEAFDEC, FAO, IOTC, USAID, ASEAN, WorldFish, UNEP, GEF, BOBLME; Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security; Enhancing South-South cooperation for capacity building in science: Towards Economic Resilience to Natural Shocks in the Pacific and Southeast Asia; Eradicating Fish Bombing in Sabah by 2020; IHO Hydrography Capacity Building Programme for Coastal States; and UNESCAP: Ocean accounts.

In terms of opportunities, the Department of Fisheries has developed a 38 mm cod-end mesh size for trawl net in all fishing zones. It has also adopted the fish zoning system that has reduced the conflict between traditional and commercial fishing, created awareness and developed the Communication, Education, Participation and Awareness / (CEPA) programme. Finally, it has established a new act to replace obsolete law. Some constraints were the high expenditure incurred in MCS (Monitoring, Control and Surveillance); Budget allocation; Human resource; Education and awareness of fishermen; and a lack of skill and knowledge on the part of the fishermen.

Priority actions for the Department of Fisheries consist in developing GIS and spatial data regarding the ocean that address post-harvest losses, waste and fish distribution; strengthening awareness and education among the stakeholders and ocean governance concentrating on relevant agencies in the same ministry.¹⁶

2.2.4 National Hydrography Center

The National Hydrography Center (Ministry of Defence / Navy) took over from the Navy and was established as a Hydrographic Department in 1964. It carries out hydrographic surveys and is responsible for the Operation and Submarine charts for Defence and MAL charts and Tide Tables for the Public. The Center has amongst others, a Hydrography Section and a Geospatial Section.¹⁷

2.2.5 National Disaster Management Agency

Malaysia is prone to climate change disasters such as coastal floods and storms. The National Disaster Management Agency (NDMA, Prime Minister's Department) is concerned about flooding as 10.1 % (33.298 square miles) of the country's total area is flood-prone areas. About 5.67 million people lived in flood-prone areas. The Yellow Floods of 2015 affected 541,896 victims and 136,447 families. Currently there were only 1,335 evacuation centers. The death toll revealed that twenty-five persons had died. Infrastructure losses amounted to RM 2.9 billion with

¹⁶ Department of Fisheries Replies to ESCAP Questionnaire and Presentation by the Agency at the First National Ocean Accounts Workshop for Malaysia, 4th and 5th April 2019, Department of Statistics Malaysia, Putrajaya. For details see Appendix Two.

¹⁷ National Hydrography Center Replies to ESCAP Questionnaire and Presentation by the Agency at the First National Ocean Accounts Workshop for Malaysia, 4th and 5th April 2019, Department of Statistics Malaysia, Putrajaya. For details see Appendix Two.

2,076 houses destroyed and 6,698 houses damage. There was a high recovery cost at RM 3.4 billion and post-disaster contracts were worth RM1.51 billion (USD378million). As the National Focal Point for Disaster Management, NDMA was required to coordinate eleven roles and responsibilities of the Agency and it is also responsible for formulation of the National Disaster Management Policy. The NDMA faced issues and challenges in the coordination of DRR as it required a multi-sectoral approach as stakeholders are from infrastructure, urban development, education, health, agriculture. The agency also felt the need to strengthen coordination and capacity building as currently staff capacity and experienced staff were limited in number and there was a gap in knowledge. Decision-making was difficult as R&D activities required a science- and evidence-based approach through collaboration and engagement.

The NADMA practiced a three-level mechanism for its operations:

- 1) The Central Disaster Management Committee was chaired by the Deputy Prime Minister/Minister at the Prime Minister's Department and it was responsible for setting the policy and strategy in disaster management, mobilized assets, and gave monetary assistance and human resources.
- 2) The State Disaster Management Committee was chaired by the State Secretary and it assisted the District level in terms of assets, monetary assistance and human resources.
- 3) The District Disaster Management Committee was chaired by the District Officer who coordinated actions, deployed sufficient assets and human resources, and managed the media.¹⁸

2.2.6 Institute of Ocean and Earth Sciences

The Institute of Ocean and Earth Sciences (IOES), University of Malaya (Ministry of Education) did not identify any particular concern. The IOES emphasised Research, Academic Training and Technology Development, Globalization, Consultancies, Innovation and International Accreditation. Focused on Marine Biotechnology, Marine Biodiversity and Coastal Studies, Maritime Community, Law, Policy & Governance, Air-Ocean-Land Interaction Studies & Climate Change, and a Marine Research Station at Bachok, Kelantan.¹⁹

2.2.7 Department of Minerals and Geoscience

The Department of Minerals and Geoscience focuses on the exploration of non-living seabed resources such sand and other minerals except for oil and gas. The main concern is the environmental impact that is caused from seabed mining such as sand and other minerals. The objective of the Department is to take the lead in mineral and geoscience development by 2020; enhance nation's economic competitiveness and quality of life through mineral and geoscience information; provide mineral commodity information to enhance the growth of the mineral-based industries; encourage the optimal use of geoscience information and services for sustainable

¹⁸ National Disaster Management Agency Replies to ESCAP Questionnaire and Presentation by the Agency at the First National Ocean Accounts Workshop for Malaysia, 4th and 5th April 2019, Department of Statistics Malaysia, Putrajaya. For details see Appendix Two.

¹⁹ The IOES Presentation by the Agency at the First National Ocean Accounts Workshop for Malaysia, 4th and 5th April 2019, Department of Statistics Malaysia, Putrajaya. For details see Appendix Two.

development of the country; ensure mineral resources developed in a systematic, safe, efficient and environmentally friendly manner and secure maximum returns to the country; encourage and diversify the use of local mineral resources; provide expert services in the fields of minerals, geoscience and mining at the national and international levels; conduct Marine Geology Surveys to identify mineral resources in offshore areas; identify and evaluate environmental impact of development in offshore areas; and collect and compile baseline geological information and mineral resources in offshore areas.²⁰

Marine Geology Unit gathers and compiles baseline data on geology and mineral resources in coastal and offshore areas in Malaysia's Continental Shelf & Exclusive Economic Zone. Functions included amongst others, the conduct of Geophysical Survey, Seabed Sediment Sampling, Coastal Geology Mapping (Langkawi & Penang), Offshore Sand Resources Study, Coastal Reclamation, Shoreline Restoration, and Sand Dredging, Sea-level Changes, Extended Continental Shelf and production of Digital Maps in ArcGIS; and Advise and Inform on maritime and continental shelf issues to the National Security Council, the Ministry of Foreign Affairs, the Survey and Mapping Department, the National Hydrographic Center, the Fisheries Department and the State Government Agencies.

The plans of the Department of Minerals and Geoscience are the National Mineral Policy 2, Geological Survey Act, 1974 (Act 129), Mineral Development Act, 1995 (Act 525), the Continental Shelf Act, 1966 (Act 83) and the State Mineral Enactments. The Marine Geology Department Surveys from 1986-2015; Marine Geology Project (2016-2020) which comprises the National Marine Sand Resources Study Phase III –Pahang and Johore Offshore and A Study for the Sustainable Offshore Sand Mining in the One Fathom Bank (OFB) and its Surrounds, Off Port Klang, Selangor.

The data sources for the Department of Minerals and Geo-Science are given below:

Main data are from surveys of the seabed and coastal sediment, seismic, side scan sonar and environment. The Department publishes Technical report and conference papers. Data used by DOSM, Department of Director-General for Land and Mines, National Hydrography Center, Department of Fisheries, Fisheries Research Institute, Universiti Malaysia Terengganu, National Security Council, Department of Mapping and Survey Malaysia, Malaysian Centre for Geospatial Data Infrastructure (MaCGDI) and National Hydraulic Research Institute of Malaysia (NAHRIM).

The Department has also participated in an SDG indicator mapping exercise/ SDG capacity assessment/ Voluntary National Report/ Data inventory/ Review of the National Statistical System/ Institutional mapping/ other international activities. The Department supports the Mineral Industries Statistical.

The Department of Minerals and Geo-Science takes part in the Coordinating Committee for Geoscience Programmes in East and Southeast Asia (CCOP); and the ASEAN Ministerial Meeting on Minerals (AMMin). At the national level, it has dealing with the Department of the Director-

²⁰ Department of Minerals and Geoscience Replies to ESCAP Questionnaire and Presentation by the Agency at the First National Ocean Accounts Workshop for Malaysia, 4th and 5th April 2019, Department of Statistics Malaysia, Putrajaya. For details see Appendix Two.

General for Land and Mines; The National Hydrography Center; Department of Fisheries; Fisheries Research Institute; Universiti Malaysia Terengganu; National Security Council; Department of Mapping and Survey Malaysia; Malaysian Centre for Geospatial Data Infrastructure (MaCGDI); and National Hydraulic Research Institute of Malaysia (NAHRIM).

It hoped to develop Maps and Indicators and translate the mandate given by Prime Minister to be a “True Maritime Nation.” There were constraints such as lack of a Sustainable Development Index (SDI) in mining and Quarrying for the ocean/seabed and there were current gaps in seabed mining. There were also constraints to developing maps and indicators such as a lack of a National Ocean Policy, the lack of a new ministry or department that will look into the maritime issues and legislation and management of oceans in a holistic manner. The Department of Minerals and Geoscience hopes to form a task force and revisit the draft National Ocean Policy (NOP) and paper to form the National Institute of Oceanography (NIO) which was already completed in 2009.²¹

2.2.8 Department of Agriculture

The Department of Agriculture’s problems are concerned with attitude, manpower, and budget allocation. An important plan of the Department is the ASEAN-GAP Good Agricultural Practice Plan. The data sources of the Department of Agriculture are from:

- Crop Statistics (Food Crops Sub-Sector);
- Fruit Crops Statistics;
- Vegetables and Cash Crops Statistics;
- Industrial Crops Statistics;
- Herbs and Spices Statistics;
- Paddy Statistics of Malaysia;
- Paddy Production Survey Report Malaysia (Main Season); and
- Paddy Production Survey Report Malaysia (Off Season).

There is a need to increase awareness on the part of the agricultural farmers, management, and policy makers. However, the constraints lay in the improvement of farm productivity and production of safe and quality food; welfare, safety and health of workers and employees and in preserving the environment. The priority action has been to promote Zero Paraquat Campaign. (Paraquat is a very poisonous chemical) Other priority actions include the development of a land use map, development of the MAKGEO-Padi system followed by the use of drones/ satellites in agricultural farming.²²

²¹ Ibid.

²² Department of Agriculture Replies to ESCAP Questionnaire and Presentation by the Agency at the First National Ocean Accounts Workshop for Malaysia, 4th and 5th April 2019, Department of Statistics Malaysia, Putrajaya. For details see Appendix Two.

2.2.9 Ministry of Economic Affairs

The Ministry of Economic Affairs referred to problems of conservation of the coastal and marine ecosystems, pollution control, detrimental socio-economic activities to the ecosystems and poor ocean governance, unsustainable practices, insufficient enforcement and uncontrolled development activities. The most important ocean-related plan of the Ministry of Economic Affairs is the 11th Malaysian Development Plan: Mid Term Review *RMK-11*, Pillar 5, Strategy B2: Conserving Coastal and Marine Ecosystems. The mechanism of the Ministry of Economic Affairs lay in the National SDG Council and the RMK12 IAPG Committee. The data sources of the Ministry of Economic Affairs are from Ministries and agencies related to ocean governance. There was an opportunity to establish a coordination and monitoring committee to oversee ocean governance and statistics. The Ministry hoped to establish a coordination and monitoring committee on ocean governance and statistics as opposed to 32 agencies now (for list of agencies, see Appendix 2).²³

2.2.10 Ministry of Energy, Science, Technology, Environment and Climate Change

The Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC) identified concerns in coastal and marine areas, ocean governance, sustainable marine resources, transboundary issues, carrying capacity of a marine protected area, enforcement and coastal community adaptation to climate change.²⁴

In coastal and marine areas, the issue of gazetting an area as a protected area often arose. Often, there was disagreement with the artisanal and commercial fishermen. The Ministry also faced a lack of manpower to effectively manage and protect the areas. Compliance was enforced by tour operators and tourists. There was not much data to support any conservation effort. There was also a disparity between Parks Enactment and Fisheries Law. A main concern here was the lack of data and means to collect them followed by overlapping jurisdiction of various agencies. In ocean governance, the main areas of concern were the lack of an ocean policy and a marine spatial plan (MSP) for the country. There was also a lack of manpower and assets and often there were loopholes due to an overlap of jurisdiction between three agencies, namely, the MMEA, Marine Dept, and DOF followed by a lack of expertise to design an MSP. The issues that arose for consideration in sustainable marine resources were three-fold, namely,

- Translation of principles and concepts of EAFM into policies and projects;
- Lack of human resources; and
- Need to strengthen stakeholders participation at all levels.²⁵

²³ MEA Replies to ESCAP Questionnaire and Presentation by the Agency at the First National Ocean Accounts Workshop for Malaysia, 4th and 5th April 2019, Department of Statistics Malaysia, Putrajaya. For details see Appendix Two.

²⁴ MESTECC Replies to ESCAP Questionnaire and Presentation by the Agency at the First National Ocean Accounts Workshop for Malaysia, 4th and 5th April 2019, Department of Statistics Malaysia, Putrajaya. For details see Appendix Two.

²⁵ Ibid.

The transboundary issues required a delineation of the seascapes and identification of the priority seascapes for investment. There was also a lack of shared programmes among neighboring countries. Further, there was an urgent need to adopt an inter-governmental agreement to protect migratory areas for endangered animals (sea turtles, whale sharks, etc.). On carrying capacity of a MPA, there was a lack of study on this point and on the marine resources of an MPA. The purpose of an enforcement was to formulate a nationwide syllabus for marine park ranger training and for the purchase of monitoring and enforcement equipment. For coastal community adaptation to climate change, there was a need for sufficient data. It was also important to increase expertise and awareness.

The plans of MESTECC are the Coral Triangle Initiative (CTI): Memorandum of the Council of Ministers (*Jemaah Menteri*) 2009 & 2012, the CTI-CFF Leaders Agreement dated 15 May 2009 and the Joint China Malaysia (JCM) – Memorandum of Understanding (MoU) 2009 – 2019; the National Agro-Food Policy - *Dasar Agromakanan Negara*, the National Biological Diversity Policy - *Dasar Kepelbagaian Biologi Kebangsaan*, the Zero-Single Use Plastics Roadmap and the National Plan of Action for the Coral Triangle Initiative - (NPOA) CTI.²⁶

The data sources of MESTECC are given below:

- Implementing agencies namely Department of Fisheries Malaysia (DOFM), Department of Fisheries Sabah (DoFS), Sabah Parks, Borneo Marine Research Institute (BMRI), Universiti Malaysia Sabah (UMS). Data sources also include data Reporting during Technical Working Group Meeting. Publications include scientific articles, factsheet, and reports: Tool: NPOA dashboard.

The MESTECC has international partnerships with respect to:

- Protected Areas - Goal 3 Coral Triangle Initiative (CTI) at national & regional level, Gazettement of Tun Mustapha Park on May 2016 and also Declared as “Shark Sanctuary”;
- Ocean Governance - Semporna PCA started with MSP has yet to be implemented to other area;
- Sustainable marine resource - Semporna PCA started with MSP has yet to be implemented to other area;
- Transboundary - Goal 1 Coral Triangle Initiative (CTI) at national & regional level and Turtle Islands Heritage Protected Area (TIHPA); and Coastal community adaptation to climate change - Goal 4 Coral Triangle Initiative (CTI) at national & regional level
- National, sub-regional and international organisations of collaboration - USAID, UN, ADB, GIZ, State Oceanography Administration (SOA).
- Institutional mechanisms: Technical Working Groups, CTI National Coordinating Committees (NCC).

Most importantly, it was time to have one focal point for maritime governance. Currently, there was a lack of an anchor in maritime governance. MESTECC’s priority actions include enhancing marine protected areas, ocean governance, sustainable development of marine resources,

²⁶ Id.

transboundary cooperation, train on the carrying capacity of a marine protected area, enforcement and coastal community adaptation to climate change. These are summarised below.

1. Protected area – Expand all current MPAs & introduce 3 new MPAs: 2.041 million ha in total (14.3% Aichi goal); Engage with local communities and stakeholders for management of MPA; and Increase baseline data to support conservation effort.
2. Ocean governance - Strengthen legislation on marine environment pertaining fisheries stock; Enhance smart partnership with stakeholders; Reconcile legislation at federal & state level; Strengthen Monitoring, Control & Surveillances (MCS) on ocean program; and Need support from government and stakeholders to implement MSP.
3. Sustainable Marine Resource - Socialize and build support for Coastal Fisheries and Poverty Reduction *Initiative* (COASTFISH) (initiatives) to craft a national COASTFISH framework and program(s); Establish Fisheries Management Plan (FMP); Actively participate in terrestrial engagement with climate change impacted marine environment; and Educate public on conscious consumption of seafood and marine resources.
4. Transboundary - Establish Sulu Sulawesi as Malaysia’s priority; Develop concrete joint management action/plans based on connectivity and characteristics between the Sulu-Sulawesi countries; and Establish more G2G collaboration.
5. Carrying Capacity on MPA - Training on environment management.
6. Enforcement - Strengthen Monitoring, Control & Surveillances (MCS); Community enforcement and responsibility for caring of marine parks; and Establish mechanisms/laws to enable this to happen.
7. Coastal Community Adaptation to Climate Change - Climate Change Center of Excellence (CC-COE) and adopt a Blue Carbon Framework.
8. General - Maps and Indicators should be developed to address its mandate/ concerns; Prioritises the establishment of a central body to coordinate the governance of maritime affairs in the country, as an immediate action to strengthen ocean governance and statistics.²⁷

2.2.11 National Hydraulic Institute of Malaysia

The National Hydraulic Institute of Malaysia (NAHRIM) addressed concerns related to the hydro-environment ecosystem which was interconnected and needed to be addressed as a chain of networks such as:

- River mouth management caused by sediment transport processes;
- Coastal erosion and accretion which occur seasonally;
- Sea level rise;
- Phenomenal storm surge;
- Coastal land use losses due to natural and anthropogenic factors; and

²⁷ Id.

- Redundancy / overlapping and cross – sectional interest in policies.²⁸

NAHRIM's plans include the National Coastal Zone Physical Plan, the Integrated Coastal Zone Management for Malaysia (Malaysian Chapter); the Integrated Shoreline Management Plan (ISMP) based on the recommendation and findings of the National Coastal Erosion Studies (NCES, 1985) updated in 2015; for World Ocean Navigational policies, the United Nations Convention on the Law of the Sea (UNCLOS) 1982; The Town and Country Planning Department of Malaysia - National Physical Zone Coastal Plan - *Rancangan Fizikal Zon Pesisir Pantai Negara (RFZPPN)* to be updated in 2021), that will cover coastal areas in states that do not have their own ISMP yet. For ocean scientific related policies – the Intergovernmental Panel on Climate Change (IPCC). The International Journal of Marine and Coastal Law that specifically addressed the issues in Malaysia entitled “Current Issues of Marine and Coastal Affairs in Malaysia” (ISSN: 0927-3522; Publisher: Brill/Nijhoff; Website: <https://doi.org/10.1163/157180897X00077>). NAHRIM Key Performance Indicators (KPI) and SOP for conducting research - the Guidelines for Preparation of Coastal Engineering Hydraulic Studies and Impact Evaluation (Fifth Edition: 2001), Malaysia Water Quality Index (WQI) and MS ISO 9001, and Malaysia disaster management reference handbook 2016, <https://www.preventionweb.net/publications/view/47331>, 27 Feb. 2019

The data sources for NAHRIM are given below:

- Hydrographic survey, oceanographic elements, geo-hydrology, atmospheric data – rainfall and climate change related and water quality studies. The main publications are Technical Reports, Journal, Working Group and Proceedings.²⁹

NAHRIM's international and national collaborations take many forms. First, with the International Association for Hydro-Environment Engineering and Research (IAHR) followed by Malaysia's Initial National Response Strategies to Climate Change to UNFCCC, 2nd National Communication Report to UNFCCC (NC2), Malaysia's Third National Communication and Second Biennial Update Report to UNFCCC (TNC), COBSEA, UNEP, Coral Triangle Initiatives Malaysia Plan of Action (CTI-NPOA), National Mangrove Planting Programme, Institute of Engineers Malaysia (IEM), Third National Physical Plan (RFN3) and National Coastal Zone Physical Plan (NPP-CZ) (Town & Country Planning Department), Integrated Water Resource Management (IWRM) and other relevant meeting organized at the National or state level, representing ministry and country in conferences and workshop organized globally especially related to Climate Change. NAHRIM is actively involved in National Action Plan for disaster related problem e.g. coastal flooding, hydraulic studies, EIA meeting and climate related problem through various workshop and working group.

NAHRIM would like to adopt the National Endorsement on budget for the establishment of long term Physical and Oceanographic data monitoring; strengthen ocean governance and statistics;

²⁸ National Hydraulic Institute Replies to ESCAP Questionnaire and Presentation by the Agency at the First National Ocean Accounts Workshop for Malaysia, 4th and 5th April 2019, Department of Statistics Malaysia, Putrajaya. For details see Appendix Two.

²⁹ Ibid.

and establish permanent station for wave and current data monitoring. Long Term Data Ocean Monitoring required sufficient yearly budget. NAHRIM hopes to adopt an Open source DEM with high resolution.³⁰

2.2.12 Department of Environment

The concerns of the Department of Environment (DOE, Marine and Water Division) (MESTECC) are focussed on land-based pollution, oil spill pollution and coastal development. The plans of the Marine and Water Division of the DOE are the Malaysian Marine Water Quality Standards under the 11th Malaysia Plan; and the DOE Strategic Plan 2011-2020 and the Environmental Quality Report.

The data sources for the DOE (Water and Marine Division) are given below:

- The main data sources are the EQMP and enforcement data.
- The Environmental Quality Report.

The DOE's (Water and Marine Division) participates in the ASEAN Working Group on Coastal and Marine Environment (AWGCME), the Coordinating Body on the Seas of East Asian (COBSEA), the Revolving Fund Committee (RFC), the ASEAN Maritime Transport Working Group (AMTWG) and the National Oil Spill Control Committee. The DOE hoped to establish marine geospatial planning and mapping and strengthen communication and collaboration amongst relevant ministries/departments/agencies through financial support from the federal government. However, there were constraints such as cross-sectoral jurisdiction, technical capacity and manpower and logistical support. The DOE (Water and Marine Division) hopes to conduct training to strengthen technical capacity and action.³¹ The DOE has privatised the National Environmental Quality Programme for the whole of Malaysia.³²

2.3 Resources

All states in Malaysia border the seas: the Straits of Malacca, the Strait of Johore and the South China Sea. The Straits of Malacca are a high activity ecosystem compared to the region of the South China Sea. The Compendium of Environment Statistics 2018 gives the length of coastline of coastal states that border the Straits of Malacca, highlighted in bold.³³

³⁰ Id.

³¹ DOE Replies to ESCAP Questionnaire for the First National Ocean Accounts Workshop for Malaysia, 4th and 5th April 2019, Department of Statistics Malaysia, Putrajaya. For details see Appendix Two.

³² Privatisation of environmental services for the implementation of the NEQMP:

In June 2016, Pakar Scieno TW Sdn Bhd was awarded a 15-year contract to implement the National Environmental Quality Monitoring Program (NEQMP) for the first time in the whole of Malaysia where real-time air, river and marine water quality data can be measured and recorded, complementing nation's manual stations that collect samples of air, river or marine water that are analysed in laboratories, and transmitted to a database with a more comprehensive set of parameters. The Environmental Data Centre is in the NEQMP that is the terminus and repository for the transmission and storage of all the environmental data generated in the program. The NEQMP monitors and investigates pollution events. "Analysis of the environmental data and information generated provides the basis for effective and timely management of the nation's environment from day to day operational management to long-term formulation of management strategies." <http://pstw.com.my/about/what-is-neqmp/>

³³ Source: National Coastal Erosion Study Malaysia (2015) Non-bolded States do not border the Straits.

Total coastal length by state, Malaysia, 2017 at p. 81

Malaysia	8,840.0 kms
Johor	813.6 kms
Kedah	639.8 kms
Kelantan	179.5 kms
Melaka	120.5 kms
Negeri Sembilan	65.0 kms
Pahang	378.4 kms
Perak	397.5 kms
Perlis	26.4 kms
Pulau Pinang	215.6 kms
Sabah	3,752.9 kms
Sarawak	1,234.1 kms
Selangor	492.1 kms
Terengganu	443.1 kms
W.P. Labuan	81.5 kms

The resources considered here are fisheries, aquaculture, marine parks, mangroves, marine protected areas and biodiversity protection.

2.3.1 Fisheries

Malaysian fisheries are divided into marine capture fisheries, aquacultural practices, inland capture fisheries and microalgae farming. Microalgae farming data is currently not available in Malaysia.³⁴ The last available fisheries data for Malaysia as reported by the FAO dates back to before 2010. The Environmental Quality Act 1974 for instance, requires an environmental impact assessment to be conducted before an aquaculture project involving the clearance of more than 50 ha of mangrove is established. Likewise, the National Land Code 1965 states that land based aquaculture project can only be established on land gazetted as agricultural land. In 2015, the fisheries sector employed 175,980 persons contributing 1.1% to GDP.³⁵ On an average, Malaysians consume 56.8 kg/person/year. Reports show that the marine capture fisheries using mainly trawlers and purse seine produce up to 70% of marine fish landings and is the main contributor to fish production. The economy of Malaysia in 2016 stood at 1,574,447 MT valued at US\$ 2.5 million and provided

³⁴ Source: Recommended citation: FAO. 2018. The State of World Fisheries and Aquaculture 2018 - Meeting the sustainable development goals. Rome. Licence: CC BY-NC-SA 3.0 IGO. p. 26.

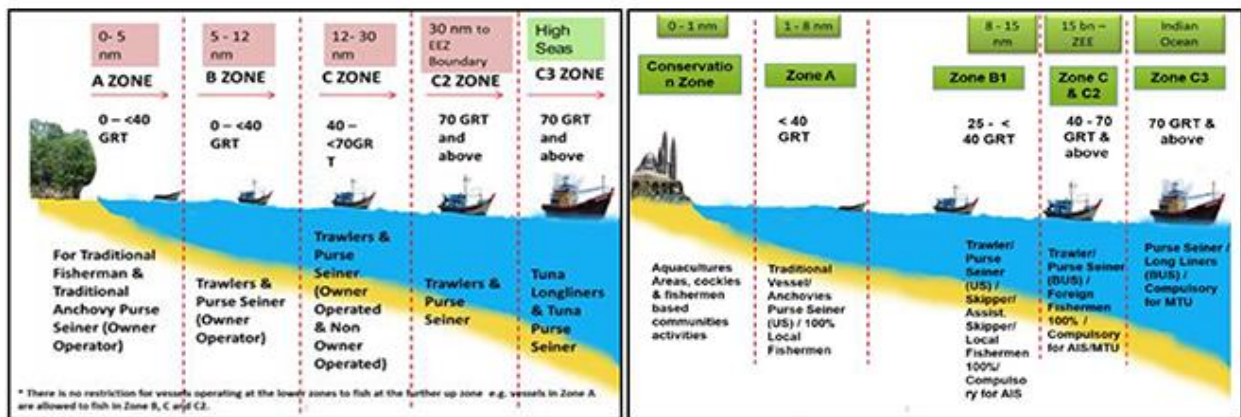
Other references for the section on Fisheries are: the Fisheries Act 1985, National Agro-Food Policy 2011-2020, Strategic Plan of Department of Fisheries Malaysia 2011-2020, Capture Fisheries Strategic Plan Malaysia 2015-2020 Malaysia's National Plan of Action to Prevent, Deter and Eliminate IUU (NPOA-IUU) - FAOSTAT. 2018. Statistics Division, Food and Agriculture Organization of the United Nations. Available at <http://www.fao.org/faostat/en/#country/131>. Accessed on 28 May 2018; Fisheries Statistic Book 1 (Malaysia) 2011 until 2016 and Fisheries Statistic Book 2 (Malaysia) 2014.

³⁵ Source: TUESDAY, 23 APRIL 2019, SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER, <http://www.seafdec.org/fisheries-country-profile-malaysia/>, 21 April 2019. Fisheries Country Profile: Malaysia by Mr. Ahmad Faizal Bin Mohamed Omar. 2017 Regional Fisheries Policy Network (RFPN) Member for Malaysia

work to 132,305 people. Aquaculture followed at 407,387.31 MT valued at US\$ 0.68 million and it provided livelihood to 21,790 people. Finally, inland capture fisheries stood at 5,847.97 MT and was valued at US\$ 0.02 million.³⁶ Though reports suggest that in 2016, 42% of total number of fishermen were artisanal fishers using fishing vessels with outboard engine or no engine and the number stood at 53,190 licensed fishing vessels, in a recent interview with the DOF, it was pointed out that there were small-scale fishers but not artisanal fishers in Malaysia.

The legal framework, policies and procedures pertaining to licensing for fisheries and aquaculture are based on Fisheries Act 1985 (Part IV) and its regulations and Vessel Registration Policy and Procedure Handbook. Marine Parks Malaysia Order 1994 made under Article 41 (1) of the Fisheries Act provides for the establishment of marine parks usually of 2 nautical miles radius where fishing is prohibited, and aquaculture facilities. Fishing in the EEZ is regulated by the Exclusive Economic Zone Act 1984, Merchant Shipping Ordinance 1952, Malaysian Maritime Enforcement Act 2004, Police Act 1967, Customs Act 1967, Immigration Act 1963, Malaysian Quarantine and Inspection Services Act 2011, and International Trade in Endangered Species Act 2008. The Environmental Quality Act 1974 provides for an environmental impact assessment to be conducted before an aquaculture project involving the clearance of more than 50 ha of mangrove is established. Likewise, the National Land Code 1965 states that land-based aquaculture project can only be established on land gazetted as agricultural land. Main policies are National Agro-Food Policy 2011-2020, Strategic Plan of Department of Fisheries Malaysia 2011-2020, Capture Fisheries Strategic Plan Malaysia 2015-2020, and Malaysia's National Plan of Action to Prevent, Deter and Eliminate IUU (NPOA-IUU) fishing.³⁷

Figure 3. The old (left) and new (right) fishing zones in Malaysia



³⁶ Ibid.

³⁷ FAOSTAT. 2018. Statistics Division, Food and Agriculture Organization of the United Nations. Available at <http://www.fao.org/faostat/en/#country/131>, accessed on 28 May 2018.

Fisheries Statistic Book 1 (Malaysia) 2011 until 2016

Fisheries Statistic Book 2 (Malaysia) 2014.

Figure 4. Types of fishing vessels in Malaysia



Trawl nets, purse seines, drift nets, hook and line, anchovy purse seine, bag nets, portable traps and lift nets are the different fishing gears used in marine capture fisheries.

Inland capture fisheries concerns include:

1. use of illegal fishing techniques,
2. release of alien species in natural waters, and
3. habitat degradation.

Positive measures in place include:

4. stocking and releasing indigenous species into the river.
5. release of fish fry/fingerlings for fish conservation.
6. establishment of fish sanctuary supported by DOF.
7. Indigenous practice of the fish sanctuary (Tagal system) in Sabah, Malaysia

The export of fish and fishery products has fetched approximately US\$ 0.87 billion.

2.3.1.1 Fisheries concerns

The problems related to fisheries were issues relating to subsidies, grant of fishing quotas and permits under national and international agreements to who and for what period, revenue from licences, licenses granted to recreational fishers, harvesting rights over fisheries in the high seas, lack of accurate data on lawful and unlawful fisheries, lack of implementation of FAO-fisheries instruments, lack of pro-poor legislation for small-scale fishers, lack of control over IUU fishing,

poor monitoring, enforcement and prosecution, list of fishing vessels, lack of regional enforcement mechanisms absent a regional fisheries management organization and lack of a regional list of fishing vessels that takes into account environmental concerns under SEAFDEC leadership. Other issues were centered on extraction of fish, normal reductions in fish stock, reduction / loss of fish stocks from catastrophic events like hurricanes, toxic oil spills, radioactive release of particles, reappraisal of fish stocks based on updated information and reclassifications of fisheries, if any. Scientific or biological issues might center on fish *refugia* and brooding stocks of fish.³⁸

2.3.1.2 SDG14 implementation - fisheries

This section considers the Report on SDG 14 implementation for fisheries. To encourage sustainable fisheries and aquaculture, the Government of Malaysia has prohibited the use of trawl nets from entering Zone B (8–15 nautical miles) fishing areas. Next, the Ecosystem Approach to Fisheries Management (EAFM) to improve the income, livelihoods and food security in coastal communities through new sustainable coastal fisheries and poverty reduction initiatives by 2020 is encouraged. Finally, the Government has introduced the Good Agriculture Practice (MyGAP) certification to promote sustainable aquaculture practices with the introduction of a new standard, the MS 2467:2012 Code of Practices for Seaweed Cultivation and MS 1998:2007 – Good Aquaculture Practice (GAqP) – Aquaculture Farm General Guidelines is promoted. Malaysia has introduced policies and measures to sustainably manage marine and coastal areas, including the National Coastal Zone Physical Plan (NPP-CZ) and the Coral Triangle Initiative Malaysia National Plan of Action (CTI-NPOA). The NPP-CZ was formulated to establish a strategic spatial framework that ensured a productive, safe and biologically diverse coastal zone for the benefit of present and future generations. The CTI-NPOA, was Malaysia’s plan of action as a member of a multilateral partnership of six countries since 2009 aimed at addressing urgent threats faced by the marine ecosystem, ensuring food security and protecting the livelihoods of coastal communities in the region. Various programmes were implemented to ensure sustainable fisheries and aquaculture activities in the country, including enforcement of zoning regulations for fishing areas and promoting good aquaculture practices through certification schemes, (See Figure 1 below). Illegal fishing practices, overfishing and harmful fishing practices were mitigated through the National Action Plan of Management of Fishing Capacity and the National Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated (IUU) Fishing. However, the success of these efforts have not been documented.

Figure 1: Current Status, Key Success Factors and Remaining Priorities for Goal 14

A. Current Status

(1) Sustainable fisheries and aquaculture are being encouraged

- The use of trawl nets was prohibited in Zone B (8–15 nautical miles) fishing areas;
- The Ecosystem Approach to Fisheries Management (EAFM) to improve the income, livelihoods and food security in coastal communities through new

³⁸ M George, Fisheries Protections in the South China Sea, International Journal of Maritime Law and Commerce.

sustainable coastal fisheries and poverty reduction initiatives by 2020 is encouraged; and

- Good Agriculture Practice (MyGAP) certification to promote sustainable aquaculture practices with the introduction of a new standard, the MS 2467:2012 Code of Practices for Seaweed Cultivation and MS 1998:2007 – Good Aquaculture Practice (GAqP) – Aquaculture Farm General Guidelines is promoted.

Malaysia strengthens Institutional and Regulatory Frameworks through:

- Developing management plans based on an Ecosystem Approach to Fisheries Management (EAFM); and
- Building capacity for effective EAFM implementation.

Finally, Malaysia strives to improve Knowledge and Data for Better Decision-making Support Systems through:

- Developing a geo-spatial database (MyNDOC) with updated fishery stock assessments;
- Establishing a data sharing platform among agencies Mitigating the Impact of Climate Change on Marine and Coastal Ecosystems; and
- Intensifying scientific research to assess the impact of climate change on marine and coastal ecosystems.

2.3.1.3 Remaining priorities

There are three remaining priorities in fisheries, as follows:

- To develop management plans based on an Ecosystem Approach to Fisheries Management (EAFM);
- Build capacity for effective EAFM implementation; and
- Develop a geo-spatial database (MyNDOC) with updated fishery stock assessments.

2.3.2. Aquaculture

Aquaculture is accorded high priority in Malaysia being recognized as a new area of growth under the National Agriculture Policy 2011-2020. Since 2008, compliance and certification of fishery products according to EU standards has posed some setbacks for the industry. Though some data are available for the aquaculture sector such as the sector, number of farmers, culture system and production value, no data is available for ornamental fish and ornamental aquatic plants. Total aquaculture production in Malaysia was expected to decrease in 2018 by 18.8 per cent from 520.5 thousand tonnes in 2014 to 422.6 thousand tonnes. Brackishwater production was estimated at 75.2 per cent of total aquaculture production while the rest was freshwater production. The reason for the decrease is not given.³⁹

³⁹ Compendium of Environment Statistics 2018.

2.3.3 Marine parks and ocean acidification

In the context of conservation of marine parks and coral reefs much work has been done in Malaysia.⁴⁰ However, this information is not published on the website of the agency. Formerly, a part of the machinery of the Ministry of Environment and Natural Resources, the former Department of Marine Parks, now Division of Marine Parks, is now part of the Ministry of Agriculture and Agro-based Industry. The administrative efficiency and effectiveness on coral rehabilitation following the change of mandate have not been stated so far. For example, the coral reefs around Tioman Island were bleached in 2010.⁴¹ Following this incident, a partnership of the former Department of Marine Parks in Peninsular Malaysia, universities and NGOs was formed to monitor coral reefs with the rise of sea-level temperature in the South China Sea and Andaman Sea. The data showed there was severe bleaching at reefs along the eastern and western coasts of Peninsular Malaysia, with 75% to 90% bleaching reported at three islands, Tioman, Tinggi and Sibu on the west coast. On the west coast, severe bleaching, ranging from medium to high, occurred at Payar island while Sabah witnessed medium bleaching. The impacts of bleaching were felt on all zooxanthellate taxa, including hard corals, soft corals, zoanthids, sea anemones and giant clams, and extended to 20m to 25m depth for the deeper reefs at Tioman island and in Sabah. On the eastern coast of Peninsular Malaysia the bleaching was more severe than the 1998 level. Consequently, the Department of Marine Parks closed 12 dive sites within three marine parks between July and October 2010 to allow bleached corals to recover.⁴²

⁴⁰ Affendi YA (2014) Status of Coral Reefs in Southeast Asia: Malaysia. In: Kimura T., Tun K., Chou L.M. (eds) Status of coral reefs in East Asian Seas region : 2014. Ministry of the Environment, Japan, Tokyo, Japan, pp 131–138

Affendi YA, Rosman FR (2012) Current Knowledge on Scleractinian Coral Diversity of Peninsular Malaysia. In: Ibrahim K., Mohamed C.A.R., Jamaludin M.R., Kee Alfian A.A., Zulkifli F.A., Lee J.N. (eds) Malaysia's Marine Biodiversity: Inventory and Current Status. Department of Marine Park Malaysia, Putrajaya, Malaysia, pp 21–31

Guest JR, Baird AH, Maynard JA, Muttaqin E, Edwards AJ, Campbell SJ, Yewdall K, Affendi YA, Chou LM (2012) Contrasting Patterns of Coral Bleaching Susceptibility in 2010 Suggest an Adaptive Response to Thermal Stress. *PLoS One* 7:e33353

Tun K, Chou LM, Yeemin T, Phongsuwan N, Affendi YA, Ho N, Sour K, Van Long N, Nanola C, Lane D, Tuti Y (2008) Status of coral reefs in Southeast Asia. In: Wilkinson C. (eds) Status of Coral Reefs of the World: 2008. Global Coral Reef Monitoring Network (GCRMN) and Reef and Rainforest Research Center, Townsville, Australia, pp 131–144

Tun K, Chou LM, Low J, Yeemin T, Phongsuwan N, Setiasih N, Wilson J, Amri AY, Adzis KAA, Lane D, van Bochove J-W, Kluskens B, van Long N, Si Tuan V, Gomez E (2010) A regional overview on the 2010 coral bleaching event in southeast Asia. *Status coral reefs East Asian Seas Reg* 2010 9–27

⁴¹ Tun K, Chou LM, Low J, Yeemin T, Phongsuwan N, Setiasih N, Wilson J, Amri AY, Adzis KAA, Lane D, van Bochove J-W, Kluskens B, van Long N, Si Tuan V, Gomez E (2010) A regional overview on the 2010 coral bleaching event in southeast Asia. *Status coral reefs East Asian Seas Reg* 2010 9–27

⁴² Affendi Yang Amri and Kee Alfian, “Chapter 4: Malaysia” in A Regional Overview On The 2010 Coral Bleaching Event In Southeast Asia By Karenne Tun¹, Loke Ming Chou², Jeffrey Low³, Thamasak Yeemin⁴, Niphon Phongsuwan⁵, Naneng Setiasih⁶, Joanne Wilson⁷, Affendi Yang Amri⁸, Kee Alfian Abdul Adzis⁹, David Lane¹⁰, JanTWillem van Bochove¹¹, Bart Kluskens¹², Nguyen Van Long¹³, Vo Si Tuan¹³ and Edgardo Gomez¹⁴

Most of the coral reefs in Malaysia are found as fringing reefs off Peninsular Malaysia, submerged reefs off Sarawak, fringing reefs around Sabah and atoll reefs in the Spratlys which include Pulau Layang-Layang.⁴³ About 70% of coral reefs are in Sabah waters, a part of the Coral Triangle.⁴⁴ Subject to reconfirmation, it is reported that there are about 480 known taxa of scleractinian corals of which 398 species are found in the east coast. Sabah has reported 471 species of scleractinian corals followed by discovery of another 8 new species from Darvel Bay. Very little study has been conducted on the biodiversity of marine organisms due to a lack of expertise in the field and poor funding. Studies conducted so far show that the present species list has approximately 140 species of chondrichthyan fish which includes 7 orders of sharks with 2 new species of swell sharks, up to 30 species of marine mammals including dugongs and orcas, 12 species of seagrasses, 375 species of seaweeds with 91 species in Sarawak, 525 species of decapod crustaceans, 581 species of marine shelled molluscs, up to 44 species of sea cucumbers and 13 genera with 19 species of sea stars. In late 2010, an expedition to reef areas in Semporna, Sabah, a part of the Coral Triangle, documented 44 species of mushroom corals (Fungiidae), 104 species of shrimps, 130 species of seaweeds, 690 species of reef fish in 265 genera and 72 families. It is estimated that the reef fish species count could reach 966 species with more extensive surveys.⁴⁵ Reef Check Malaysia monitors coral reefs in Malaysia and their efforts are encouraged by the authorities.⁴⁶ In 2013 Reef Check Malaysia conducted surveys at 196 reef sites and reported that:

The mean live coral cover for Malaysia was ‘Fair’ at 48.3% with a range from 17.4% to 75.7%. The surveys divided Malaysian reefs into their three marine eco-regions and found that the reefs in Sunda Shelf eco-region was at 57.6% (Good), Straits of Malacca 44.6% (Fair) and North Borneo 39.5% (Fair). The results suggested that all reefs in Malaysia are under high anthropogenic threats.⁴⁷

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 - 4 Marine Biodiversity Research Group, Ramkhamhaeng University, Haumark, Bangkok 10240 Thailand;
 - 5 Phuket Marine Biological Center, P.O. Box 60, Phuket 83000, Thailand;
 - 6 Reef Check Foundation Indonesia/CORAL, Jalan Tukad Balian, Gang 43 No 1A Renon, Denpasar, Bali, Indonesia;
 - 7 The Nature Conservancy, Graha Iskandarsyah, 3rd Floor, Jalan Iskandarsyah Raya, No. 66C Kebayoran Baru, Jakarta 12160;
 - 8 Institute of Biological Sciences, Faculty of Science, Universiti Malaya, Kuala Lumpur 50603 Malaysia;
 - 9 Universiti Kebangsaan Malaysia, School of Environmental & Natural Resource Science, Faculty of Science & Technology, Universiti Kebangsaan Malaysia, 43600 UKM Bangi;
 - 10 Faculty of Science, Universiti Brunei Darussalam, Jln Tungku, Brunei, BE1410;
 - 11 Coral Cay Conservation, 1st floor Block 1 Elizabeth House, 39 York Rd, London, SE1 7NQ;
 - 12 Song Saa Private Island, #108e1 Street 19, Phnom Penh, Cambodia;
 - 13 Institute of Oceanography, Nha Trang, Vietnam; 01 Cau Da, Nha Trang City, Nha Trang, Vietnam;
 - 14 The Marine Science Institute, College of Science, University of the Philippines Diliman, Quezon City, Philippines
- ⁴³ Affendi YA (2014) Status of Coral Reefs in Southeast Asia: Malaysia. In: Kimura T., Tun K., Chou L.M. (eds) Status of coral reefs in East Asian Seas region : 2014. Ministry of the Environment, Japan, Tokyo, Japan, pp 131–138
- ⁴⁴ Ibid at p. 132.
- ⁴⁵ Id at p. 132.
- ⁴⁶ Id.
- ⁴⁷ Id.

Threats to the coral reef sites include:

- sedimentation,
- fish bombing,
- trawling,
- mass coral bleaching,
- crown-of-thorns seastar infestations and
- eutrophication.⁴⁸

Though there is overfishing, there is no evidence that this activity has threatened coral reefs.⁴⁹

Reef Check Malaysia has the support of the Department of Marine Parks Malaysia, Johor National Park Corporation and Sabah Parks. The recommendations are to increase the number of sites in the Malacca Straits and sites outside of Marine Protected Areas for which funding is required. Experts are of the opinion that the number of monitoring sites has to be increased and must include permanent transects or quadrats at crucial reef sites to be able to monitor accurate changes.⁵⁰ Insufficient information was disseminated to the stakeholders on the 2010 mass coral bleaching event. Consequently, action taken was ineffective. In 2013, a coral bleaching response plan was adopted by the former Department of Marine Parks Malaysia and Reef Check Malaysia. A new marine management plan was launched with the completion of the five year project ‘Conserving Marine Biodiversity through Enhanced Marine Park Management and Inclusive Sustainable Island Development’ undertaken by the former Department of Marine Parks Malaysia with the United Nations Development Programme with funding from the Global Environment Facility (GEF) and the Government of Malaysia on the east coast of Peninsular Malaysia, comprising Pulau Redang, Pulau Tioman and Pulau Sibutu/Tinggi.⁵¹ The Department of Marine Parks has enhanced local communities capacity for coral reef protection and marine management of their islands and appreciation of rules and regulations for coral protection. It is not known if empowering local communities enhances their resilience to, mitigation of and adaptation to climate change or management is more effective in a decentralized management of reef ecosystems.⁵² It is uncertain if the marine areas that needed protection were gazetted as marine parks and how many bleached coral reefs had been restored.

To address ocean acidification,⁵³ the ten Monaco Priorities should be considered:

⁴⁸ Id at p. 135.

⁴⁹ Id at p. 135.

⁵⁰ Id at p. 135

⁵¹ Id at p. 136

⁵² CORAL REEFS PROJECT, <https://www.iucn.org/theme/marine-and-polar/our-work/coral-reefs/coral-reef-projects>, 21 April 2019. By Gabriel Grimsditch, Acting Chief Technical Officer, Project Regenerate Maldives IUCN (International Union for Conservation of Nature) Merryrose Building 2nd Floor, Filigas Magu, 20006, Malé, Maldives Tel. +960 753 46 40 www.iucn.org

⁵³ Ocean Acidification: Laffoley, D., Baxter, J.M., Turley, C. and Lagos, N.A., (editors). 2017. An introduction to ocean acidification: What it is, what we know, and what may happen. IUCN, Gland, Switzerland, 24 pp. <https://portals.iucn.org/library/sites/library/files/documents/Rep-2017-012-En.pdf>, 21 April 2019.

- Repurpose scientific research emphasis from individual species to ecosystems to understand impacts of interaction and food webs;
- Conduct long-term study on adaptation and acclimation;
- Study the many stressors of the environment to understand future impacts under ‘real world’ conditions;
- Reduce anthropogenic CO₂ emissions at sufficient scale to avoid ocean acidification;
- Invest in prudent adaptive marine management approaches to best manage carbon sinks that will promote ecosystem resilience, protect biodiversity and serve as adaptation lessons;
- Develop ocean acidification observational networks to cater for the spatial and temporal scales required for decision making;
- Increase international collaboration with stakeholder communities;
- Develop relationships with new stakeholders going to be affected by ocean acidification;
- Support research mapping of economic impacts of ocean acidification; and
- Invest in education and communication for capacity development.

2.3.4 Mangrove conservation

A Mangrove Planting Programme was initiated in 2005 to mitigate pollution caused by solid waste disposal, as well as to protect against tsunamis and enrich coastal and marine biodiversity. The primary threats to mangroves in Malaysia come from land-based sources. Data on mangrove governance is lacking. The law on mangrove protection needs to be developed further as Malaysia has ratified the relevant international conventions. Laws may facilitate or impede mangrove conservation efforts. It is said to be impossible to create a model for mangrove governance that will work for all jurisdictions. The Ramsar Convention on Wetlands of International Importance, World Heritage Convention, Convention on Biological Diversity, Climate change frameworks and International water conventions followed by the 1992 Rio principles of sustainable development such as the precautionary principle, the polluter pays principle, the principle of public access to information, public participation in decision-making and public access to justice in environmental matters should be made applicable to mangroves.⁵⁴ In 2017, The Government of Malaysia allocated RM147.7 million for forest development. However, the implications for mangroves have not been stated.⁵⁵

2.3.5 Marine protected areas

The Compendium of Environment Statistics 2018 gives the statistics for gazetted protected areas in Peninsular Malaysia for 2013; Gazetted protected area, Sabah; Totally protected area, Sarawak, 2013; Gazetted protected area of marine park, Malaysia, 2013; Forested and non-forested areas, Malaysia, 2013-2017.⁵⁶

⁵⁴ Source: Slobodian, L. N., Rodriguez Chaves, M., Nguyen, L. T. P., Rakotoson, L. N. (2018). Legal frameworks for mangrove governance, conservation and use: Assessment summary. IUCN, Geneva, Switzerland, and WWF Germany, Berlin, Germany. (74) pp. <https://www.iucn.org/sites/dev/files/content/documents/wwf-iucn-mangroves-global-legal-assessment-v10.pdf>, 21 April 2019.\

⁵⁵ Ministry of Water, Land and Natural Resources, Compendium of Environment Statistics, 2018, p. 64.

⁵⁶ Compendium of Environment Statistics 2018, See Ibid at pp. 88, 92, 94, 98 and 100.

Malaysia's report on the implementation of SDG 14 shows that the number of marine areas designated as Marine protected areas have increased. In 2015, about 3.36 % of marine areas (see Figure 2) were designated as marine protected areas, which was an increase from 2013 where the figure stood at 1.05%. Consequently, there were 63 marine protected areas covering 16,492.92 square kilometres providing protection to marine ecosystems throughout Malaysia. Further, the Government of Sabah gazetted 8,987 square kilometers of Tun Mustapha Park (TMP) in 2016 which is the largest and the first multiple-use park in the country and involves local communities in its protection and management. Development in the protected areas was guided by the respective management plans, covering the conservation and rehabilitation of the resources as well as the provision of alternative livelihoods for local communities. Initiatives were taken to restore and rehabilitate areas at risk of degradation and to overcome the loss of marine habitats, especially within marine protected areas. Efforts were also underway to enhance management of marine and coastal ecosystems:

- 2,711 hectares of mangroves were planted from 2005 to 2016 during the Mangrove Planting Programme;
- 53.82% live coral cover in Peninsular Malaysia (2016);
- Established an extensive network of marine monitoring stations comprising 151 coastal, 76 estuary and 90 island stations that provide data on the state of marine water quality;
- National Coastal Erosion Study carried out in 2016 identified critical erosion areas and the effects of erosion on economic and social activities;
- The National Coastal Zone Physical Plan has been implemented; and
- State governments have implemented the 'No Plastic Bag' campaigns to reduce pollution.⁵⁷

There were three reasons for the success of implementation. First, policies and laws that supported sustainable management of marine and coastal ecosystems were implemented and enforced. Second, there were successful partnerships with the NGOs advocating the sustainable use of marine and coastal resources; and finally, there followed the establishment of marine protected areas. However, there were four remaining priorities, as summarised below:

- Achieving a holistic marine and coastal management at both federal and state levels;
- Strengthening monitoring, surveillance and enforcement capacities;
- Enhancing knowledge on marine resources;
- Minimising impact of climate change on the marine and coastal ecosystems; and
- Improving Disaster Risk Resilience.

The success of these efforts has not been documented.

Figure 2: Current Status, Key Success Factors and Remaining Priorities for Goal 14

A. Current Status:

⁵⁷ Source: MALAYSIA Focal Point: <https://sustainabledevelopment.un.org/memberstates/malaysia>, 18 February 2019.

(2) Marine protected areas have increased

- 3.36% marine protected areas (2015), an increase from 1.05% in 2013;
- 63 marine protected areas as a network of 16,492.92 square kilometres that provides protection to marine ecosystems throughout Malaysia; and
- 8,987 square kilometers of Tun Mustapha Park (TMP) in Sabah gazetted in 2016. TMP is the largest marine park and the first multiple-use park in the country and involves local communities in its protection and management.

(3) Efforts to enhance management of marine and coastal ecosystems are ongoing

- 2,711 hectares of mangroves were planted from 2005 to 2016 during the Mangrove Planting Programme;
- 53.82% live coral cover in Peninsular Malaysia (2016);
- Established an extensive network of marine monitoring stations comprising 151 coastal, 76 estuary and 90 island stations that provide data on the state of marine water quality;
- National Coastal Erosion Study carried out in 2016 identified critical erosion areas and the effects of erosion on economic and social activities;
- The National Coastal Zone Physical Plan has been implemented; and
- State governments have implemented the 'No Plastic Bag' campaigns to reduce pollution.

B. Key success factors

There are three key success factors at play here, namely:

- Implementation of policies and enforcing regulations that support sustainable management of marine and coastal ecosystems;
- Partnering with NGOs in advocating sustainable use of marine and coastal resources; and
- Establishment of marine protected areas.

C. Remaining priorities

There are four remaining priorities listed below:

- Achieving a holistic marine and coastal management at both federal and state levels;
- Strengthening monitoring, surveillance and enforcement capacities;
- Enhancing knowledge on marine resources;
- Minimising impact of climate change on the marine and coastal ecosystems; and
- Improving Disaster Risk Resilience.

Malaysia strengthens Institutional and Regulatory Frameworks through:

- Enhancing coordination between federal and state levels through a single platform; and
- Strengthening legislative and regulatory frameworks by reviewing relevant Acts such as the Environmental Quality Act 1974.

Malaysia enhances Monitoring, Surveillance and Enforcement by adopting the following measures:

- Strengthening the monitoring of marine water quality with the establishment of a network of continuous and manual monitoring stations;
- Conducting research on Total Maximum Daily Load to determine the threshold of pollution discharged into rivers flowing to the sea; and
- Strengthening inter-agency cooperation and regional collaboration.

Finally, Malaysia strives to improve Knowledge and Data for Better Decision-making Support Systems through:

- Developing a geo-spatial database (MyNDOC) with updated fishery stock assessments;
- Establishing a data sharing platform among agencies Mitigating the Impact of Climate Change on Marine and Coastal Ecosystems; and
- Intensifying scientific research to assess the impact of climate change on marine and coastal ecosystems.

2.3.6 Biodiversity protection

As Goal 14 is linked to Goal 15, Goal 15 is considered here. Many commendable steps were taken in past years to protect biodiversity. Goal 15 serves to protect, restore and promote sustainable use of territorial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss.

In Malaysia, many steps were taken to protect its biodiversity with the formulation of various policies and legislation such as the National Policy for Biological Diversity 2016–2025,⁵⁸ National Forestry Policy 1978 (Amendment 1992), Second National Mineral Policy 2009, Wildlife Conservation Act 2010 (Act 716), National Parks Act 1980, Biosafety Act 2007 and others. The National Policy for Biological Diversity 2016–2025 provides the framework for continuous conservation, sustainable utilisation and sharing of biodiversity benefits in a fair and equitable

⁵⁸ Source: Figure 2: Current Status, Key Success Factors and Remaining Priorities for Goal 15. In addition, there is the Tapir Conservation Action Plan; the National Tiger Conservation Action Plan for Malaysia (2008–2020), the Malaysian National Elephant Conservation Action Plan (2013–2022) and the Malaysian Timber Certification Scheme The Central Forest Spine brings under it 18,866 hectares of Permanent Forest Reserves in Peninsular Malaysia and the Heart of Borneo covers 20 million hectares. Legislation to combat poaching, illegal wildlife trade, encroachment and illegal logging are also in place.

manner. As of 2015, 55.2 per cent of Malaysia's total land area was covered with forests under various forms of protection, fulfilling the pledge at the Earth Summit 1992, in Rio de Janeiro, to ensure at least 50 per cent of land is under forest cover. Various forms of protected forest areas include national and state parks, Ramsar sites, permanent reserve forests, and water catchment areas. Maintaining forests was important because of their ability to provide a range of ecosystem services to sustain life and support important biodiversity, including critically endangered species; at the same time, they minimise, halt and reverse land degradation and biodiversity loss. To address the issue of forest fragmentation, transboundary projects were initiated, including the Central Forest Spine in Peninsular Malaysia and the Heart of Borneo, which involved Sabah and Sarawak states. Conservation action plans for iconic species – that is, for tigers, elephants and tapirs – were undertaken. Further, Malaysia has drawn up a National Red Data List for threatened species and for implementing innovative methods to pool resources to combat poaching, illegal wildlife trade and encroachment into protected areas. The National Conservation Trust Fund for Natural Resources (NCTF) was established to fund initiatives related to conservation efforts. Most recently, Malaysia has begun developing a resource mobilisation plan to support the National Policy on Biological Diversity (see Figure 3).⁵⁹

Figure 3: Current Status, Key Success Factors and Remaining Priorities for Goal 15

A. Current Status

Forest cover has been maintained at 12.1% of total land area protected (2015), which is an increase from 10.76% in 2013. Currently, 940,807 hectares of terrestrial and water bodies are presently gazetted in Sarawak. 55.2% of the total land area remains as natural forest (2015) with a network of protected areas in national and state parks and Ramsar sites. Most are under various forms of protective status e.g. forest reserves.

Biodiversity and habitat protection is a priority with six (6) Forest Management Units in Peninsular Malaysia having successfully certified and maintained the Forest Management Certification. Currently, there are 1,640 ha. covered for forest reforestation project under the 11MP with RM100 million allocated. There are 1,236 threatened species in Malaysia as of December 2014 in the Red List and a National Red Data List for threatened species is being drawn up. The 1Malaysia Biodiversity Enforcement Operation Network (1MBEON) began operating in Taman Negara since 2014. At present, 55.2% of total land area remains as natural forest (2015) with a network of protected areas in national and state parks and Ramsar sites. Most are under various forms of protective status e.g. forest reserves.

The second National Policy for Biological Diversity (2016–2025) has been launched recently. The Tapir Conservation Action Plan is being formulated, whilst the existing National Tiger Conservation Action Plan for Malaysia (2008–2020) and the Malaysian National Elephant Conservation Action Plan (2013–2022) are being implemented. The

⁵⁹ Source: MALAYSIA Focal Point: <https://sustainabledevelopment.un.org/memberstates/malaysia>, 18 February 2019.

Central Forest Spine covers an area of 18,866 hectares of Permanent Forest Reserves in Peninsular Malaysia and the Heart of Borneo covers 20 million hectares.

B. Key success factors

The key success factors have been the increased gazetting of terrestrial protected areas; implementation of a sustainable forest management and the Malaysian Timber Certification Scheme; and enforcement of legislation to combat poaching, illegal wildlife trade, encroachment and illegal logging.

C. Remaining priorities

The remaining priorities are to strengthen the institutional and regulatory framework for forest management; increase the capacity of related agencies; strengthen monitoring, surveillance and enforcement capacities; intensify reforestation efforts nationwide; and strengthen partnerships with indigenous and local communities.

Moving forward, Malaysia is implementing this Goal through the Eleventh Malaysia Plan Strategic Thrust 4 and the “game changer” of “Embarking on Green Growth.” This is further supplemented by other sectoral plans and policies such as the National Policy for Biological Diversity 2016–2025. For this purpose, three areas are highlighted. The first area concerns the improvement of management, the second addresses capacity-building and the third focuses on leveraging on indigenous community skills in the management of biodiversity and terrestrial ecosystems.

To Improve the Management of Biodiversity and Terrestrial Ecosystems, The Government of Malaysia has implemented the National Policy on Biological Diversity 2016–2025 including the gazetting of 20 per cent of terrestrial and inland protected areas by 2025, followed by the implementation of the National Tiger Conservation Action Plan for Malaysia 2008–2020 and the Malaysian National Elephant Conservation Action Plan 2013–2022.

To Strengthen Capacity and Capability, the Government of Malaysia has enhanced manpower and expert training in forestry management and in wildlife and protected areas management. It has expanded the use of new technology to manage natural assets such as hyperspectral and Unmanned Aerial Vehicles (UAV) and strengthened international cooperation and collaboration to curb illegal activities

To Leverage on Indigenous and Local communities (ILC) skills in the Management of Natural Resources, the Government of Malaysia has empowered the ILC in reporting of illegal activities and improved the socio-economic well-being of the ILC to decrease their dependency on extraction of natural resources. The Government of Malaysia has also empowered the ILC to have the right to give or withhold consent to proposed projects that may affect their lands.⁶⁰

⁶⁰ Source: MALAYSIA Focal Point: <https://sustainabledevelopment.un.org/memberstates/malaysia>, 18 February 2019.

2.4 Land-based sources

2.4.1 Malaysia Voluntary Reporting

At the Fourth Intergovernmental Review (IGR) on Land-Based Sources of Marine Pollution, a National Voluntary Reporting exercise on the status of implementation of national actions to address land-based sources of marine pollution was carried out.⁶¹ A total of 39 countries responded to the survey as of 28 September 2018 including Malaysia. A summary of the responses are captured below. Though in this Report, the key agencies are referred to those as in 2018, they are updated here to the current position as in April 2019. In this Report, Malaysia identified the key agencies with the lead responsibility on the environment as:

- Ministry of Energy, Science, Technology, Environment and Climate Change (formerly MOSTI now MESTECC);
- Department of Environment (formerly MNRE now MESTECC);
- Department of Irrigation and Drainage (KATS);
- Department of National Solid Waste Management (formerly MNRE now MESTECC, DOE);
- Ministry of Human Wellbeing (no equivalent); and
- Housing and Local Government (same).

The key laws and policies are:

- Environmental Quality Act, 1974;
- Solid Waste and Public Cleansing Management Act, 2007; and
- Street, Drainage and Building Act 1974.

However, under MESTECC, the following laws and policies also need to be considered:

- Exclusive Economic Zone Act 1984;
- Custom Duties (Amendment) (No.35) Order 1989 (made under the Customs Act 1967);

⁶¹ See Voluntary Reporting by Malaysia on Land-based Sources of Pollution (LBS) on 28th September 2018. Land-based sources of marine pollution are regulated through instruments called Global Program of Action (GPA) adopted at Intergovernmental Reviews (IGR) of States. UNEP's Governing Council organized the first IGR in 2001 on the status of implementation of the GPA. The instruments adopted so far are the 2001 Montreal Declaration on the Protection of the Marine Environment from Land-Based Activities; 2006 Beijing Declaration on Furthering the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities (agreed to focus chiefly on three sources /categories – nutrients, marine litter, and wastewater – and called for stronger links between GPA implementation and efforts to reduce poverty.); 2012 Manila Declaration on Furthering the Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities. The fourth IGR of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) took place over the 25th to 27th October 2017 in Bali, Indonesia. The IGR 4 was preceded by a GLOC 3 where concerns on the Nutrient Challenge, Sustainable Wastewater Management, Marine Litter and Land-based human activities and coastal ecosystems were raised. Three global partnerships were adopted accordingly. These are the Global Partnership on Nutrient Management; Global Partnership on Wastewater; and the Global Partnership on Marine Litter.

- Promotion of Investment (Promoted Activities and Products) (Amendment) (No.10) Order 1990 (made under the Promotion of Investment Act, 1986);
- Customs (Prohibition of Import) Order 1998, (Amendment) 2006, P.U.(A)434;
- Customs (Prohibition of Export) Order 1998, (Amendment) 2006, P.U.(A)433;
- Sarawak Natural Resources and Environment (Prescribed Activities) Order 1994;
- Sabah Conservation of Environment (Prescribed Activities) Order 1999; and
- Exclusive Economic Zone (Appointment of Authorized Officer) Order 2001[P.U. (A) 35/2001].

To address land-based sources of pollution, certain Development projects were planned under the Eleventh Malaysia Plan (2016-2020). However, there is no further information on the success of the project investments and what their impacts are on the ocean or its resources. The Environmental Impact Assessment is an important tool to control land-based pollution and protect marine and coastal ecosystems. However, developers in Malaysia are not accountable or liable for environmental hazards that manifest once the project is handed over to the purchaser.

2.4.2 Marine debris

For improved governance of the land-based sources of marine pollution, the Government of Malaysia intends to strengthen institutional and regulatory frameworks through:

- coordination between federal and state levels through a single platform; and
- enhance legislative and regulatory frameworks by reviewing relevant Acts such as the Environmental Quality Act 1974.

Similarly, there is intention to enhance monitoring, surveillance and enforcement (MCS), three separate but inter-connected activities, through:

- a network of continuous and manual marine water quality monitoring stations;
- research on Total Maximum Daily Load to determine the threshold of pollution discharged into rivers flowing to the sea; and
- inter-agency cooperation and regional collaboration.

The success of the MCS measures have not been documented as yet.

To address the impact of climate change, the Government of Malaysia has set up platforms called, Knowledge and Data for Better Decision-making Support Systems, for the exchange data. This is a data sharing and research platform among agencies responsible for Mitigating the Impact of Climate Change on Marine and Coastal Ecosystems.

The effects of the marine plastics are rather devastating at sea as they are not bio-degradable and are ingested by marine and human life. There are some gaps in knowledge, namely on, global releases of microplastics addressed to some extent in the IUCN study “Primary microplastics in the oceans”.⁶² Unlike the international policy efforts and the efforts of the EU in producing hard

⁶² Arroyo Schnell, A., Klein N., Gómez Girón, E., Sousa, J., 2017. National marine plastic litter policies in EU Member States: an overview. Brussels, Belgium: IUCN viii+64 pp.

and soft law,⁶³ the ASEAN states have a long way to go in addressing the marine plastic debate to come up with a suitable policy for implementation at the national level. The IUCN pointed out in 2014 that “there is (...) a distinct lack of specific legislation on marine debris and this lies in the fact that it is considered either directly or indirectly through solid waste management legislation”. (IUCN, 2017).

2.5 Ship-based pollution

2.5.1 Port Reception Facilities

As a signatory State to the six Annexes of MARPOL 73/78, it is incumbent on the Government to provide for adequate port reception facilities for ships calling at the ports. Ship waste comes in the form of sludge, chemical waste, sewage, garbage and atmospheric shipping emissions all regulated under the Annexes to MARPOL 73/78.⁶⁴

2.5.2 Atmospheric pollution

The enforcement of atmospheric emissions from ships, particularly in the Straits of Malacca deserve special mention, for the control of SOX emission (oil), NOX emissions (machine), and CO2 (Unburnt) emissions from Ships under MARPOL Annex VI. There were also challenges in the operationalization of Part XIII on MSR, Part XIV on Marine Technology Transfer and Part XVI on Dispute Settlement.⁶⁵

<https://portals.iucn.org/library/sites/library/files/documents/2017-052.pdf>, 21 April 2019; [Marine plastic debris and microplastics – Global lessons and research to inspire action and guide policy change](#), 21 April 2019.

United Nations Environment Programme, Nairobi, <http://drustage.unep.org/about/partnerships/marine-plastic-debrisand-microplasticsglobal-lessons-and-research-inspire-actionand-guide-policy>, 21 April 2019 Wilcox C et al, 2015. Threat of plastic pollution to seabirds is global, pervasive, and increasing. <http://www.pnas.org/content/112/38/11899.abstract>, 21 April 2019.

See also: <http://www.sciencemag.org/news/2016/11/why-do-seabirds-eat-plasticthey-think-it-smells-tasty>, 21 April 2019.

See, e.g.: Yang, D. et al, 2015. Microplastic Pollution in Table Salts from China

(<http://pubs.acs.org/doi/abs/10.1021/acs.est.5b03163?source=cen&>) Karami, A. et al, 2017. The presence of microplastics in commercial salts from different countries. (<https://www.ncbi.nlm.nih.gov/pubmed/28383020>) 4

IUCN, 2017, 21 April 2019. Primary microplastics in the ocean: a global evaluation of sources.

<https://www.iucn.org/news/secretariat/201702/invisible-plastic-particles-textiles-and-tyresmajor-source-ocean-pollution---iucn-study>, 21 April 2019. See also: Eunomia, 2016. Plastics in the marine environment.

<http://www.eunomia.co.uk/reports-tools/plastics-in-the-marineenvironment/>, 21 April 2019;

Simon, Nils und Maro Luisa Schulte 2017. Stopping Global Plastic Pollution: The Case for an International Convention. Berlin: Heinrich-Böll-Stiftung. <https://www.adelphi.de/en/publication/stopping-global-plastic-pollution-case-internationalconvention>, 21 April 2019.

⁶³ The IUCN European Regional Of- IUCN 2016: IUCN European Programme 2017-2020. <https://www.iucn.org/regions/europe/about/iucn-european-workprogramme-2017-2020-08>;

<https://www.cbd.int/doc/publications/cbd-ts-67-en.pdf>;

⁶⁴ Marine Department Official portal, <http://www.marine.gov.my/jlmeng/mobile/index.asp>, 21 April 2019.

⁶⁵ Mary George et al, Atmospheric Shipping Emissions in the Straits of Malacca and Singapore, International Journal of Marine and Coastal Law 32 (2017) 95-137.

2.5.3 Invasive alien species⁶⁶

Malaysia has ratified the Ballast Water Convention is under a duty to implement the appropriate machinery on Malaysian ships to treat ballast water before entering a port of call. Incoming ships should also be regulated to treat their ballast water and not discharge them into Malaysian port waters.

2.5.4. Shipping accidents

The total number of oil spill incidents at sea in 2013 were 13 whereas the figure for 2017 stood at 19. In 2013 the breakdown was as follows: Straits of Malacca 4, South China Sea 5, and Straits of Johore 4. Total 13 incidents. In 2017, the breakdown was as follows: Straits of Malacca 7, South China Sea 8, Straits of Johore 3, and the Sulu and Sulawesi Sea 1. Total 19 incidents. The total oil spill incidents increased by 6 incidents in 2017 as compared to 2013.⁶⁷

2.6 Straits of Malacca

The pollutant run-off into rivers and estuaries and into the Straits of Malacca come from household, industrial and agricultural wastes. The number of public sewage treatment plants increased by 7.8 per cent in 2017 as compared to 2014. In 2017, the quantity of scheduled wastes produced decreased by 30.8 per cent as compared to 2015. The quantity of clinical wastes operated for destruction at incinerators in 2017 increased by 48.7 per cent as compared to 2013.⁶⁸ The quantity of scheduled wastes exported for recovery at foreign facilities increased by 154.1 per cent in 2017 (9.4 tonnes) as compared to 2013(3.7 tonnes).⁶⁹ The total number of river basins in Malaysia stands at 2,986.⁷⁰ The land-based pollutant run-off into rivers needs to be determined. The Straits of Malacca and Singapore is approximately 550 miles long. The Straits borders the western coast of Peninsular Malaysia. Densely populated, many industrial and aquaculture sites are along this corridor.⁷¹ Malaysia has a total coastal area of 8, 840 .0 kms of which Sabah has 3, 752.9 kms, Sarawak 1, 234.1 kms and Johor 813.6 kms. ⁷² The land-based sources of marine pollution that flush into the Straits are from aquaculture farms, industrial sites, domestic and public sewage. While there are no specific statistics for the aquaculture production or land-based pollutants entering the Straits, figures for the whole of Malaysia are available. To control transboundary oil pollution Malaysia is guided by the National Oil Spill Contingency Plan. In terms of governance, this is a well-oiled machinery in the country. However, the success of the regional ASEAN OSPAR is not documented.

⁶⁶ Managing Invasive Species: <https://www.iucn.org/theme/marine-and-polar/our-work/international-ocean-governance/managing-invasive-species>, 21 April 2019.

⁶⁷ Figure 4.2: Oil spill incidents at sea, Malaysia, 2013 and 2017 Source: Department of Irrigation and Drainage, Compendium of Environment Statistics, 2018 at p 54.

⁶⁸ Compendium of Environment Statistics, 2018 p. 49

⁶⁹ Compendium of Environment Statistics, 2018, p 50.

⁷⁰ Source: Compendium of Environment Statistics 2018 at p. 189

⁷¹ Compendium of Environment Statistics 2018, p. 36

⁷² Compendium of Environment Statistics 2018, p. 36.

2.6.1 Marine Water Quality

The DOE has been monitoring marine water quality in Peninsular Malaysia and Sabah and Sarawak since 1978 and 1985 respectively to determine the quality status and pollution level from land-based and sea-based sources as they threaten marine resources and disrupt the stability and diversity of the marine ecosystem.⁷³ To monitor coastal waters, the National Marine Water Quality Monitoring Programme is carried out throughout the nation and also at islands, estuaries, and coastal areas four times a year. The Environmental Quality Report 2017 states that, "... a total of 188 coastal, 88 estuary and 95 island stations were monitored. 752 samples from coastal, 352 samples from estuary and 380 samples from island were collected for analysis and reported based on the Marine Water Quality Index (MWQI)."⁷⁴ The MWQI determines marine water quality on a scale between 0 to 100. The category ranges from "Excellent" to "Poor." Of the total 188 coastal stations analysed, the results indicated that:

- 60 stations (31.9%) were Excellent;
- 56 stations (29.8%) as Good;
- 70 stations (37.2%) as Moderate; and
- 2 stations (1.1%) as Poor.

The trend of the MWQI from 2013 to 2017 was positive as it showed an increase in the Excellent and Good stations followed by a decrease in Moderate stations compared to 2016. The poor stations had not changed since 2015. In 2017, the MWQI status of 80 islands were analysed and the result showed,

- 47 stations (49.5%) as Excellent;
- 31 stations (32.6%) as Good;
- 18 stations (17.9%) as Moderate; and
- no station was categorized as Poor.

At the regional level, Malaysia is a signatory to:

- ASEAN Working Group on Coastal & Marine Environment (AWGCME);
- ASEAN Working Group on Water Resources Management (AWGWRM); and
- Coordinating Body on the Seas of East Asia (COBSEA).

There is also a Malaysia-Singapore Joint Seawater Monitoring Programme. However, there is no monitoring and control report of this project.

The Environmental Quality Report for 2017 shows that land-based sources of marine pollution are not negatively impacting the status of the marine water quality. The improvement in marine water quality is a good sign for marine environmental protection of resources.

⁷³Extracts from EQR 2017 from Sakinah Deraman, Department of Environment, doe.gov.my, 17 January 2019.

⁷⁴ Ibid.

2.7 Malaysia and international partnerships

This section examines Malaysia's SDG implementation, partnerships and commitments.⁷⁵ Malaysia has participated in the international transboundary conservation efforts, and adopted two major initiatives in this regard, namely, Heart of Borneo Initiative for forests and Coral Triangle Initiative for marine areas.⁷⁶ On 30 August 2017, the Sustainable Development Solutions Network (SDSN) Malaysia released a publication on initiatives that contribute to achieving the SDGs. The publication highlights the best practices that are aligned with the 11th Malaysia Plan (2016-2020) and the SDGs. Forty-three countries including Malaysia presented a Voluntary National Review (VNR) of its SDG progress at the 2017 session of the High-level Political Forum on Sustainable Development (HLPF). Malaysia highlighted its achievements as follows:

- formulation of a National SDG Roadmap to guide SDG implementation;
- establishment of a multi-stakeholder, participatory governance structure to support SDG implementation;
- organized two national SDG symposia;
- held a mapping exercise with civil society and the private sector to align the SDGs with the 11th Malaysia Plan initiatives;
- published a work titled 'Rising to the Challenge: Malaysia's Contribution to the SDGs,' that considered opportunities for scaling up, institutionalizing and mainstreaming the initiatives that contribute to both the 11th Malaysia Plan and the SDGs.⁷⁷ Universiti Kebangsaan Malaysia, Universiti Teknologi Petronas and WWF-Malaysia contributed to the publication; and
- the SDSN Malaysia chapter was launched in October 2013 to achieve its development goals and to mobilize knowledge, scientific and technical expertise to support sustainable development solutions.⁷⁸

In the promotion of SDGs, Malaysia is listed as a partner or lead entity in the Partnerships for SDGs online platform.⁷⁹ These are the Coral Triangle Initiative, the SIDS Conference in 2014, Eradicating Fish Bombing in Sabah by 2020, IHO Hydrography Capacity Building Programme for Coastal States, and Promoting South-South Cooperation through Climate Change Education in Asia-Pacific Small Island Developing States. These are reproduced below.

⁷⁵ Malaysia, HLPF 2017: MAIN MESSAGES, SDG Goals, Platform, <https://sustainabledevelopment.un.org/memberstates/malaysia>, 18 February 2019.

⁷⁶Source: Voluntary National Review, MALAYSIA, 2017, <https://sustainabledevelopment.un.org/memberstates/malaysia>, 18 February 2019.

⁷⁷ Publication Showcases Malaysia's SDG Implementation : High-Level Political Forum on Sustainable Development, <http://sdg.iisd.org/news/publication-showcases-malaysias-sdg-implementation/>, 27 February 2019.

⁷⁸ Publication Showcases Malaysia's SDG Implementation: High-Level Political Forum on Sustainable Development, <http://sdg.iisd.org/news/publication-showcases-malaysias-sdg-implementation/>, 27 February 2019.

⁷⁹ Source: Malaysia: Partnerships & Commitments, <https://sustainabledevelopment.un.org/memberstates/malaysia>, 18 February 2019

2.7.1 The Coral Triangle Initiative

The Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF) is a six-nation multilateral partnership that strives to sustain extraordinary marine and coastal resources in the global epicenter of marine biodiversity with 600 corals, the highest in the world. It addresses issues of food security, climate change and marine biodiversity. It covers only 1.6% of the planet's oceans.

Partners

Indonesia, Malaysia, Papua New Guinea, Philippines, Solomon Islands, and Timor Leste with USAID, Australia Government: Department of Sustainability, Environment, Water, Population and Communities, ADB, GEF, Conservation International, the Nature Conservancy, and the World Wide Fund for Nature

2.7.2 South-South Cooperation

The Government of Malaysia and the United Nations for Education, Sciences, Culture and Communications Organization (UNESCO) signed a Memorandum of Understanding (MOU) on 15th November 2011 under the Malaysia UNESCO Cooperation which established the Malaysian Cooperative Trust Fund. The Trust Fund is to foster South-South cooperation for capacity building in education and science in the Least Developed Countries: Towards Economic Resilience to Natural Shocks in the Pacific and Southeast Asia

Partners

UNESCO, National University of Malaysia (UKM), University of Technology Malaysia (UTM), University Sultan Zainal Abidin (UniSZA), Ministry of Natural Resources and Environment, Malaysia, Secretariat of the Pacific Community (SPC), University of South Pacific (USP), Secretariat of the Pacific Regional Environment Programme (SPREP), Melbourne University, Local Disaster Risk Management and Climate Change Center and others

2.7.3 Fish Bombing - Sabah

The eradication of Fish Bombing in Sabah by 2020 is a major goal of the Department of Fisheries, Sabah. A long-time problem, the Sabah Anti-Fish Bombing Committee has decided to eradicate the practice of fish bombing or 'blast fishing' by 2020 and to protect and sustain the marine biodiversity in Sabah waters through a network of Marine Protected Areas (MPA) and management of activities outside the MPA network, an integral feature to achieving SDG 14.

Partners

Sabah Parks Authority (Government), Department of Fisheries (Government), Malaysian Maritime Enforcement Agency (Government), Polis Di Raja Malaysia, Sabah Wildlife Department, Royal Malaysian Customs Department, Immigration Department of Malaysia, WWF Malaysia (NGO), Stop Fish Bombing! (NGO), Marine Conservation Society

(NGO), ReefCheck Malaysia (NGO), Green Semporna (NGO), Forever Sabah (NGO) and others.

2.7.4 Hydrography Capacity Building

The IHO Hydrography Capacity Building Programme for Coastal States provides appropriate hydrographic and nautical charting services to support safety of navigation, safety of life at sea, efficient sea transportation and the wider use of the seas and oceans in a sustainable way, including the protection of the marine environment, coastal zone management, fishing, marine resource exploration and exploitation, maritime boundary delimitation, and maritime defence and security, amongst others.

Partners

International Hydrographic Organization (IHO); 87 IHO Member States (Governments); International Maritime Organization (UN); World Meteorological Organization (UN); International Association of Marine Aids to Navigation and Lighthouse Authorities (NGO)

2.7.5 South-South Cooperation

The Partnership Promoting South-South Cooperation through Climate Change Education in Asia-Pacific Small Island Developing States aims to leverage the resources and expertise of UNESCO and the Malaysian Higher Education Leadership Academy to build teacher training institutions in small island pacific States for local Climate Change Education. The partnership builds upon prior and ongoing initiatives in Asia-Pacific SIDS with potential of increasing its remit.

Partners

UNESCO Jakarta, UNESCO Apia, Malaysian Ministry of Education (Educational Planning & Research Division, Higher Education Leadership Academy (AKEPT)), Ministries of Education and Teacher Training Institutes in target SIDS.

2.8 Marine Spatial Planning

Marine Spatial Planning (MSP), is a national management tool for the oceans promoted by the UNESCO since 2009. Its implementation is encouraged by UNESCO in cooperation with its Intergovernmental Oceanographic Commission and the Man and the Biosphere Programme of the Ecological and Earth Sciences Division.⁸⁰ UNESCO defines MSP as “a public process of analysing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic and social objectives that are usually specified through a political process.”⁸¹ MSP uses the ecosystem based approach to management.⁸²

Recognised as a large marine ecosystem,⁸³ the South China Sea is part of the East Asian Seas. It has no specific treaty governing its natural environment⁸⁴ leaving the issue of irreparable environmental harm and reparation of damages to species and ecosystems⁸⁵ to almost no one.⁸⁶ The South China Sea Arbitration Case between the Philippines and China has now blamed China for the environmental harm caused in the South China Sea.⁸⁷ Though at the East Asian Sea level,

⁸⁰ Marine Spatial Planning Initiative, http://www.unesco-ioc-marinesp.be/msp_workshop_2006, 25 August 2012.

⁸¹ UNESCO, Intergovernmental Oceanographic Commission, MAB and ICAM, *Marine Spatial Planning: A Step-by-Step Approach toward Ecosystem-based Management* (UNESCO: 2009) at p. 18; Douvère, F. The importance of marine spatial planning in advancing ecosystem-based sea use management, *Marine Policy*, Volume 32, Issue 5, September 2008, pp. 762-771.

⁸² Crowder, L., Norse, E., Essential ecological insights for marine ecosystem-based management and marine spatial planning, *Marine Policy*, Volume 32, Issue 5, September 2008, pp. 772-778. Note, the ecosystem is a place.

⁸³ See UNEP's Regional Seas Programme.

⁸⁴ Michael Bowman, "Chapter One: The Definition and Valuation of Environmental Harm: An Overview" in Michael Bowman and Alan Boyle (Eds.), *Environmental Damage in International and Comparative Law* (Oxford University Press: Oxford: 2002) at 1. (Note: The South East Asia Nuclear Weapon Free Zone (SEANWFZ) Treaty is an ASEAN and not a South China Sea Treaty.) This means that sustainable development, inter-generational equity, the precautionary and polluter-pays principles are not legally provided for.

⁸⁵ *Ibid.* at pp. 2 and 3; See also Michael Bowman, "Chapter 4: Biodiversity, Intrinsic value, and the Definition and Valuation of Environmental Harm," *Ibid.* at pp. 41-61. For transboundary environmental impact assessment, see The Espoo Convention on Environmental Impact Assessment in a Transboundary Context, done at Espoo (Finland), on 25 February 1991 and the Rio Declaration on Environment and Development, Principles 17 and 19.

⁸⁶ There have been many cases in the past in other regions such as the *Bering Sea (Fur Seal) Arbitration* (United States v United Kingdom) (1893), *International Environmental Law Reports*, Vol 1. 1999, p. 43; *North Atlantic Coast Fisheries Arbitration* (United Kingdom v United States of America) 1910, 4 *American Journal of International Law* (1910), pp 948-1000; *Fisheries Jurisdiction Case* (Iceland v United Kingdom) (1973) (1974) *International Law Reports*, Vol 55, pp 238-408; *Fisheries Jurisdiction Case* (Federal Republic of Germany v Iceland) (1973) (1974) 1974 *ICJ Reports* pp 175-251; *Southern Bluefin Tuna Cases* (Australia, New Zealand v Japan) 1999, *ITLOS Reports of Judgments, Advisory Opinions and Orders* 1999, pp 280-336; *Southern Bluefin Tuna Arbitration* 2000 (Australia, New Zealand v Japan) 39 *ILM* (2000), pp. 1359-1401; *The Camouco Case* (France v Panama) (2000) *ITLOS Reports, Advisory Opinions and Orders* 2000, pp. 10-76; *The Monte Confurco Case* (France v Seychelles) 2000, *ITLOS Reports of Judgments, Advisory Opinions and Orders* 2000 pp. 86-144; see www.itlos.org, website of the International Tribunal for the Law of the Sea.

⁸⁷ PCA website.

there is an emergence of regional practice on spatial planning,⁸⁸ the SCS maritime region is dependent on States' compliance with their environmental obligations and good will.⁸⁹

The South China Sea marine region is inter-connected⁹⁰ with the other East Asian Seas.⁹¹ These littoral States are familiar with spatial planning for terrestrial and more recently for coastal uses⁹² but have not engaged in MSP. The marine environment and habitats⁹³ also suffer from the effects of climate change which ought to receive greater regional attention through adaptive governance as a science-policy tool. For a start, Philippines, Malaysia, Vietnam and Indonesia are in the process of developing or considering draft national ocean planning.⁹⁴ There is evidence of emerging state practice on MSP as a management tool in science-policy interface, as seen in the USA, Canada, UK, Australia, Europe, and China to name a few. In the EU, the states currently implementing MSP are Belgium, Denmark, Germany and The Netherlands, Ecuador, Finland, HELCOM States, Mexico, Norway, OSPAR States, New Zealand, the United Kingdom.⁹⁵ In East

⁸⁸ Spatial Planning in the Coastal Zone of the East Asian Seas Region: Integrating Emerging Issues and Modern Management Approaches, Interim Edition 2011, UNEP, Sida, Coordinating Body on the Seas of East Asia (COBSEA) at p.10,

<http://www.cobsea.org/documents/COBSEA%20Spatial%20Planning%20Regional%20Resource%20Document.pdf>, 17 October 2012. CMSP is discussed and described in more detail later in the report.

⁸⁹ Coordinating Body on the Seas of East Asia, <http://www.cobsea.org/>, 17 October 2012, UNEP/COBSEA, 2010. State of the Marine Environment Report for the East Asian Seas 2009. Ed. Chou, L.M., COBSEA Secretariat, Bangkok. 156 p. ISBN: 978-92-807-3070-8 COBSEA State of the Marine Environment Report for the East Asian Seas 2009 at p. 24.

⁹⁰ Bleakley, C. and Wells S. (1995) Marine Region 13: East Asian Seas, in Kelleher G., Bleakley C. and Wells S. (Eds.) *A Global Representative System of Marine Protected Areas*. Vol III, The Great Barrier Reef Marine Park Authority, The World Bank and IUCN, Washington, DC, at p. 4.

⁹¹ *Id.* at p. 6. These LMEs are of the South China Sea, Sulu-Celebes Sea, Indonesian Sea, North Australian Shelf, Northeast Australian Shelf/Great Barrier Reef, East-Central Australian Shelf, Vietnam Shelf, South-West Australian Shelf, West-Central Australian Shelf, North-West Australian Shelf, East China Sea, Yellow Sea, Kuroshio Current and the Bay of Bengal. For COBSEA publications, see Spatial Planning in the Coastal Zone of the East Asian Seas Region: Integrating Emerging Issues and Modern Management Approaches; A Regional Approach to the Sustainable and Ecosystem-Based Management of Coastal Erosion in the East Asian Seas Region: A Resource Document: State of the Marine Environment Report for the East Asian Seas 2009; Report of the First COBSEA Marine Litter Workshop 2007; New Strategic Direction for COBSEA (2008-2012); Partnership Opportunities for Enhancing GPA Implementation in the East Asian Seas Region (2007-2011); Case Studies of Coral Reef Monitoring and Management Projects (2004-2005); and 'The Annotated Guiding Principles for Post-Tsunami Rehabilitation and Reconstruction' translated into Thai, at <http://www.cobsea.org/>, 17 October 2012.

⁹² Spatial Planning in the Coastal Zone of the East Asian Seas Region: Integrating Emerging Issues and Modern Management Approaches.

⁹³ UNEP, "What is Marine Pollution and How Does It Affect Marine Life?" UNEP/GRID-ARENDAL, <http://www.grida.no/publications/rr/our-precious-coasts/page/1292.aspx>.

⁹⁴ Marine spatial planning in relation to climate change in East Asia, EAS Congress 2012, 9-13 July 2012, Changwon City, Republic of Korea, Poh Poh Wong PEMSEA RTF, wong3921@gmail.com, <http://eascongress.pemsea.org/sites/default/files/document-files/presentation-msp-wong.pdf>, 13 February 2013, 13 February 2013.

⁹⁵ MSP References, UNESCO-IOC-Marine Spatial Management: www.unesco-ioc-marinesp.be/msp_references, 13 February 2013.

Asia states like Japan, Korea, Philippines, Malaysia, Vietnam and Indonesia are looking into ocean planning.⁹⁶

MSP is multiscalar in nature,⁹⁷ focuses on sea-use planning,⁹⁸ emphasises place-based management,⁹⁹ has a circularity of process,¹⁰⁰ with defined geographical and material scope and can co-exist with other tools. UNESCO's definition and concept of MSP shows it is a public process that analyses, allocates and distributes space and time for human activities in marine areas to achieve three objectives: ecological, economic and social usually specified through a political process.¹⁰¹

At a national level, MSP could be used as a management tool for ocean governance as it brings the most directly relevant stakeholders for discussion and forward planning in the governance of the SDG 14 through the ecosystem based approach to fisheries and management. Lessons learnt from the South China Sea are also applicable to the Straits of Malacca which are part of a large marine ecosystem of the Bay of Bengal.

2.8.1 Stakeholder Cooperation

The implementation of MSP has to be tied in with fisheries governance, general marine pollution control from land-based sources and disaster risk reduction and resilience of the nation. This would require the Stakeholders to meet and continue the iterative adaptation of decisions, geological maps, or plans and meetings. Where other uses intersect, resulting in cross-multi-sectoral conflicts, science is required in decision-making and administration has to learn and adapt over time.¹⁰² Resources may be protected through the ecosystem based approach to management using zoning and mapping for national, shared/ transboundary seas even up to the global commons.¹⁰³ Such an approach to ecosystem management may be accomplished over several defined temporal periods but it can integrate human uses in inter-sectoral ocean plans.¹⁰⁴ Such cross-sectoral ocean

⁹⁶ Coastal Spatial Planning in the East Asian Seas Region Integrating Emerging Issues and Modern Management Approaches, Dr. Ellik Adler, Coordinator, COBSEA, Expert Consultation Workshop on Coastal and Marine Spatial Planning Approach: International Experiences, EAS Congress 2012, Changwon, Korea, 11 July 2012.

For presentations on Thailand, Philippines, Cambodia, Ukraine, Indonesia, Europe amongst others, <http://eascongress.pemsea.org/sites/default/files/document-files/presentation-msp-adler.pdf>, 13 February 2013; Marine spatial planning in relation to climate change in East Asia, EAS Congress 2012, 9-13 July 2012, Changwon City, Republic of Korea, Poh Poh Wong PEMSEA RTF, wong3921@gmail.com, <http://eascongress.pemsea.org/sites/default/files/document-files/presentation-msp-wong.pdf>, 13 February 2013.

⁹⁷ Hari M Osofsky, "Multidimensional Governance and the BP Deepwater Horizon Oil Spill" 63 Florida Law Review September 2011 at p. 1077.

⁹⁸ David L VanderZwaag and Susan Farlinger, "Chapter 4: Oceans Policy: A Canadian Case Study" in Timo Koivurova, Aldo Chircop, Erk Franckx, Erik J Molenaar, and David L. VanderZwaag, (Eds.) *Understanding and Strengthening European Union - Canada Relations in Law of the Sea and Ocean Governance* (University of Lapland Printing Center: Rovaniemi: 2009) at p. 95.

⁹⁹ *Ibid*, at p. 96.

¹⁰⁰ *Id*, at p. 96.

¹⁰¹ See UNESCO, Note 81.

¹⁰² UNESCO, Note 81.

¹⁰³ Nico Schrijver, *Development Without Destruction: The UN and Global Resource Management* (Indiana University: Bloomington: 2010) at pp. 2-10.

¹⁰⁴ UNESCO, Note 81 at pp. 18 and 19.

governance is necessary where the fisheries are linked to neighbouring countries and land-based sources of marine pollution contaminate the waters of other States too. The same may be said for climate-based disasters where transboundary cooperation may be required as perhaps in East Malaysia in the Borneo states of Sabah and Sarawak that border Indonesia. Through the MSP, an interrelationship and an interlink is established between the various administering authorities of the coastal States. Through MSP, ocean managers can integrate information about how humans and uses impact the inter-connected ecosystem features and *vice versa*. Specifically, coastal States should cooperate in addressing land-based sources and perhaps even other sources of marine pollution and where, especially, it intersects with resource protections. They should also provide mapping information on coastal and maritime zones, to form the basis of (a) place-based sectoral regulations pertaining to specific uses, (b) plans for future research, monitoring and evaluation to fill information gaps, and/or (c) a comprehensive ocean zoning plan.¹⁰⁵ The coastal States should not ignore education and capacity – building as in the land and sea ecological continuum, planning should be accompanied by these.¹⁰⁶

For the adoption of a framework, procedurally, the stakeholders at the national level and at the regional level where coastal States border the Straits of Malacca and the South China Sea, they should consider the following indicators necessitating the adoption of MSP:¹⁰⁷

1. where information, understanding and other essential tools for planning at sea are under-developed; or
2. distribution of habitats and habitat mapping is incomplete and inconsistent; or
3. there is no single repository of information on marine environment and there is poor maritime conservation, planning and understanding; or
4. there is comprehensive and detailed mapping of the seabed in the form of charts but there is no single geographic topography information system or mapping system to collate, integrate, interpret and use information to form a basis for spatial planning at sea; and
5. there is inadequate monitoring, consequently enforcement of regulatory controls at sea is difficult.¹⁰⁸

Stakeholders within a State and coastal States at the regional level, could and should cooperate in the articulation of steps to develop the processes and implement MSP over time that is subject to various levels of decision-making and stakeholder participation till the final and optimal stage is reached. They are not to be considered linearly as costs and benefits must be factored into very decision.¹⁰⁹

¹⁰⁵ COBSEA, Note 89.

¹⁰⁶ See Plancoast Handbook on Integrated Maritime Spatial Planning at p. 21, www.plancoast.eu/, 16 November 2012.

¹⁰⁷ Tyldesley, D. (2004) 'Making the case for marine spatial planning in Scotland' report commissioned by RSPB Scotland and RTPI in Scotland at p.93. (RSPB stands for the Royal Society for the Protection of Birds Scotland and RTPI stands for the Royal Town Planning Institute Scotland).

¹⁰⁸ *Ibid.*

¹⁰⁹ UNESCO, Note 81.

The vision and objectives of the MSP framework should also be adopted by the Stakeholders and regional States.¹¹⁰ For example, States could input harmonised marine data which involves environmental characterisation, assessment of human impact and pressures, socio-economic analysis, and assessment of biodiversity.

The actions required compel the Stakeholders and regional coastal States to engage in scoping and assessment which needs to be carried out as part of the scientific planning process with stakeholder consultations and gathering of new information.¹¹¹ Such information should focus on their biophysical characteristics, diversity of marine life, conservation values, key ecological values, and broad biodiversity objectives. Finally, regional priorities, strategies and actions to support these priorities should be delineated.¹¹² Some examples of action required at the national and regional levels are identification of land-based, estuarine and coastal sources of marine pollution; identification of the number, nature and hierarchy of the national intra- and inter-state agencies to be tasked with the implementation of the MSP at the national and regional levels and identification of the socio-economic structure/s of the region.

To discharge the stewardship responsibilities of the region, the Stakeholders and the coastal regional States should consider the feasibility of setting up a National Ocean Policy Task Force and a Transboundary Ocean Policy Task Force (temporary) at the regional level.¹¹³ This will enable cost-effective and improved coordination to be carried out across all State government agencies regionally.¹¹⁴

2.9 Conclusions

Chapter Two examined the implementation of SDG14 in Malaysia. The mandates of key stakeholders and their data holdings were highlighted. This Chapter also considered the existing state of the resources. Environmental management whether remediation or conservation were examined together with a consideration of the policies, laws and institutions of governance. Policies in place/ planned / related to the ocean were broadly scoped in this Scoping Report. Policies included not only direct legislation, but also “indicative” plans, such as taxes, subsidies, expenditures, strategies, spatial plans. The Report notes that the policies, national laws, subsidiary regulations, institutions and governance mechanisms seem fragmented. However, there is political will and commitment expressed as the nation stated repeatedly at the international fora. Some questions still persisted such as: is the marine environment still able to deliver on its ecosystem services in any given area and are decision-makers empowered with sufficient information vital for sustainable development of the oceans to cater for inter-generational equity? Are investments ventured into the correct choices for the protection and sustainable use of the oceans? Do policies and laws need to be changed? Where Malaysia could at one time be described as a ‘hesitant’ or

¹¹⁰ See EU state practice.

¹¹¹ See Australian State practice: Veronica Sakell, “Chapter 3: Operationalising Integrated Coastal and Oceans Management in Australia in Donald R Rothwell and David L VanderZwaag, (Eds) *Towards Principled Oceans Governance* (Routledge: London: 2006) at pp. 83-4.

¹¹² See Australian State practice.

¹¹³ See US state practice.

¹¹⁴ See US state practice in Section 3 of Executive Order 13366 of December 17, 2004.

an ‘emerging maritime nation’, most recently in 2019, the Prime Minister of Malaysia raised a call to all Malaysians to be “a true maritime nation”. This entails good governance of the ocean and its resources for present and inter-generational equity.

It has been said often that policies are coherent across the various government ministries. However, it seems uncertain if different stakeholders hold similar or conflicting data on the same subject-matter in the various ministries. However, there is no data in the following sectors. In the conservation of marine parks and coral reefs, there is no data on the success of empowering local communities to manage them. Local community management is expected to enhance the resilience to, mitigation of and adaptation to climate change. Such management is expected to be more effective in a decentralized management of reef ecosystems.¹¹⁵ It is also uncertain if the marine areas that needed protection were gazetted as marine parks and how many bleached coral reefs had been restored. There is no data on how ocean acidification is addressed or on mangrove governance. The law on mangrove protection needs to be developed further as Malaysia has ratified the relevant international conventions. Suitable laws that facilitate mangrove conservation efforts should be adopted. Where possible, attempts should be made to create a model for mangrove governance that will work for all jurisdictions. The Ramsar Convention on Wetlands of International Importance, World Heritage Convention, Convention on Biological Diversity, Climate change frameworks and International water conventions followed by the 1992 Rio principles of sustainable development such as the precautionary principle, the polluter pays principle, the principle of public access to information, public participation in decision-making and public access to justice in environmental matters should be made applicable to mangroves.¹¹⁶ The implications for mangroves has not been documented when the Government of Malaysia allocated RM147.7 million for forest development in 2017. Data is also required on the success of coastal project investments and what their impacts are on the ocean or its resources. Data is required on the use of the Environmental Impact Assessment as a tool to control land-based pollution and protect marine and coastal ecosystems. Data on developer liability and negligence in coastal projects that impact the ocean and resources should be recorded. Data is required on the land-based pollutant run-off into rivers. Data is required on the performance of the regional ASEAN - OSPAR mechanism. Similarly, data is required on the performance of the Monitoring, Control and Surveillance measures for the control of land-based sources of pollution. Likewise, data is required on the performance of the Malaysia-Singapore Joint Seawater Monitoring Programme.

There are some weaknesses in the ratification of the FAO instruments and concomitant implementation of international commitments such as in the context of IUU fishing. The ASEAN region lacks a regional fishery management organization. SEAFDEC is a scientific body and not an enforcement organization. Ocean biodiversity data for the whole of Malaysia needs to be recorded. Hard engineering solutions or solutions predicated on acceptance of nature’s actions or otherwise needs to be documented to adapt to flooding of coastal areas. Are communities going to

¹¹⁵ CORAL REEFS PROJECT, <https://www.iucn.org/theme/marine-and-polar/our-work/coral-reefs/coral-reef-projects>, 21 April 2019. By Gabriel Grimsditch, Acting Chief Technical Officer, Project Regenerate Maldives IUCN (International Union for Conservation of Nature) Merryrose Building 2nd Floor, Filigas Magu, 20006, Malé, Maldives Tel. +960 753 46 40 www.iucn.org

¹¹⁶ Source: Slobodian, L. N., Rodriguez Chaves, M., Nguyen, L. T. P., Rakotoson, L. N. (2018). Legal frameworks for mangrove governance, conservation and use: Assessment summary. IUCN, Geneva, Switzerland, and WWF Germany, Berlin, Germany. (74) pp. <https://www.iucn.org/sites/dev/files/content/documents/wwf-iucn-mangroves-global-legal-assessment-v10.pdf>, 21 April 2019.\

have sea walls or going to be moved out of the locality prone to flooding? Plans for the next 10, 20 or 50 years need to be documented. Governance actions taken to improve flooding also need to be tabled. Institutional surveys also need to be undertaken. There is an urgent need to adopt Marine Spatial Planning as a management tool as jurisdiction over subject-matter is split between Federal and State Governments under the Federal Constitution and sometimes there is Concurrent Jurisdiction over the same resource. Yet at other times, three different levels of authority cascade down on to a single resource-use as, for example, in fisheries management in 3 nautical miles of coastal waters and in gazetted marine parks or in mangrove conservation where pollutant run-off occurs into the mangroves inviting the Town Council to exercise jurisdiction along with Federal and State authorities.

On a positive note, the Questionnaire Reply of the (respondent) Department of Fisheries was encouraging where the Department referred to an indicator of success in the imposition of 38 mm cod-end mesh size for trawl net in all fishing zones that saw a decrease in trash fish landing, increase of fish landing, and increase of fish stock. The other indicator of success was the fish zoning system that reduced the conflict between traditional and commercial fishing, allowed for a more equitable allocation of resources, afforded protection of fish habitat, and saw a decrease in local and foreign encroachment activity. Efforts were underway to introduce suitable gear for the replacement of trawlers. It was said that the existing and planned policies were coherent across government and there were no identified gaps in policies that did not address the concerns. All policies would always be equipped with effective action plans and strategies. One of them is the MCS: Monitoring, Control and Surveillance Programme that was the main tool to ensure compliance in national waters. There used to be weaknesses in incentive measures including fiscal measures such as grant of subsidies to fishermen, a practice that the Department of Fisheries states has now stopped.¹¹⁷

The Environmental Quality Report for 2017 shows that land-based sources of marine pollution are not negatively impacting the status of the marine water quality. The improvement in marine water quality is a good sign for marine environmental protection of resources and for Life Under Water for SDG 14. Monitoring has to be done continuously and not on selected “good” days alone. It is reported that a privatized company has good data holdings on the marine water quality monitoring.

While this Chapter is not a report card on the status of a resource or of its governance, it notes that Malaysia lacks a streamlined comprehensive governance mechanism and the landscape of SDG 14 at the national and local levels indicates that the nation also lacks a comprehensive ocean policy. Consequently there are some serious data gaps, policy gaps and deficits in legal frameworks across sectors and institutions. However, there are some encouraging developments as noted above.

¹¹⁷ Pre-Workshop Discussions with DOF, 3rd April 2019 as organized by DOSM.

Chapter Three: Report of the First National Workshop on Ocean Accounts for Malaysia and on the selection of a topic for the Pilot, 4th and 5th April 2019

3.1 Report

The Department of Statistics Malaysia (DOSM) invited twenty stakeholders to the First National Workshop on Ocean Accounts for Malaysia. The First National Workshop on Ocean Accounts was organized by the DOSM, Putrajaya with UNESCAP (Economic and Social Commission for Asia and Pacific). In his Opening Remarks, Dr Michael Bordt welcomed the participants and congratulated Dr Uzir for being the world's first to engage in Ocean Accounts as this was the very first complete workshop exercise in the world and that the Malaysian experience in ocean accounting could serve as a world first. This was about ocean accounts, where not only money or economic value of the oceans was accounted for, but also the physical aspects of the oceans were considered taking into account the bad management of the activities in the oceans, the benefits derived from the oceans, the continuous degradation and pollution of the oceans that was getting worse and predictions that it was not getting better. Economists, and Sociologists have been working on their statistics for more than 70 years and Environmental Statisticians have more recently entered the scene. Ocean activities had to be managed sustainably using ocean accounts. Malaysia had a very good compendium of Environment Statistics. Two years ago, when ESCAP countries wanted to improve data on the oceans, there was no statistics on the oceans as the mandate for the oceans was scattered internationally in various departments and agencies, all doing things differently. So at ESCAP it was decided to do ocean accounts and account for all resources, uses, pollutants introduced into the oceans and benefits from the oceans. Besides the ESCAP countries, other nations such as Canada, the USA, the UK and Australia were keen to see the results in Malaysia. So is the High-Level Panel on Sustainable Ocean Economy and this work is mentioned in High-Level Forums around the world such as the gathering of the Chief Statisticians from around the world. The world is waiting on Malaysia as it engages in this Pilot Project: it has to be done right by working together. To do this correctly, stakeholders were required to focus and listen to each other as a new innovative data product that was statically sound was developed that would be both important and useful for Malaysia and which would show the world how to do this. It was important to identify departmental priorities with respect to the ocean; the main data holdings; the data gaps with respect to monitoring and reporting on those priorities and the role of collaboration with other departments that perhaps could address the challenges.

The Chief Statistician of Malaysia, DOSM, YBhg Dato' Sri Dr Mohd Uzir Mahidin pointed out that the Workshop on Ocean Accounts represented an important milestone for Malaysia as Malaysia had the infrastructure and statistics to do the Pilot. What was required was to connect all the efforts, despite the constraints and gaps that could be addressed as Malaysians continued to manage their lives in a sustainable manner. Under the Sustainable Development Goals, 5 pillars mandated care to be taken of the planet and its people, and to share prosperity and ensure global peace through a strong partnership. In the past, oceans provided security and petroleum resources. There were many issues in every country that had to be considered. In Malaysia, the DOSM has

looked at aging, security, crime statistics, economy, and income distribution. At the end of the day, present and future generations were entitled to a secure and prosperous life, which was a shared responsibility of the government and the people. Malaysia was chosen for the Pilot study on ocean accounts even though other nations such as China, Thailand, and Samoa were interested too and looked to ESCAP leadership in ocean accounts to see the Pilot through. This fact was previously mentioned at the Assembly meeting. Stakeholders had to be involved in this journey as it required much interaction between them. Sustainable development as a concept was endorsed as public policy in Malaysia. The DOSM had previously worked on water and energy accounts and will work on Green Indicators. It was important to share the lessons learnt with the rest of the world.

Dr Michael Bordt presented Ocean Accounts. The issues and challenges were that data/information were scattered and were collected from various agencies and for different purposes and needed to be standardized. There had to be reliability and quality of data. This was a cross-cutting area and requires a focal point.

Stakeholder Departmental Perspectives on their mandates, data holdings, monitoring, gaps and governance were also submitted by the Marine Department, Malaysian Institute of Maritime Affairs, Department of Fisheries, National Hydrography Center, National Disaster Management Agency Malaysia, Institute of Ocean and Earth Sciences, University of Malaya, Department of Minerals and Geoscience Malaysia and Department of Environment Statistics in DOSM. For details of the presentations, see Chapter Two.

The local consultant stated the purpose of the Draft Scoping Report and Workshop were to determine challenges to the marine environment and select a topic of concern for the Pilot Study from the multitude of concerns that Malaysia faced as a maritime nation. An overview of the challenges and likely issues arising under the 1982 Law of the Sea Convention that Malaysia was a State Party to and re-examined the challenges from the perspective of the Sustainable Development Goal 14 – Life Below Water. The four major concerns globally were: overfishing, ocean acidification, worsening coastal eutrophication and marine protected areas followed by climate-related disasters and resilience. As a management tool, the MSP was useful in addressing some of the jurisdictional and other challenges Malaysia faced. The time period to complete the Pilot was 6-months with no additions to finances.

Four topics were finally adopted from these broad challenges (See Table 1). These were (1) Living resources (Straits of Malacca); (2) Protecting marine habitat (Peninsular Malaysia); (3) Ocean conservation (indicators); and (4) Klang Straits (land-based).

The topic “Living Resources of the Straits of Malacca” in terms of work to be done required the compilation of existing data for the area. The six-month output would require drawing up an Inventory of available data and the running of Test accounts for extent & conditions. It was a Proposal for analytical project. It required a collaboration between DOSM and the State & local authority, Forestry, Department of Fisheries, Ministry of Water, Land and Natural Resources (KAT), Marine Parks, Ministry of Agriculture and Agro-based Industry (MOA), Fisheries Development Board of Malaysia (LKIM), Malaysian Institute of Maritime Affairs (MIMA), Local universities such as the University of Malaya (UM) and the National University of Malaysia (Local

univs.), the Department of Minerals and Geoscience, the National Hydraulic Institute of Malaysia (NAHRIM) and the Drainage and Irrigation Department (DID). The priority accorded was 22 votes. This topic reflected on all SDG 14 targets, directly and indirectly. Challenges to mangroves, coral reefs, mud flats were highlighted. The impact of climate change and erosion, pollution and oil spills from ship collisions on these habitats were considered. The way forward was to increase the number and size of the marine protected areas, regulate mangroves and coral reef protection and enhance safety of navigation. The geographical area under consideration was the Straits of Malacca. There was existing data on fish production (capture fisheries), fish price, a vessel list and vessel movements. There were also records of increase in fish stock, an increase in fishermen's livelihoods, and guarantee of food security for consumption.

For the topic "Protecting marine habitat (Peninsular Malaysia)" the work to be done included getting data on Fish catch/stock, Ship movement and Mapping unprotected resources (tbd). The six-month output would require an Initial map of unprotected reserves, Test accounts for extent & aquatic resources and Assessment of pressures. It required a collaboration between the DOSM and Marine Parks, Fisheries and Marine Department, the Department of Environment (DOE), State and local authority, and DID. The priority accorded was one vote. This topic addressed concerns in living resources in the ecosystem of the coastal stretch of Terengganu in line with SDG 14 in the east coast of Peninsular Malaysia and port and fisheries activities in the area of the Klang valley (from the sea to river) as there were port activities contributions to marine pollution with impact on mangroves and fisheries.

The topic "Ocean Conservation (indicators)" required work to be done on the water quality, CO2 emissions, and land-based pollution. The six-month output required an Agreement on indicators, Mapping of spatial data, and Test accounts for conditions. It required a collaboration between DOSM and DOE, KATS, Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC), DOA, and the Marine Department. The priority accorded was seven votes. This topic was concerned about the depletion of fish stocks and oil and gas resources; coral reefs; tourism and enhanced livelihood of the local communities.

The final topic "Klang Straits (land based)" in Peninsular Malaysia required work to be done in two areas: (1) Distinguish land-based activities; and (2) Estimate pollutants. The six-month output would be an Inventory of available data; Integration of scientific data; and Test accounts for water emissions, wastewater, solid waste. It required a collaboration between DOSM and the DOE, KATS, Marine Department, DID, Port Authorities, NAHRIM, DOA, Forestry, UM and MIMA. The priority accorded was 12 votes. This proposal was concerned about the marine region which provides major ecosystem services to the Klang valley. Ports, invasive alien species, fisheries and aquaculture, indigenous population dependent on fisheries, land-based sources of marine pollution, mudflats and mangroves were considered in this topic.

Though the topic "Living Resources of the Straits of Malacca" garnered the most votes, however, it was not finalized by the DOSM.

To pursue the topic of the Pilot further, Dr Michael Bordt conducted very comprehensive training sessions for the participants: Ocean Accounts Training I and II (see, https://www.dropbox.com/sh/ohrxw2iliym5v86/AABeJCVmV9bidwgt9SSi_JR9a?dl=0). Mr

Teerapong P. and Ms Lyutong Cai assisted. Ms Lyutong Cai took the participants through the hands-on training exercise.

The Training Sessions, led by Dr Michael Bordt, explained the process of ocean accounting step by step using metaphors and images that spoke volumes of the enormity of the task ahead: “Whale Meets the Elephant.” The Training Sessions presented a global overview of the importance of ocean accounts including the highlights at the World Economic Forum at Davos recently on the ocean’s resources, the role of GIS as ocean accounts were spatial and the remaining research questions, concluding with the various tools and methods of ocean accounting not forgetting the recommended readings. The sessions also reflected on the Canadian and British experiences in ocean accounting. The UNESCAP Consultants Dr Michael Bordt and Mr Teerapong P. prepared Table 1: List of Proposals. Dr Michael Bordt explained the meaning of “test accounts” in each of the four proposals. A vote was taken at the end to determine the topic for the Workshop with the following results. Every participant was allowed to vote more than once.

TABLE 1: LIST OF TOPICS

Topic	Work to be done	6-month output	DOSM and...	Priority
Living resources (Straits of Malacca)	<ul style="list-style-type: none"> • Compile existing data for the area 	<ul style="list-style-type: none"> • Inventory of available data • Test accounts for extent & conditions • Proposal for analytical project 	State & local authority, Forestry, DOF, KATS, Marine Parks, MOA, LKIM, MIMA, Local univ., Minerals and Geoscience, NAHRIM, DID	22
Protecting marine habitat (2) (P.M’sia)	<ul style="list-style-type: none"> • Fish catch/stock • Ship movement • Mapping unprotected resources (tbd) 	<ul style="list-style-type: none"> • Initial map of unprotected res. • Test accounts for extent & aquatic resources. • Assessment of pressures 	Marine Parks, Fisheries and Marine Dept, DOE, State and local authority, DID,	1
Ocean conservation (indicators)	<ul style="list-style-type: none"> • water quality, CO2 • land-based pollutions 	<ul style="list-style-type: none"> • Agreement on indicators • Mapping of spatial data • Test accounts for conditions 	DOE, KATS, MESTECC, DOA, Marine Dept.	7

Klang Straits (land-based)	Distinguish land-based activities and estimate pollutants	<ul style="list-style-type: none"> • Inventory of available data • Integration of scientific data • Test accounts for water emissions, wastewater, solid waste 	DOE, KATS, Marine Dept, DID, Port Authorities, NAHRIM, DOA, Forestry, UM, MIMA	12
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The List of Participants for 4th & 5th April are attached herewith.

3.2 Case Study Implementation

The next step is to finalise the topic for the Pilot and implement the Case Study. At a meeting held on 22 April 2019, 5.30 pm, it was decided to focus on the Department of Fisheries and then a High-Level Meeting of Stakeholders in May 2019 to seek out common points of interest, challenges and opportunities as identified in the scoping study.

Chapter Four: Conclusions

Malaysia a State in the Asia-Pacific region has enjoyed the benefits provided by the ocean in terms of livelihood, employment, nutrition and economic growth. However, Malaysia does not have a report card on the status of the ocean and coastal ecosystems. The sustainable future of the ocean is also not known. The UNESCAP has previously pointed out that the stressors on the ocean continue to mount from marine pollution, ocean acidification and warming, depletion of fish stocks and key species, destructive fishing practices, unsustainable trade and transport, and inadequate governance. The seas around Malaysia are all part of large marine ecosystems and therefore, the sustainable management of the ocean resources requires regional collaboration across nation states and public-private sectors on an unprecedented scale. Agenda 2030, SDG 14 points in the right direction and demonstrates to nations on conservation and sustainable utilization of ocean resources for development.

The Scoping Report considered the mandates, data holdings of various stakeholders, state of knowledge on various ocean resources and ocean governance in Malaysia. It considers monitoring and enforcement capabilities of the stakeholders of the resources under consideration. It seeks to determine the conflicts, if any, between the users, interlinkages amongst the users, gaps in knowledge, and constraints in decision-making. It is an exercise to know what we have, do not have and if there are current conflicts in policies and laws and whether investments made assist in ocean governance. Malaysia is a State party to several international conventions and policies. This Report also briefly alludes to these international commitments. Accordingly, the Scoping Report conducted a preliminary review of national, regional and international institutions (including academic) working on oceans in the country, including their mandates and access to data holdings. However, emphasis was placed on the national stakeholders. Access to data holding includes listings of main indicators, databases, or maps on ocean use, ecosystem types, or characteristics and variables related to ocean statistics used to track and adapt to future changes in ecosystem services and oceanogenic anomalies. It was found that the baseline data for a resource over time is not known. How much of the resource is extracted in a given year is best known for fisheries. However, the figures need to be reconfirmed. There is a similar conclusion for coral reefs, mangroves, and marine pollution including land-based sources of marine pollution. What quantity of the resource still remains in the sea is not known. The conservation efforts and cost thereof and what is returned to nature have not been stated. A current state of the resources for better ocean governance would require an ocean accounts to be developed to address the gaps and uncertainties in knowledge.

The Scoping Report notes the high political commitment to the implementation of the SDG 14 goals in Malaysia. However, the cost of efforts undertaken so far, was not stated. On a more specific level, the tie in between the resource and its economic value was only highlighted for fisheries. Other ecosystem services, whether provisioning, regulatory or cultural were not considered. In the case of land-based pollution, much more needs to be done in the implementation of the land-based pollution instruments. As an ASEAN member, Malaysia's participation in regional seas and other international marine agreements has to be documented. ASEAN has to strengthen old arrangements or adopt new regional cooperative arrangements. There is some

knowledge on the state of the resources of the ocean and ocean governance and much that is not known. To deepen the diagnostic, an ocean accounts assessment needs to be done.

In terms of ocean governance, there is a need to streamline and strengthen the institutional and regulatory framework. It is important to increase the capacity of related agencies in terms of technology including the use of new technology such as unmanned aerial vehicles and enhance knowledge to strengthen monitoring, surveillance and enforcement capacities. While remedial and rehabilitation efforts are undertaken in certain sectors, there is a need to intensify remediation nationwide. It is vital to strengthen partnerships with indigenous and local communities. Last but not the least, the economics aspects of marine resource investments were not considered but need to be considered in order to assess whether the investments have promoted or hindered the sustainability of the oceans. Here too, it is necessary to deepen the diagnostic in ocean accounts.

As part of the Scoping exercise, a two-day National Workshop on Ocean Accounts for Malaysia was held on 4th and 5th April 2019 at DOSM. The Scoping Report considered the topic for the Pilot Study on Ocean Accounts for Malaysia within the matrix of the various proposals that were tabled. It considered the entire scope of challenges under the 1982 Law of the Sea Convention that Malaysia was a State party to and considered the environmental (and where possible economic) challenges from the SDG 14 perspective. It assessed global progress on SDG 14 and Malaysia's implementation of SDG 14 and the Sendai DRR. It considered some implications for the topic of the Pilot in the Straits of Malacca. Five proposals were considered for the Pilot:

1. Living resources at the coastal stretch of Terengganu in line with SDG 14.
2. Port and fisheries activities in the area of the Klang valley (from the sea to river).
3. Protection and rehabilitation of Marine habitats for Sustainable Ocean Activities (Straits of Malacca).
4. Protection of the Resources of the Klang Straits, Klang valley, Peninsular Malaysia.
5. Ocean Conservation (East Coast Area in Peninsular Malaysia)

Due to an overlap between two of the proposals, they were restructured as four proposals. The topic chosen was, "The Living Resources of the Straits of Malacca." The DOSM pointed out that they would further reflect on the final topic before the next stage of the study commenced in the six-month time frame. It is important to note that a collaboration on the Pilot will build technical capacity and institutional mechanisms throughout the nation to ensure the sustainable use of Malaysia's oceans.

It is also hoped that the Government will adopt MSP as a tool for ocean governance for implementation at the national and sub-national levels, as an effective iterative management tool to protect the resources. The MSP, allowed federal and state jurisdictional conflicts and legal and policy challenges to be aired and discussed successfully. The pilot study with its two-pronged objectives is specially significant as Malaysia's ocean governance is fragmented and not streamlined, decisions made are not evidence-based, regulatory impact analysis is not considered, and policy-evaluation and amendment is not mentioned. The pilot study will support the needs of Malaysia for integrated statistics to support integrated policies. In the two-pronged approach, first, a stakeholder core group needs to be established; and second a national Ocean Accounts Platform

should be established. The core working group should comprise DOSM, relevant stakeholders, an appropriate university and ESCAP. The Oceans Platform serves to integrate selected existing statistics conceptually and spatially along SDG 14-related national priorities. The pilot study will enhance Malaysia's capacity to develop and support integrated policies to sustainably manage the ocean, in line with SDG 14 by leveraging existing partnerships, governance frameworks and data. No matter what the level of difficulty experienced in piecing several interdisciplinary tracts of information, the importance of conducting an ocean accounts study for Malaysia cannot be ignored.

The exercise points to the conclusion that we know very little and much remains to be done on knowing the stock of ocean resources and their value, to be able to meet the SDG 14 targets. Therefore, it is imperative the nation undertakes an ocean account using the SEEA and SNA framework. The pilot will assist in the short term by identifying the overlaps, gaps and inconsistencies in policies and data. Over the longer term, the pilot will serve to improve the efficiency of data collection and the coherence of analysis to better report on and monitor these policies and enhance Malaysia's capacity to develop and support integrated policies to sustainably manage the ocean, in line with SDG 14 by leveraging existing partnerships, governance frameworks and data.

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Appendix One: List of Stakeholders invited to the First National Workshop on Ocean Accounts for Malaysia, 4th and 5th April 2019, Department of Statistics Malaysia, Putrajaya.

Ministry of Economic Affairs
Ministry of Water, Land and Natural Resources
Ministry of Science, Technology, Environment and Climate Change (MESTECC)
Ministry of Agriculture and Agro-based Industry
Ministry of Transport
Malaysian Centre for Geospatial Data Infrastructure (MaCGDI)
Department of Fisheries
Department of Survey and Mapping Malaysia
Department of Statistics Malaysia
National Disaster Management Agency
Department of Agriculture
Department of Minerals and Geoscience
Fisheries Development Board Malaysia
Marine Department Malaysia
Malaysia Maritime Enforcement Agency
Malaysia National Oceanographic Data Centre (MyNODC)
Malaysian Institute of Maritime Affairs
University of Malaya
University Malaysia Terengganu
ESCAP
Secretariat (DOSM)

Appendix Two: Chapter Two – detailed

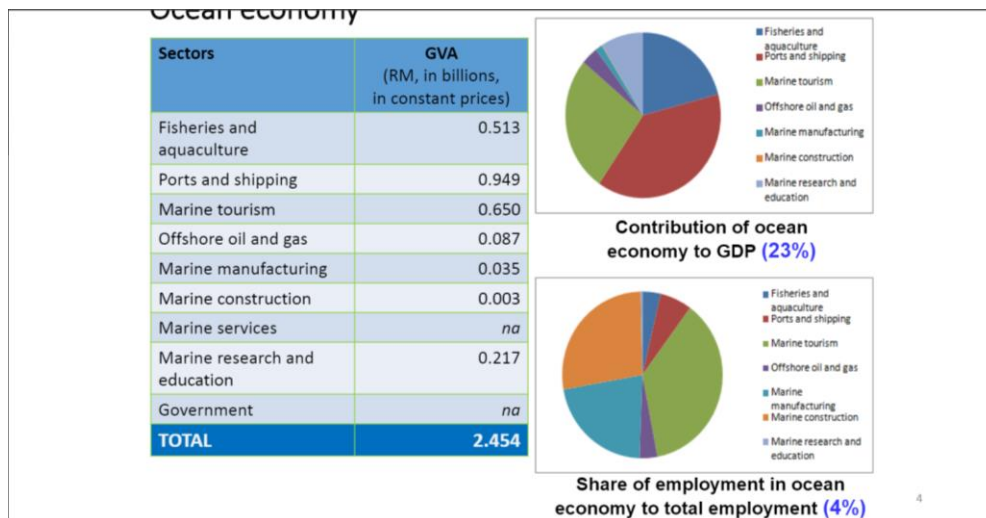
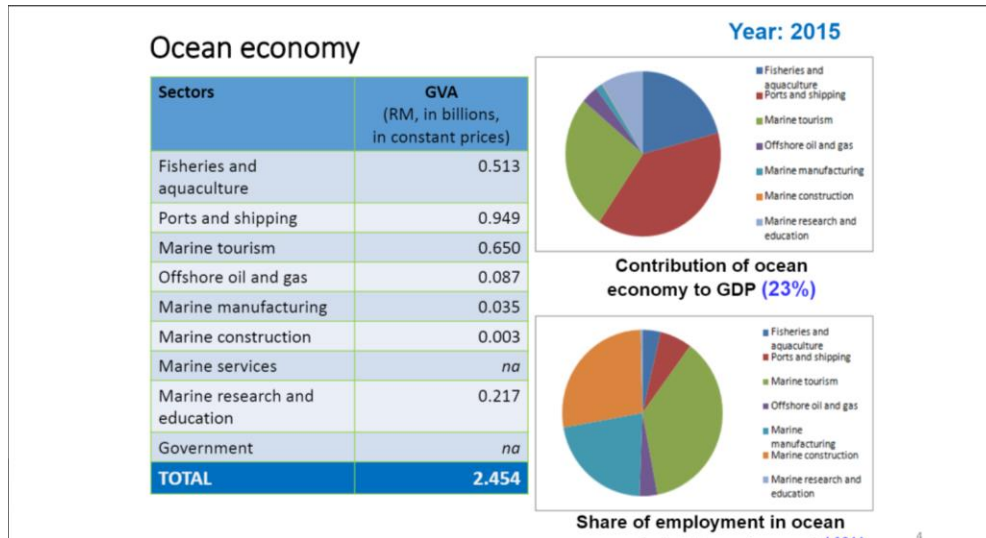
Marine Department Perspectives (Ministry of Transport) by Ms Nurul Suhana binti Sulaiman

The Marine Department said that it was established for the administration of shipping, port and maritime affairs, under the Ministry of Transport. Its first objective was to take the lead over the Maritime Transportation System. The vision was to drive quality based on the National Maritime Growth through the Empowerment of the Maritime Transportation, Systematic and Marine Environment Protection System. The motto of the Agency was “Safer ships, Secure Ports, Cleaner Sea.” The main function, amongst others, was to regulate activities related to shipping, ports, and seafarers and provide the Safety of Navigation Service. The Marine Department Malaysia had the responsibility to regulate the safety and security of ships and navigation, and the training and certification of seafarers followed by the prevention of pollution from ships. The Department was responsible for the implementation of several conventions adopted by the International Maritime Organisation. These conventions were the International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC)1990 adopted by Malaysia on 30 Oct 1997, the Protocol of 1992 to amend the International Convention on Civil Liability for Oil Pollution Damage (CLC) 1969 adopted on 9 June 2005, the Protocol of 1992 to amend the International Convention on the

Establishment of an International Fund for Compensation for Oil Pollution Damage 1971, adopted on 9 June 2005, the International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001, adopted on 12 Feb 2009, and the International Convention for the Limitation of Liability for Maritime Claims, 1976 as amended by Protocol of 1996 (LLMC Convention 1996) adopted on 10 Feb 2009. The Department was guided by relevant provisions of the Ministerial Functions Act 1969, the Merchant Shipping Ordinance 1952, the Environmental Quality Act 1974, and the Exclusive Economic Zone Act 1984. Regional co-operative arrangements for the control of oil spills were mentioned, namely, Partnership on Oil Spill Preparedness and Response in the Gulf of Thailand, Cambodia and Vietnam, Joint Oil Spill Combat in the South China Sea including Brunei Bay (Brunei Darul Salam and Malaysia and ASEAN Oil Spill Preparedness and Response).

The Malaysian Institute of Maritime Affairs by Ms. Cheryl Rita Kaur

The Malaysian Institute of Maritime Affairs (Ministry of Transport) highlighted the Blue Economy which was adopted at the 14th IORA Ministerial Meeting in Perth in October 2014. In the Blue Economy, coastal States sought to industrialise the seas and oceans bringing together the public sector, private sector, entrepreneurs, foreign investors, multinational companies, and local communities. In addition to concerns over the added pollution of the marine environment and protection of resources, the infrastructure raised in the Blue Economy had to be resilient to withstand the adverse impacts of climate change. Questions in this regard were: was the current infrastructure resilient? How was resiliency of future projects ensured? How were risks managed at a systemic level? Here resiliency meant the ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to and recover rapidly from disruptions. The Malaysian Institute of Maritime Affairs informed that Malaysia had and continues to participate at the IORA Platform meetings on the Blue Economy and Malaysia is represented by MOFA at that platform. Though the concept was relevant to Malaysia with a focus on fisheries and aquaculture, renewable ocean energy, seaports and shipping and seabed exploitation and minerals, there were many gaps that need to be addressed. The MIMA drew attention to the contribution of various sectors to the ocean economy of Malaysia for the year 2015. The figures were taken from DOSM Statistics. However, it was also pointed out that these were rough estimations and needed reconfirmation. Several estimations had to be made because of the lack of precise data.



The Department of Fisheries (Ministry of Agriculture and Agro-based Industry)

The Department of Fisheries highlights that the mission and vision of the organization is to develop a dynamic market-based fisheries industry through creative and innovative approaches; to manage the national fishery resources in an efficient, innovative and environmental friendly manner based on scientific information and good governance; to enhance the delivery system through skillful, knowledgeable and professional human capital; and to be the leader in the transformation of a sustainable and competitive fishery. The policy and strategy of the organization covers several areas such as fisheries sub-sector development, fisheries resources, human capital, Fisheries Act 1985 & Regulations, aquaculture, research, development & commercialisation of fisheries technologies, human capital, data and fisheries information, and fisheries biosecurity. For

the management of Capture Fisheries, the Department of Fisheries relies on the Fisheries Act 1985, the Exclusive Economic Zone Act 1984, the National Agro Food Policy 2011-2020, Licensing Policies and Procedures, Strategic Planning of the Department of Fisheries Malaysia 2011-2020, the FAO Code Of Conduct For Responsible Fisheries and on the National Plan of Action. For the management of Aquaculture, the Department of Fisheries relies on the Fisheries (Inland Fisheries Aquaculture) (Federal Territory of Kuala Lumpur and Labuan) Rules 2017, *Sistem Penyampaian & Khidmat Sokongan Akuakultur (SPeKS)* (Translated as Aquaculture Support Presentation & Service System) and Malaysian Good Agricultural Practices (MyGAP) Certification Scheme. Data and Information on Capture Fisheries, Aquaculture and Inland Fisheries are also available. For example for Capture Fisheries, data is available based on Quantity, Fishing effort, Price or value, Type of vessel, Species, Type of gear and Fishermen Profile. For Aquaculture, data is available based on Quantity, Farm profile, Price or value, Farmers profile, Species and Type of culture system. Likewise for Inland Fisheries, information is available on Quantity, Price or value, Species and Type of gear. Import and Export data is also available on Quantity, Price or value, Commodity or species and Importing and exporting countries. The Fisheries Profile shows that fisheries contribute 9% to the national GDP.

Capture Fisheries
1.45 mil t.m
76.2%RM 11.3 billion
No. Fishermen 130,645 pax
No. Vessel 52,648 unit

Aquaculture
432 k t.m
22.5%RM 3.4 billion
No. Farmer: 17,765 pax
Farm Area:
33,441 hectare

Inland Fisheries
5,177 t.m
0.3%RM 0.1 billion
No. Fishermen: 5,107 orang

The key priorities of the Department of Fisheries are Monitoring, Control and Surveillance, Deep Sea Fishing, Tuna, Seaweed, Research & Development, Aquaculture, Artificial Reef, Resource Management, Biosecurity, International collaboration, and Human capacity development. No particular topic is highlighted in the Questionnaire.

In a reply to the ESCAP Questionnaire that was circulated before the First National Workshop, an indicator of success of an existing policy was the imposition of 38 mm cod-end mesh size for trawl net in all fishing zones that saw a decrease in trash fish landing, increase of fish landing, and increase of fish stock. The other indicator of success was the fish zoning system. It saw a reduction

of conflict between traditional and commercial fishing, equitable allocation of resources, protection of fish habitat, and a decrease in local and foreign encroachment activity. Efforts are underway to introduce suitable gear for the replacement of trawlers. The existing and planned policies are coherent across government and there are no identified gaps in policies that do not address the concerns. All policies that have or will be implemented will always be equipped with effective action plans and strategies. Of them is the MCS: Monitoring, Control and Surveillance Programme that acts as the main tool to ensure compliance in national waters. The international partners are SEAFDEC, FAO, IOTC, USAID, ASEAN, WorldFish, UNEP, GEF, BOBLME. The national partners are the Ministry of Land, Water and Natural Resources, MESTECC, Marine Department, Economic Planning Unit (was), Department of Fisheries Sabah, Sabah Parks, Fisheries Development Authority, Department of Forestry and State Governments. The main providers of information are the fishermen, NGOs, wholesalers, retailers, downstream players, Departments', District and State staff, and the Fisheries Research Institute. The relationship with the DOSM is through the conduct of workshops, meetings, engagements, seminars, dialogues and other interactions. The main data sources are the National Stratified Random Sampling and the Annual Statistics report via publication and online. To address the Department's concerns, a new data product that addresses post-harvest losses, waste and fish distribution is necessary. The main constraints to sustainable management are budget allocation, human resource, education and awareness of fishermen, and a lack of skill and knowledge. A priority action that could strengthen ocean governance is integration between multi-departments in terms of assets, budget and manpower.

The Department of Fisheries responded again to the Questionnaire after the First National Workshop. There is a little overlap here. The vision of the Department of Fisheries (DOF) is centred on the ocean, that is the core business of the DOF, and it is accorded a higher priority especially because of the marine biodiversity and resources of the ocean. The concerns are over fishing, degradation of resources, pollution and encroachment by foreign fishing vessels. The ocean-related policies in place are, the National Policy on Biological Diversity *Dasar Kepelbagaian Biologi Kebangsaan* (DKBK), the Fisheries Act 1985, the Maritime Transport Regulations Act and the Convention on the Protection of Wetlands of International Importance especially for Waterfowl Habitat, 1971 (RAMSAR Convention). Of the policies in place, the targets/indicators of success are the fisherman, the boat's owner and the ocean resources. The Act is enforced by the respective departments. The national policy regarding the ocean is manifest in the role played by the relevant departments and agencies. Of those policies that are planned, the targets/indicators of success are Better fisheries resources with sustainable catch. There are plans in place for enforcement, monitoring and evaluation. The existing/planned policies are coherent across the government. There are gaps where existing policies/institutions do not address the concerns as each agency needs to play their respective roles in order to achieve their target. Some of the policies have been developed into "action plans" or strategies. On collaborations in ocean-related matters, it is noted that the act affected the whole country. There are some policies which also involve countries in South East Asia, at the regional level. The main providers of information are researchers from relevant department and agencies. The information produced by DOF are used by fishermen, researchers, student and politicians. On collaboration with the NSO, the DOF provides / data and information regarding the respective goals. The DOF participates in ocean-related Committees and working groups. The main data sources are the reports from the local and national monitoring from all the states. The main DOF publications are the Annual reports and

Fisheries Landing Statistics. In a statistical context, the higher management of the department uses the data to regulate policy regarding the fishing vessels. The DOF has participated in an SDG exercise by providing data. The DOF also supports the National Fisheries Data including the fishermen, fishing vessels and marine resource. On a new data product, the DOF would like to develop the GIS and spatial data regarding the ocean to meet their mandate. The main constraint to sustainable management of the oceans is the expenditure to MCS (Monitoring, Control and Surveillance) are high. There are needs to strengthen the awareness and education among the stakeholders. The opportunities to overcome these constraints are awareness, development of a CEPA programme and establishment of a new act to replace obsolete law. An immediate priority action to strengthen ocean governance is to put all the relevant agencies regarding the structure of ocean management into the same ministry.

National Hydrography Center (Ministry of Defence/Navy)

The National Hydrography Center took over from the Navy and was established as a Hydrographic Department in 1964. It carries out hydrographic surveys. The Center has amongst others, a Hydrography Section and a Geospatial Section. It produces Operation and Submarine charts for Defence and MAL charts and Tide Tables for the Public.

The National Disaster Management Agency (Prime Minister's Department) by Ms Siti

The National Disaster Management Agency presented an "Overview Of Disaster Risk Management – Malaysia." The Agency highlighted that 10.1 % (33.298 square miles) of the country's total area was flood-prone areas and 5.67 million people lived in flood-prone areas. The Yellow Floods of 2015 affected 541,896 victims and 136,447 families. There were 1,335 evacuation centers. Twenty-five persons lost their lives and losses amounted to RM 2.9 billion. About 2,076 houses were destroyed and 6,698 houses were damaged. The ensuing recovery cost was RM 3.4 billion. Post-disaster infrastructural contracts were worth RM1.51 billion (USD378million). It cost RM208 million (USD52million) to build and repair houses. At the Cabinet Meeting on 26th August 2015, it was decided to establish the National Disaster Management Agency (NADMA) under the Prime Minister's Department and the new Agency took over the responsibility from the National Security Council. The presentation discussed the eleven roles and responsibilities of the Agency which were to act as Malaysia's National Focal Point for Disaster Management and formulate the National Disaster Management Policy. It had to regulate the implementation of policies; coordinate Disaster Risk Reduction Initiative; cohere Disaster Relief Exercise; Implement Public Awareness Programme, After Action Review; manage Disaster Relief Trust Funds; act as Secretariat of National Disaster Management Committee and Head of Humanitarian Assistance; head the Disaster Relief delegation and deploy the SMART team. The presentation discussed NSC Directive 20 and broad frameworks involved in DRR management. The Disaster management mechanism was distributed over three levels. The Central Disaster Management Committee was chaired by the Deputy Prime Minister/Minister at the Prime Minister's Department and it was responsible for setting the policy and strategy in disaster management, mobilized assets, and gave monetary assistance and human resources. The State Disaster Management Committee was chaired by the State Secretary and it assisted the District level in terms of assets, monetary assistance and human resources. The District Disaster

Management Committee was chaired by the District Officer who coordinated actions, deployed sufficient assets and human resources, and managed the media. Malaysia's Country Overview on the Sendai Framework for DRR was also mentioned. The issues and challenges faced by the Agency were centred on coordination as DRR required a multi-sectoral approach with a wide range of stakeholders being brought together (infrastructure, urban development, education, health, agriculture) to strengthen coordination. It was felt that the agency that acted as the focal point should play a leading role in promoting DRR at the national and local levels supported by local players. As a newly established agency, capacity building was an issue as staff capacity and experienced staff were limited in number and there was a gap in knowledge. Decision-making also faced some difficulty as R&D activities required a science-based, evidence-based approach to support the decision-making through collaboration and engagement.

The Institute of Ocean and Earth Sciences, University of Malaya (Ministry of Education) by Professor Sumiani Yusof

The Institute of Ocean and Earth Sciences, University of Malaya has a three-pronged focus: Research, Academic Training and Technology Development. The Institute undertakes research, education and technology development in the Ocean as well as Earth Sciences. Its vision is to be at the forefront in generating and disseminating scientific ideas and knowledge in marine and maritime research for sustainable utilization and management of the marine environment. Its mission is to seek scientific understanding and to promote best management practices in the utilization of the marine environment, ocean law & maritime affairs, through multidisciplinary research, education and training. The research mission is to achieve international excellence, lead in national and regional research programmes, and to be Asia's leading academic centre for ocean and earth sciences. It comprises four research units: Marine Biotechnology, Marine Biodiversity and Coastal Studies, Maritime Community, Law, Policy & Governance, Air-Ocean-Land Interaction Studies & Climate Change and a Marine Research Station at Bachok, Kelantan. Its objectives are focussed on: Fundamental and Applied Research where it initiates and undertakes various aspects of ocean and earth science related research including science and technology, public policy and law, socio-economic development, environment, geography, history, political science and international relations. The second objective is Globalisation. It facilitates collaboration within the University of Malaya and with local and international institutions in multidisciplinary research, training and education, and technology development. The third objective focuses on Advice & Consultations for Management & Policy Decisions. The Institute provides advice and consultancy for management and policy decisions on sustainable development of coastal & marine resources, and the environment. The fourth objective is Talent Development where it facilitates and provides postgraduate education and professional training in relevant areas. The fifth objective is to Publish, Disseminate Outputs & Knowledge Transfer wherein it publishes and disseminates research outputs in journals, monographs and bulletins. The last objective is facilitation of Innovation & Technology Development of new products and patents arising from ocean and earth science research, in collaboration with the government and industries. The Institute has received international accreditation and recognition and has numerous international collaborations and grants.

An Overview of Mineral And Geoscience Activities In Malaysia (Ministry of Water, Land and Natural Resources) by Mr Abdullah Sulaiman

The Department of Mineral & Geoscience Malaysia pointed out that the vision of the Department was to be a leader in mineral and geoscience development by 2020. Its mission was to contribute towards enhancement of the nation's economic competitiveness and quality of life through the effective usage of mineral and geoscience information, specialized expert services and related research. The five-fold objectives centred on: 1. Provision of mineral commodity information to enhance the growth of the mineral-based industries; 2. Encourage the optimal use of geoscience information and services for sustainable development of the country. 3. Ensure that mineral resources are developed in a systematic, safe, efficient and environmentally friendly manner and secure maximum returns to the country. 4. Encourage and diversify the use of local mineral resources so as to contribute towards development of the country's industrialisation through research and development (R&D) activities. 5. Provide expert services in the fields of minerals, geoscience and mining at the national and international levels so as to promote investments in the mineral sector and for national development planning. Their mandate is to undertake systematic mineral exploration and geoscience investigations, provide geochemical analyses and physical tests on rocks, minerals and water samples, act as the national depository for geoscience and mineral resources in the country, provide technical advisory and expert services in the fields of minerals, geoscience, mining and quarrying, conduct research and development on local mineral resources and regulate and ensure mining and quarrying activities are carried out safely, efficiently and systematically in accordance with legal provisions. The first core activity focused on minerals. It was entrusted with the exploration, evaluation & characterization of mineral resources (metallic, non-metallic and energy minerals) and analysis of mineral commodity profiles and production statistics. The second core activity was focused on geoscience: Hydrogeology, Engineering Geology, Marine Geology and Geological Mapping. Marine Geology Surveys were used to identify mineral resources in offshore areas; identify and evaluate environmental impact of development in offshore areas; and collect and compile baseline geological information and mineral resources in offshore areas. The third core activity focused on regulation and enforcement of mining and quarrying activities in accordance with legal provisions. The applicable laws were the State Mineral Enactments/Mining Enactments, the Mineral Ore Enactment (Chapter 148) and Raw Gold Handling Enactment. The objective of the Marine Geology Unit was to gather and compile baseline data on geology and mineral resources in coastal and offshore areas in the Malaysia Continental Shelf & Exclusive Economic Zone. Functions included amongst others, the conduct of Geophysical Survey, Seabed Sediment Sampling, Coastal Geology Mapping (Langkawi & Penang), Offshore Sand Resources Study, Coastal Reclamation, Shoreline Restoration, and Sand Dredging, Sea-level Changes, Extended Continental Shelf and production of Digital Maps in ArcGIS. Accordingly, the scope of its work was on geophysics survey, sampling survey, environmental survey, coastal mapping, coastal and offshore profile, laboratories analysis, GISs and database, and expertise advice. The Department provided advice and information on maritime and continental shelf issues to the National Security Council, the Ministry of Foreign Affairs, the Survey and Mapping Department, the National Hydrographic Center, the Fisheries Department and the State Government Agencies. The Marine Geology Department has

implemented Surveys from 1986-2015. The current Marine Geology Project (2016-2020) comprises the National Marine Sand Resources Study Phase III –Pahang and Johore Offshore and A Study for the Sustainable Offshore Sand Mining in the One Fathom Bank (OFB) and its Surrounds, Off Port Klang, Selangor.

The Department of Agriculture

The vision of the Department of Agriculture (DOA) is to support Good Agricultural Practice (GAP). GAP is a resource management system in agricultural production on a sustainable basis. This system can improve farm productivity and produce safe and quality food. It also takes into account the welfare, safety and health of workers and employees and preserving the environment. The main concern is to improve farm productivity and produce safe and quality food. It also takes into account the welfare, safety and health of workers and employees and preserving the environment. The main policy is the Malaysian Good Agricultural Practice (myGAP) – A certification scheme drawn up by the Malaysian Department of Agriculture in 2002, formerly known as Good Practice Scheme of Malaysia (SALM) to recognize farms that practice GAP. The scheme is constructed based on Malaysian Standard MS 1784:2005 Crop Commodities – Good Agriculture Practices (GAP). There are three targets/ indicators of success and two types of audit, a pre-audit and a follow-up audit as follows:

- Site Inspection
- Water samples and the results of the analysis for pesticides residues, heavy metals and bacteria
- Farm practices audit
 - a) Pre-Audit
 - Is conducted to ensure that operators practice GAP until certified myGAP is obtained
 - The pre-audit officer is the Agriculture Officer at the District level
 - Agriculture Officers at the District level will take samples such as those for pesticides residue analysis and heavy metals
 - b) Follow-up Audit
 - External Audit is carried out to identify whether the operators adopt and comply with the GAP based on standards before recommend to be certified
 - The audit will be conducted by a competent (technical) Agriculture Officers from Department of Agriculture

These measures are being monitored, evaluated and enforced using the Pesticides Act 1974. Of those that are planned, the target/indicator of success is by ensuring all the policies and programs are in line with the Department Work plan. The plans are enforced and closely monitored by the Department. The existing/planned policies are coherent across the government such as the Department of Environment and Ministry of Health. There are no gaps where existing

policies/institutions do not address the concerns. All the government agencies support each other. Some policies are developed into “action plans” or strategies. The Department has a work plan and is always improving its policies towards sustainable ecosystem. In terms of collaboration with ocean-related stakeholders, the Department has not specifically collaborated in activities related to the ocean but it does follow the standard of ASEAN-GAP regarding the environment. The main providers of information for the DOA are the Department of Statistics Malaysia, the Department of Environment and Subject Matter Expert (DOA). The information produced by the DOA are used by other government agencies, universities and farmers. In terms of collaboration with the NSO, the DOA provides data and information and attends meetings and workshops. The mechanisms for participation in ocean-related matters are through the National Water Resources Policy (National Water Services Commission) and *Rancangan Fizikal Negara* (Federal Department of Town and Country Planning). The DOA’s main data sources are surveys, research and monitoring. The DOA’s main publications are,

- Crop Statistics (Food Crops Sub-Sector)
- Fruit Crops Statistics
- Vegetables and Cash Crops Statistics
- Industrial Crops Statistics
- Herbs and Spices Statistics
- Paddy Statistics of Malaysia
- Paddy Production Survey Report Malaysia (Main Season)
- Paddy Production Survey Report Malaysia (Off Season)

In terms of the Statistical context, the DOA is involved in the development of geospatial information. The DOA has participated in SDG related matters. The DOA also supports the NSO through the Crop Production Survey and Crop Cutting Survey. The DOA would like to see three new data products to address their mandate, namely, land use map, MAKGEO-Padi system and drones and satellites use to monitor agricultural activities.

The main constraint to sustainable development is the attitude, manpower, and budget allocation. The opportunities to overcome these constraints is to increase awareness of all agricultural related parties such as farmers, management, policy makers etc. The priority action needed to strengthen governance is the Zero Paraquat Campaign - Paraquat is a pesticide that associated with a high rate of fatalities in acute poisoning.

The Ministry of Economic Affairs

The vision of the Ministry of Economic Affairs regarding the oceans is the establishment of the BEASSA which is the focal point for SDG. The status of SDG implementation is reported to BEASSA including SDG14: Life below water. The MEA is responsible for long and medium Malaysia Plan. The conservation of coastal and marine ecosystem is highlighted in Pillar 5 of the Midterm Review of the Eleventh Malaysia Plan, (Mid Term Review RMK-11, Strategy B2:

Conserving Coastal and Marine Ecosystems). The main problems that should be addressed is the conservation of coastal and marine ecosystem, particularly the issue of pollution, detrimental socioeconomic activities to the ecosystems and the governance of the ocean. The policy under the MEA jurisdiction is under Pillar 5, Strategy B2, Conserving coastal and marine ecosystem. However, the implementers of the strategy are the relevant ministries and agencies.

The target / indicator of success is that at least 10% of coastal and marine areas are gazetted as protected areas. For an assessment of the appropriate enforcement, monitoring and evaluation, the MEA cross-refers to the Department of Fisheries and the Ministry of Land, Water and Natural Resources (DKBK Target). Of those that are planned, the targets/indicators of success is that at least 10% of coastal and marine areas are gazetted as protected areas. On enforcement, refer to Department of Fisheries and the Ministry of Land, Water and Natural Resources (DKBK Target). On coherence of policies, the MEA said that different sets of policies are set based on the jurisdiction of the ministries/agencies. On gaps, it was said that more study needs to be done to determine the gaps. On plans, the MEA referred to various implementing ministries/agencies. On stakeholders, the MEA collaborates with ministries and agencies related to the governance of the ocean. The main providers of information are the Ministries and agencies related to the governance of the ocean. The question on who used the information the MEA produced was left blank. The MEA discussed and consulted with the NSO. The mechanisms for collaboration are the National SDG Council and the RMK12 IAPG Committee. The main data sources are the Ministries and agencies related to the governance of the ocean. The main publication of the MEA is the Malaysia Plan. In a Statistical context, the MEA could support marine pollution and protection of endangered species. The MEA has participated in the SDG indicator mapping exercise, the Voluntary National Report and the SDG dashboard. In terms of international activities, the MEA could support statistics on the SDG dashboard. The question on development of a new data product was left unanswered. The concerns are centred on unsustainable practices, insufficient enforcement and uncontrolled development activities over the years have resulted in the degradation of coastal and marine areas. However, there is an opportunity to establish a coordination and monitoring committee to oversee issues on ocean governance and statistics. An immediate action to strengthen ocean governance and statistics would be to establish a coordination and monitoring committee to oversee issues on ocean governance and statistics. Currently, there are 32 agencies under MEA's supervision

32 agencies under MEA's supervision are as follows:

1. Department of Statistics Malaysia (DOSM)
2. Federal Land Development Authority (FELDA)
3. Federal Land Consolidation and Rehabilitation Authority (FELCRA Berhad)
4. Rubber Industry Smallholders Development Authority (RISDA)
5. Halal Development Corporation (HDC)
6. Bank Pembangunan Malaysia Berhad (BPMB)
7. Amanah Raya Berhad (ARB)
8. Unit Peneraju Agenda Bumiputera (TERAJU)
9. Ekuiti Nasional Berhad (EKUINAS)
10. Malaysia Petroleum Resources Corporation Berhad (MPRC)
11. Johor Petroleum Development Corporation (JPDC)
12. FELDA Global Ventures Holdings Berhad (FGV)

13. JKP Sdn. Bhd. (JKPSB)
14. MyHSR Corporation Sdn. Bhd.
15. *Yayasan Amanah Hartanah Bumiputera – Bumiputra Realty Trust Foundation*
16. *Yayasan Ekuiti Nasional – National Equity Foundation*
17. *Yayasan Pelaburan Hartanah Bumiputera Bumiputra Realty Investment Foundation*
18. *Yayasan Peneraju Pendidikan Bumiputera – Bumiputra Explorer Education Foundation*
19. *Pelaburan Hartanah Berhad (PHB) – Realty Investment Company*
20. *Perbadanan Kemajuan Ekonomi Negeri Perlis – Corporation for the Development of the Economy of the State of Perlis*
21. *Perbadanan Kemajuan Negeri Kedah – Corporation for the Development of the State of Kedah*
22. Penang Development Corporation (PDC)
23. *Perbadanan Kemajuan Negeri Perak – Perak Development Corporation*
24. *Perbadanan Kemajuan Iktisad Negeri Kelantan – Kelantan Development Corporation*
25. *Perbadanan Memajukan Iktisad Negeri Terengganu – Terengganu Development Corporation*
26. *Perbadanan Kemajuan Negeri Pahang – Pahang Development Corporation*
27. *Perbadanan Kemajuan Negeri Selangor – Selangor Development Corporation*
28. *Perbadanan Kemajuan Negeri, Negeri Sembilan – Negeri Sembilan Development Corporation*
29. *Perbadanan Kemajuan Negeri Melaka – Malacca Development Corporation*
30. Johor Corporation (JCORP)
31. Sarawak Economic Development Corporation (SEDC)
32. Sabah Economic Development Corporation (SEDCO)

Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC)

MESTECC's mandate regarding the ocean focuses on the Coral Triangle Initiative (CTI):

Memorandum Jemaah Menteri 2009 & 2012 and the CTI-CFF Leaders Agreement signed on 15 May 2009 and the Joint China Malaysia (JCM) – Memorandum of Understanding (MoU) 2009 – 2019. There are no policies planned in relation to the oceans. Of those that are in place, none are relevant as the targets of success, consequently enforcement, monitoring etc are not relevant.

Likewise, of that are planned none are relevant as targets/ indicators of success in relation to the oceans and there are no plans in place for enforcement, monitoring and evaluation. The existing plans/ policies that are coherent across the government are

- (i) National Agro-Food Policy - *Dasar Agromakanan Negara (DAN)*
- (ii) National Biological Diversity Policy - *Dasar Kepelbagaian Biologi Kebangsaan*
- (iii) Zero-Single Use Plastics Roadmap

Of the policies been, only one has been developed into “action plans” or strategies, namely, the National Plan of Action (NPOA) CTI.

The national, sub-regional, regional and international organizations that MESTECC collaborates in activities related to the ocean are USAID, UN, ADB, GIZ, State Oceanography Administration (SOA).

MESTECC's main providers of information are the Implementing agencies namely Department of Fisheries Malaysia (DOFM), Department of Fisheries Sabah (DoFS), Sabah Parks, Borneo Marine Research Institute (BMRI), Universiti Malaysia Sabah (UMS). The information that MESTECC produces are used by Researchers, fishermen, local authority, policy makers, academicians. There is no collaboration with the National Statistics Office (NSO). MESTECC participates in the following institutional mechanisms: Technical Working Groups, CTI National Coordinating Committees (NCC). The sources of data are Reporting during Technical Working Group Meeting. The meeting is held twice a year. Tool: NPOA dashboard. The main publications are Scientific articles, factsheet, reports.

MESTECC,

- does not support any statistical activity, whether national or international;
- has not participated in any other international activity nor in an SDG indicator mapping exercise, SDG capacity assessment. Voluntary National Report, Data inventory, Review of the National Statistical System, Institutional mapping or any Other related activity;
- believes that Maps and Indicators should be developed to address its mandate/ concerns;
- identifies the maritime constraints to sustainable management of the ocean as a lack of an anchor in maritime governance;
- identifies the immediate opportunity to overcome these constraints is for MALAYSIA to have one FOCAL POINT for maritime governance; and
- prioritises the establishment of a central body to coordinate the governance of maritime affairs in the country, as an immediate action to strengthen ocean governance and statistics.

National Ocean Account

Concerns

	Strategy/Initiatives	Issues & Challenges	National / regional / International Commitment	Way forward
1.	Coastal and marine area gazette as protected area	<p>i. Disagreement with artisanal & commercial fishermen</p> <p>ii. Lack of manpower to effectively manage & protect areas</p> <p>iii. Compliance by tour operators & tourists</p> <p>iv. Not much data to support conservation effort</p> <p>v. Disparity between Parks Enactment & Fisheries Law</p> <p>vi. Lack of data & means to collect them</p> <p>vii. Overlapping jurisdiction</p>	<p>i. Goal 3 Coral Triangle Initiative (CTI) at national & regional level</p> <p>ii. Tun Mustapha Park Gazettement of Tun Mustapha Park on May 2016; and also Declared as “Shark Sanctuary”</p>	<p>ix. Suggest expansion of all current MPAs & introduce 3 new MPAs:</p> <ul style="list-style-type: none"> • 2.041 million ha in total (14.3% Aichi goal) <p>x. Engagement with local communities and stakeholders for management of MPA</p> <p>xi. Increase baseline data to support conservation effort</p>
2.	Ocean governance – ocean policy, marine spatial plan	<p>i. Lack of manpower & asset</p> <p>ii. Loophole due to</p>	Semporna PCA started with MSP has yet to be implemented to other area	<p>i. Strengthen legislation on marine environment pertaining fisheries stock</p>

		<p>overlap jurisdiction (APMM, Marine Dept, DOFM)</p> <p>iii. Lack of expertise to design MSP</p>		<p>ii. Enhance smart partnership with stakeholders</p> <p>iii. Reconciled legislation at federal & state level</p> <p>iv. Strengthen Monitoring, Control & Surveillances (MCS) on ocean program</p> <p>v. Need support from government and stakeholders to implement MSP</p>
3.	Sustainable marine resources	<p>i. There is a need to translate the principles and concepts of EAFM into policies and tangible projects</p> <p>ii. Lack of human resources</p> <p>iii. Need to strengthen stakeholders participation at all levels</p>	Goal 2 Coral Triangle Initiative (CTI) at national & regional level	<p>i. Socializing and build support for Coastal Fisheries and Poverty Reduction <i>Initiative</i> (COASTFISH) initiatives to craft a national COASTFISH framework and programs</p> <p>ii. Establish Fisheries Management Plan (FMP)</p> <p>iii. Actively participate in terrestrial engagement with climate change impacted marine environment</p> <p>iv. Educate publics on conscious consumption of seafood and marine resources</p>

4.	Transboundary	<ul style="list-style-type: none"> i. Needs for delineating seascapes and identifying priority seascapes for investment ii. Lack of shared program among neighboring country iii. Inter-government agreement to protect migratory areas for endangered animals (sea turtles, whale sharks, etc.). More migratory species should be protected 	<ul style="list-style-type: none"> i. Goal 1 Coral Triangle Initiative (CTI) at national & regional level ii. Turtle Islands Heritage Protected Area (TIHPA) 	<ul style="list-style-type: none"> i. Sulu Sulawesi as Malaysia's priority: Develop concrete joint management action/plans based on connectivity and characteristics between the Sulu-Sulawesi countries ii. Establish more G2G collaboration
5.	Carrying capacity on MPA	<ul style="list-style-type: none"> i. Lack of study on carrying capacity of MPA ii. Needs baseline studies on marine resources of MPA 		Training on environment management
6.	Enforcement	Formulate nationwide	None currently exists. Goal 3 in	i. Strengthen Monitoring, Control

		syllabus for marine park ranger training. Purchase of monitoring & enforcement equipment	Sabah uses funds for some training, but no syllabus exists.	& Surveillances (MCS) ii. Community enforcement to take bulk of responsibility for caring of marine parks. Establish mechanisms/laws to enable this to happen
7.	Coastal community adaptation to climate change	i. Needs for sufficient data ii. Increase expertise and awareness on CC and CCA	Goal 4 Coral Triangle Initiative (CTI) at national & regional level	i. Climate Change Center of Excellence (CC-COE) ii. Blue Carbon Framework

The National Hydraulic Institute of Malaysia (NAHRIM)

The functions of the National Hydraulic Institute of Malaysia (NAHRIM) are to conduct basic and applied research focusing on water – related issues or problems in the country; provide expert consultancy services pertaining to water and its environment for public and private sectors; provide advisory role in water related fields; and act as referral center for water and environment related research at the national level as well as participating actively in bilateral or multilateral research at national level. The ultimate vision is to be the National institution championing in water and its environment and become the World Referral Center by 2030. The mission is to provide excellent services as an expert center on water and its environment to promote and exercise sustainable development practices throughout the country for the well-being and improvement of quality of life for the people in the country.

The main concerns are water-related or scientifically referred as hydro-environment ecosystem. It is a dependent unit which is interconnected and needs to be addressed as a chain of networks. Ocean – related social, economic and environmental problems that need to be addressed periodically is river mouth management which is caused by sediment transport processes, coastal erosion and accretion which occur seasonally, sea level rise; phenomenal storm surge; and coastal

land use losses due to natural and anthropogenic factors. Malaysia has accomplished significant coastal management policies where currently a few guidelines can be referred. The most comprehensive and internationally recognized is Integrated Coastal Zone Management (ICZM), for Malaysia chapter, the initiation of Integrated Shoreline Management Plan (ISMP) based on the recommendation and findings of the National Coastal Erosion Studies (NCES, 1985) which had been updated in 2015 where the ISMP will be covering the coast across Malaysia. For the World Ocean Navigational policies, the Department still heavily referred to the United Nation Convention on the Law of the Sea (UNCLOS) 1982. Meanwhile, for fisheries and territorial waters, the Department abides by the law on the Exclusive Economic Zone (EEZ) and regulatory bodies responsible. The responsibility for updated information for Malaysia Maritime Industries lies upon the Malaysian Institute of Maritime Affairs (MIMA). The Town and Country Planning Department of Malaysia also plays a vital role in coastal development across the country, where they have come up with the National Physical Zone Coastal Plan - *Rancangan Fizikal Zon Pesisir Pantai Negara (RFZPPN)*, a guideline which that will cover coastal areas in the states that do not have their own ISMP yet. This RFZPPN is going to be updated by 2021. For ocean scientific related policies, currently the whole World referred to Intergovernmental Panel on Climate Change (IPCC). There is a good literature embedded in the International Journal of Marine and Coastal Law that specifically addressed the issues in Malaysia entitled “Current Issues of Marine and Coastal Affairs in Malaysia” (ISSN: 0927-3522; Publisher: Brill/Nijhoff; Website: <https://doi.org/10.1163/157180897X00077>). Based on the objectives of each policies, the development or any activities within the coastal jurisdiction have to abide the enforced law and practice. These plans are definitely enforced and abided by since any coastal development project in Malaysia needs to submit their numerical hydraulic/hydrodynamic study that is approved by JPS Malaysia to ensure that the development will cause minimum changes to the marine and coastal environment, before the Environmental Impact Assessment (EIA) is endorsed by DOE, (with comments from other related government agencies/NGOs). For navigational purposes these projects are licensed and monitored by Marine Department of Malaysia, Fisheries Department and MIMA. The targets or indicators of success of those planned projects are: ISMP – Accomplishment of ISMP in every state across Malaysia; UNCLOS – internationally regulated; MIMA – Periodically updated; and the EEZ and Fisheries Act 1985 - periodically updated. The plans for enforcement, monitoring and evaluation are that every year, the government allocated budget for

enforcement, monitoring and evaluation of each policy is in place. There are annual report from each government agencies which can be referred. On coherence of policies across the government, the Department said that for now, there seems to be some redundancy in certain policies where the government is currently sorting it out to become a multidisciplinary contributor for the same interest and role for different purposes or uses of the data. Hence, the commencement of Big Data will eventually help in integrating this issue. The current issue is redundancy / overlapping and cross – sectional interest in policies. In terms of plans, it is pointed out that NAHRIM is a Research Institute and not an enforcement agency. NAHRIM engages with several stakeholders: NAHRIM Key Performance Indicators (KPI) and SOP for conducting research always abide the Guidelines for Preparation of Coastal Engineering Hydraulic Studies and Impact Evaluation (Fifth Edition: 2001), Malaysia Water Quality Index (WQI) and MS ISO 9001. On the main providers of information, it was pointed out that normally, before carrying out any R&D project, NAHRIM will investigate the availability of the required data from relevant agencies (such as DID, DOE, JUPEM, PHN, DOSM etc.), and if the secondary data is not sufficient, NAHRIM’s researchers will carry out their own data collection campaign. NAHRIM is capable and have become the reference center for hydro – environment data management and repository. NAHRIM itself is a registered consultant and undergoes data collection for the use of research carried out by their trained personnel. NAHRIM has continuously equipped and embedded their researchers with knowledge and recognition to accomplish it mission and vision. The research and data carried out by NAHRIM is always sought by significant interest by government agencies, universities students and researchers across the globe. NAHRIM is also being approach by private sectors either for Joint – Ventures research or consultation project. The institutional mechanisms that NAHRIM participates in are:

International Association for Hydro-Environment Engineering and Research (IAHR), Malaysia’s Initial National Response Strategies to Climate Change to UNFCCC, 2nd National Communication Report to UNFCCC (NC2), Malaysia Third National Communication and Second Biennial Update Report to UNFCCC (TNC), COBSEA, UNEP, Coral Triangle Initiatives Malaysia Plan of Action (CTI-NPOA), National Mangrove Planting Programme, Institute of Engineers Malaysia (IEM), Third National Physical Plan (RFN3) and National Coastal Zone Physical Plan (NPP-CZ) (Town & Country Planning Department), Integrated Water Resource Management (IWRM) and other relevant meeting

organized in National or state level, representing ministry and country in conferences and workshop organized globally especially related to Climate Change.

NAHRIM's main data sources are hydrographic survey, oceanographic elements, geo – hydrology, atmospheric data – rainfall and climate change related and water quality studies. The main publications are Technical Reports, Journal, Working Group and Proceedings.

In terms of participation in an SDG indicator mapping exercise or any other, NAHRIM is actively involved in National Action Plan for disaster related problem e.g. coastal flooding, hydraulic studies, EIA meeting and climate related problem through various workshop and working group. NAHRIM could support the following statistical developmental activities: IWRM, WESTPAC, IAHR, IPCC, UNEP, COBSEA, ASEAN Working Group on Coastal and Marine Environment (AWGCME), International Maritime Organisation (IMO) etc. The new data product that NAHRIM is interested in is Open source DEM with high resolution.

The main constraints to sustainable management of the ocean are the Long Term Data Ocean Monitoring as it required reputable and constantly supplement of sufficient budget to maintain yearly. The opportunity to overcome this constraint lies in the National Endorsement on budget to the establishment of LONG TERM Physical and Oceanographic data monitoring effort for the use of numerical modelling and ocean related studies. In terms of an immediate action to strengthen ocean governance and statistics, NAHRIM suggests that, currently, what Malaysia really needs is the establishment of sufficient coverage of PERMANENT STATION for wave and current data continuous monitoring across Malaysian Seas. Secondly, coastal nearshore topographic bathymetry measurement is also crucial for research needs since there is a limitation for oceanographic vessel to penetrate closer to the shore to measure the bathymetry. As of now, NAHRIM's researchers (Coastal and Oceanography Research Centre) are doing the nearshore bathymetry, wave and current measurements based on projects that we are involved in, to be used as input in the hydraulic model simulation and calibration.

The Department of Environment (Water and Marine Division)

The Water and Marine Division of the Department of Environment, states that in relation to the ocean, their vision is to enforce the Environmental Quality Act (EQA), 1974 and Part IV of the Exclusive Economic Zone Act, 1984. The priorities that need to be addressed are land-based

pollution, oil spill pollution and coastal development. Currently, these priorities are enforced under:

- EQA, Section 21 - Power to specify conditions of emission, discharge
- EQA, Section 25 – Restrictions on pollution of inland waters
- EQA, Section 34A – Report on impact on environment resulting from prescribed activities
- EQA, Section 34B – Prohibition against placing, deposit, etc. of scheduled waste
- EQA, Section 27 – Prohibition of discharge of oil into Malaysian Waters
- EQA, Section 29 - Prohibition of discharge of wastes into Malaysian Waters
- Environmental Quality Order (Prescribed Activities)(Environmental Impact Assessment) 2015
- Environmental Quality Regulation (Sewage/Industrial Effluent/Solid Waste Transfer Station and Landfill) 2009
- Basel Convention (Schedule Waste)
- Environmental Quality Monitoring Programme (EQMP)
- National Oil Spill Contingency Plan
- Malaysian Marine Water Quality Standards

The Department's success is measured through four major indicators: the Environmental Quality Monitoring Programme (EQMP) that started on 5th July 2017.¹¹⁸ There are 368 manual and 10 automatic stations to monitor Malaysian waters followed by the implementation of the table top oil spill exercise involving relevant stakeholders and agencies. The Annual National Oil Spill Control Committee comprising relevant stakeholders and agencies and the establishment of the Malaysian Marine Water Quality Standards under the 11th Malaysia Plan are the remaining two indicators. Four future targets are planned, namely, improve on oil spill investigation and

¹¹⁸ Privatisation of environmental services for the implementation of the NEQMP:

In June 2016, Pakar Sciencio TW Sdn Bhd was awarded a 15-year contract to implement the National Environmental Quality Monitoring Program (NEQMP) for the first time in the whole of Malaysia where real-time air, river and marine water quality data can be measured and recorded, complementing nation's manual stations that collect samples of air, river or marine water that are analysed in laboratories, and transmitted to a database with a more comprehensive set of parameters. The Environmental Data Centre is in the NEQMP that is the terminus and repository for the transmission and storage of all the environmental data generated in the program. The NEQMP monitors and investigates pollution events. "Analysis of the environmental data and information generated provides the basis for effective and timely management of the nation's environment from day to day operational management to long-term formulation of management strategies." <http://pstw.com.my/about/what-is-neqmp/>

enforcement with effective collaboration amongst relevant stakeholders, develop the implementation of EQMP to strategically monitor the status of Malaysia marine water quality; report on the status of marine water quality and oil spill incidents annually and ensure that rules and regulations are in place to control pollution from land-based and sea-based sources. Currently, coherent plans across the government exist for enforcement, monitoring and evaluation. However, there is a gap in existing policy / institution in controlling and mitigating marine debris from different pathways. The current strategic plan is found in DOE Strategic Plan 2011-2020. The Division collaborates with several national, sub-regional, regional and international organisations in ocean-related matters:

3. Institutions

- 3a. Stakeholders
 - i. ASEAN Working Group on Coastal and Marine Environment (AWGCME)
 - ii. The Coordinating Body on the Seas of East Asian (COBSEA)
 - iii. Revolving Fund Committee (RFC)
 - iv. ASEAN Maritime Transport Working Group (AMTWG)
 - v. Malaysia-Singapore Joint Committee on Environment (MSJCE)
 - vi. Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC)
 - vii. Ministry of Water, Land and Natural Resources
 - viii. Ministry of Transport
 - ix. Marine Department
 - x. Malaysian Maritime Enforcement Agency
 - xi. 17 agencies /stakeholders under the National Oil Spill Control Committee
 - xii. Department of Fisheries

The main providers of information on Oil Spill Incidents are the Marine Department, Malaysian Maritime Enforcement Agency, ASEAN Working Group on Coastal and Marine Environment (AWGCME), Coordinating Body on the Seas of East Asian (COBSEA), Revolving Fund Committee (RFC), ASEAN Maritime Transport Working Group (AMTWG) and the EQMP – DOE. The information produced is the Environmental Quality Report which is accessible to the public and all relevant stakeholders. The Division participates in several institutional mechanisms

related to the oceans, namely, the ASEAN Working Group on Coastal and Marine Environment (AWGCME), the Coordinating Body on the Seas of East Asian (COBSEA), the Revolving Fund Committee (RFC), the ASEAN Maritime Transport Working Group (AMTWG) and the National Oil Spill Control Committee. The main data sources are the EQMP and enforcement data. The main publications are the Environment Quality Report and the EQMP data. The Division uses statistics in its line of work as seen in the Marine Water Quality Index as specified in EQR and in the oil spill incidents reporting statistics. The Division has not participated in any SDG indicator mapping exercise or SDG capacity assessment or Voluntary National Report or Data inventory or Review of the National Statistical System or Institutional mapping. Likewise, the Division has not supported any international activity through supporting statistical/ data collection evidence development whether at the sub-regional, regional, or international programs. A new data product that the Division would like to engage in to address their mandate is Marine geospatial planning and mapping. The Division believes that the main constraints to sustainable management of the ocean are cross-sectoral jurisdiction, technical capacity and manpower and logistic supports. The opportunities to overcome these constraints lie in strengthening communication and collaboration amongst relevant ministries/departments/agencies and through financial support from the federal government. An immediate priority action that could be taken to strengthen ocean governance and statistics is to conducting training to strengthen technical capacity and action.

The Department of Minerals and Geoscience

The vision of the Department of Minerals and Geoscience is the exploration of non-living seabed resources such sand and other minerals except for oil and gas. The main concern is the environmental impact that is caused from the seabed mining such as sand and other minerals.

The policies and legislation in place and which are enforced are:

- National Mineral Policy 2
- Geological Survey Act, 1974 (Act 129)
- Mineral Development Act, 1995 (Act 525)
- Continental Shelf Act, 1966 (Act 83)
- State mineral Enactments

The target is towards sustainable mining where the mining or quarrying company achieved or complied with the Sustainable Development Index (SDI). However, the Sustainable Development

Index (SDI) in mining and Quarrying is for land but not for the ocean/seabed. There are plans in place for enforcement, monitoring and evaluation of land mining activities but not for the ocean/seabed mining. While most of the existing/planned policies are coherent across the government, not all are. The current gaps are especially in seabed mining . The policies for land-based mining have been developed into “action plans” or strategies. The main institutions or stakeholders at the national, sub-regional, regional and international levels that the Department collaborates in activities related to the ocean are as follows:

- The Coordinating Committee for Geoscience Programmes in East and Southeast Asia (CCOP).
- ASEAN Ministerial Meeting on Minerals (AMMin).
- Department of the Director-General for Land and Mines
- The National Hydrography center
- Department of Fisheries
- Fisheries Research Institute
- Universiti Malaysia Terengganu
- National Security Council
- Department of Mapping and Survey Malaysia
- Malaysian Centre for Geospatial Data Infrastructure (MaCGDI)
- National Hydraulic Research Institute of Malaysia (NAHRIM)

The main providers of information are the Department’s projects or studies through Malaysia Plan Development Projects. This information is used by

- DOSM
- Department of Director-General for Land and Mines
- National Hydrography Center
- Department of Fisheries
- Fisheries Research Institute
- Universiti Malaysia Terengganu
- National Security Council
- Department of mapping and Survey Malaysia
- Malaysian Centre for Geospatial Data Infrastructure (MaCGDI)

- National Hydraulic Research Institute of Malaysia (NAHRIM)

The DOSM both provides and uses data and report.

The Department of Minerals and Geoscience participates in National and International Committees, working groups, task force, One Stop Centre (OSC) and meetings. The main data sources are from seabed and coastal sediment, seismic, side scan sonar and environmental data from surveys. The Department publishes Technical report and conference papers. In a statistical context, the Department publishes the Malaysia Mineral Statistical Report yearly. The Department has also participated in an SDG indicator mapping exercise/ SDG capacity assessment/ Voluntary National Report/ Data inventory/ Review of the National Statistical System/ Institutional mapping/ other international activities. The Department supports the Mineral Industries Statistical. The Department would like to develop Maps and Indicators. The main constraints to developing maps and indicators are the lack of a National Ocean Policy, the lack of a new ministry or department that will look into the maritime issues and legislation and management of oceans in a holistic manner. The opportunities needed to overcome these constraints would be to translate the mandate given by Prime Minister in keynote address during National Maritime Conference on 28 March 2019 in Langkawi. The priority actions that could be taken to strengthen ocean governance and statistics is to form a task force and revisit the draft National Ocean Policy (NOP) and paper to form the National Institute of Oceanography (NIO) which was already completed in 2009.

Resources

1. Fisheries

National Institutional framework includes the Federal Department of Fisheries and the state Departments of Fisheries and Federal Territory of Labuan and the relationship between the Federal and States/ Territory, the Fisheries Development Authority of Malaysia, Development Authority of Malaysia, Department of Fisheries Sabah, Fisheries Research Institute Malaysia, Marine Fisheries Research, Development and Management Department, Fisheries Research Institute Sarawak, Malaysian Fisheries Society, Malaysian Angling Association and the WorldFish Centre.

Fisheries are regulated by Federal and state laws depending on the location of the fishing activity. The legal framework includes the Fisheries Act 1985 and regulations that principally work through licences, authorisations, permits and the establishment of marine parks usually of 2 nautical miles radius where fishing is prohibited, and aquaculture facilities. The Department of Fisheries (DOF) Malaysia regulates marine capture fisheries under the Fisheries Act 1985 through a licensing system on pain of punishment for infractions. To provide fishing opportunities for different classes of traditional small-scale and industrial fishermen based on boat and gear size, the DOF has implemented a zonation system in 1982 and a revised system in 2014. There are no artisanal fishers in Malaysia. In 1982, there were four zones referred to as Zone A zone (0-5 nm), Zone B (5-12 nm), Zone C zone (12-30 nm) and Zone D (beyond 30 nm) as shown in Figure 3 (left). The revised 2014 zoning system (Figure 3, right) had a two-pronged objective, the first prevented encroachment by the trawlers into the traditional fishing areas and the second protected juvenile fishes. Currently, both the new and old zoning systems exist simultaneously. The states of Perak,

Selangor, Penang, Perlis, and Kedah opted for the new approach whereas the rest preferred the old system.¹¹⁹ All fishing activities in Malaysian waters need to have valid licenses issued by the DOF.

Some examples of the current levels of research, education and training in fisheries, for example, by the Fisheries Research Institute of Malaysia (FRIM) and tertiary educational institutions in Malaysia are given below:

Prawn Fry Production and Research Centre in Kg Pulau Sayak, Kedah, the Freshwater Fisheries Research Centre, Gelami Lami, Negeri Sembilan (formerly located in Batu Berendam, Malacca), the Brackishwater Research Centre in Gelang Patah, Johor, the Marine Fish Production and Research Centre in Tanjung Demong, Terengganu, the Fisheries Research Institute Sarawak in Bintawa, Sarawak, the Likas Research Station in Likas, Sabah, and the Marine Fisheries Research Development and Management Department (Southeast Asian Fisheries Development Centre, SEAFDEC funded by the Japanese International Research Centre for Agriculture Research, JIRCAS, the Institute of Fisheries Malaysia in Chendering, Terengganu, the Marine Fish Training Centre, Pulau Sayak, Kedah, and the Aquarium Fish Training Centre, Enggor, Perak.

Local universities:

University of Malaya, the Science University in Penang, the University of Malaysia Sarawak, the Putra University in Selangor, the University of Malaysia Sabah, the National University Malaysia in Selangor, the University of Technology Malaysia in Johor and Universiti Malaysia Terengganu/ formerly known as University College of Science and Technology in Terengganu (KUSTEM). The Universities have expertise in fisheries resource assessment, fish biology, aquaculture, mangrove and coral ecology, habitat development and rehabilitation, pollution monitoring and assessment, disease control and prevention, toxicology, design of vessels and other subjects.

International organisations:

The WorldFish Centre, formerly known as ICLARM (International Centre for Living Aquatic Resource Management), in Batu Maung, Penang, SEAFDEC and FAO.

Countries: Australia, Canada and Norway assist Malaysia in the fisheries sector.

International Research Projects:

1. “Sustainable Management of the Bay of Bengal large Marine Ecosystem”, implemented by FAO (2009-2013).
2. Japan International Cooperation Agency.
3. Network of Aquaculture Centres in Asia-Pacific.
4. ...

¹¹⁹ Id.

Part V of the 1982 Convention provides for the protection of fisheries. However, to address the inadequacies of Part V, the 1995 UN Fish Stocks Agreement was adopted by the UNGA which Malaysia has not ratified. In the exclusive economic zone and on the continental shelf, there are challenges faced in the conservation of the living resources. Terms such as total allowable catch, best scientific evidence, maximum sustainable yield, and endangerment by over-exploitation of a fishery resource remain undescribed in municipal law. A major challenge for fisheries conservation is the lack of a Regional Fisheries Management Organisation. Other questions a coastal State needs to ask are, what are the economic needs of coastal fishing communities, when is the reproduction of a fish seriously threatened, and how are the special fisheries needs of developing States in the operationalization of Article 62 of the 1982 Convention met. In interpreting the optimum utilization of living resources, what is meant by “access to the surplus of the allowable catch.” How do we determine the harvesting rights of other nationals? Is due notice of conservation and management laws and regulations given? How is monitoring and enforcement of foreign fishermen and their catch done in the Malaysian EEZ? How are straddling and highly migratory stocks, marine mammals, anadromous, catadromous and sedentary species managed? As land-locked and geographically disadvantaged States have certain rights in the EEZ, how are these exercised? Conservation of marine mammals has made some headway.¹²⁰

The FAO website on national reporting requires current information on the following areas. These questions were contextualised for Malaysia for purposes of data holdings:

- The total fishery production sector in Malaysia as a supplier of animal protein;
- Is the percentage of the marine capture fisheries still higher than that from aquaculture?
- What is the production from inland fisheries?
- What is the change in the production pattern?
- In the marine sub-sector, fisheries used to be divided into coastal fisheries and the off-shore sub-sectors: is this still the case?
- What is the production from marine capture fisheries today, in previous years?
- What is the catch from the Straits of Malacca and the South China Sea?
- What is the present level of landings?
- What is meant by coastal fisheries today? What is the rate of capture?
- What is the extent of overfishing in coastal fisheries?
- Has the Fisheries Department, been successful in controlling overfishing? Why?
- How many landing sites or fisheries districts are there in Malaysia? How many are used for the purpose of collection of landing statistics? Give breakdown for Peninsular Malaysia, Sabah and Sarawak.
- How are the Annual Fisheries Statistics compiled? What data have been left out?
- What is the quantity of fish landed at each landing site? Do we know?

¹²⁰WWF-Malaysia, http://www.wwf.org.my/about_wwf/what_we_do/marine/, 21 April 2019.

- How many licensed fishing vessels are there in Malaysia? How many are small vessels? Give breakdown of motorised (outboard and inboard engines) and non-motorised? Breakdown by gross registered tonnage? Foreign fishermen? Trawlers and purse seiners?
- Breakdown by fishing nets? Drift and gill nets? Other fishing gears such as lift nets, stationary traps, portable traps, bag nets, barrier nets, push nets, and scoops, hook-and-line?
- Breakdown of inshore fishing vessels? By their traditional gears?
- Breakdown of fish caught by the species? How are species organised today, previous years? Pelagic, demersal and shrimp breakdown?
- Is the classification of the zones of fishery management at present leading to sustainable fisheries as required under the principle of maximum sustainable yield and total allowable catch referred to, for example, in the 1982 Law of the Sea Convention that Malaysia is a state party to?
- What percentage of fishermen have been diverted to alternate means of livelihood such as eco-tourism? Why?
- Fishing communities breakdown in Peninsular Malaysia, Sabah and Sarawak? How many are small-scale fishers? How many are artisanal? By race? Foreigners? Women and children? Give breakdown of gear and fish caught.
- Breakdown of fishing, including recreational fishing in rivers, lakes and dams and any other artificial facility? State by state breakdown? Is the fishing sustainable or in decline or endangered?
- Breakdown of the aquaculture sub-sector? Breakdown of plants, cockles, seaweeds and other species including shrimps? Give breakdown of areas of aquaculture state by state.
- Breakdown of recreational fishing by area in different states and open sea? What is the value of recreational fishing? Are there any laws for its regulation? What percentage of the recreational fishers practise “catch and release” as advocated by the Malaysian Angling Association?
- Breakdown of where fish, processed and unprocessed, is exported to? Breakdown by seasons such as Chinese New Year to certain countries? Within Malaysia?
- How many fish markets and transshipment sites are there in the South China Sea and other seas of Malaysia?
- Breakdown of the practices of the Fisheries Development Authority of Malaysia in the auctions of fish sales?
- Breakdown of the socio-economic contribution of the fishery sector in the national economy? (in employment and eradicating poverty)
- Breakdown of the supply and demand in fisheries in Malaysia.
- Breakdown of fisheries trade in Malaysia, with neighbouring ASEAN countries, China and USA.
- Breakdown on food security from fisheries? Is the policy working?

- How does the Department of Fisheries collect fisheries statistics, for example the use of terms such as fish culturist and fish farmer? Do you agree?
- What is the percentage of young people in fisheries?
- Is the present agricultural policy for fisheries likely to deliver on DOSM objectives? What are the current trends and issues?
- What percentage of fishermen have been successful offshore fishermen? Why? What about the rest? Why did they fail? What percentage failed?
- What percentage of shrimp farming has stopped due to bad practices in mangrove swamps?
- What percentage of sheltered waters are there in Malaysia? How successful has the cage culture industry promoted by the Department of Fisheries been?
- Outline the government and non-government sector policies and development strategies to promote offshore fishing and aquaculture in Malaysia.

Malaysia and SDG

This section considers the Statement by H.E. Datuk Seri Abdul Rahman Dahlan Minister in the Prime Minister's Department at the General Debate of the High-Level Political Forum on Sustainable Development 2017. The Statement is not a legal document as it stands. It reflects the political commitment on the SDG and goals and highlights that these efforts are well-captured in the 11th Malaysia Development Plan, synchronising the two. Two Goals, 1 and 5 on Poverty Reduction and Gender Equality respectively are highlighted for consideration. However, no comment is offered on SDG 14 in the statement below. The Minister in the Prime Minister's Department, on 18 July 2017, in New York in his introductory remarks stated that he wished to align with the statements of Ecuador on behalf of the Group of 77 and China. It was pointed out that Malaysia was committed to realising Agenda 2030 and its goals. Malaysia's development agenda had always been people-focused, and it ran parallel to the aspirations of the SDGs. The Eleventh Malaysia Plan, 2016-2020 themed "Anchoring Growth on People" continued the Government's development focus of balancing the needs of both the people economy and the capital economy. The 11th MP had six strategic thrusts: inclusiveness towards an equitable society, well-being for all, human capital development, green growth for sustainability and resilience, infrastructure to support economic expansion and economic growth for greater prosperity. These six thrusts mirror the 17 SDGs. Since the adoption of the 2030 Agenda, Malaysia took steps to localise and implement SDGs, within the national context. First, in 2016, Malaysia established a governance structure headed by the Prime Minister then for monitoring and reporting the SDGs. Second, the National SDG Roadmap was finalised which will constitute the main reference for SDG implementation in Malaysia.

SDG1: Poverty Eradication

The Minister pointed out that in 1970, the incidence of poverty in Malaysia was 49.3%. Malaysia was among the few countries that rapidly realised the Millennium Development Goals (MDGs) of halving poverty (from 16.5% in 1990 to 8.5% in 2000), long before the target year of 2015. As of 2014, Malaysia had reduced the incidence of poverty to 0.6%, achieving low poverty rates across ethnicity, gender and rural-urban stratum. Additionally, the incidence of hard core poverty, which was also the food poverty line, was low at 0.2%. The eradication of poverty was premised on providing access to education and skills development to all segments of society, creating employment and income generating activities, providing entrepreneurship support, facilitating participation in unit trusts and investment schemes and ensuring basic infrastructure and amenities. Malaysia had expanded its measurement of poverty beyond income and introduced its own version of Multidimensional Poverty Index (MPI) that took into account other dimensions of poverty, namely education, health and quality of life. Moving forward, Malaysia was committed to further uplifting the incomes and quality of life of the bottom 40 (B40) percent households where the focus was to double their mean monthly income by enhancing their accessibility to higher education and skills training, increasing their productivity through modern technology and ICT, promoting social-based enterprises and attracting investments into rural and B40 populated areas.

SDG 5: Gender Equality

On gender equality, in recognising the important role of women in community and economic development, Malaysia was consistent in its three (3) efforts to promote women and girls' rights, as follows:

- The National Policy on Women (1989) accords women equality of status and the same fundamental rights given to men, as enshrined in the Constitution;
- The Plan of Action for the Advancement of Women (2010-2015) operationalises the National Policy on Women to further integrate women in development and re-elevate their status in society;
- The Federal Constitution (Article 8(2)) was amended in 2001 to prohibit gender discrimination;
- Ratified CEDAW and adopted the Cairo Programme of Action 1994, and the Beijing Platform for Action 1995;
- Ratified the Optional Protocol on the Sale of Children, Child Prostitution and Child Pornography and adopted the Vienna Plan of Action on Human Rights;
- Introduced the Sexual Offences Against Children Bill 2017 (now Act) and subsequently legislation to offer greater protection to children; and
- The 11th Malaysia Plan focuses on strengthening the family institution by creating a more conducive working environment and increasing the number of women in decision-making positions.

To encourage women to return to the workforce, the Government implemented the minimum wage beginning 1st July 2016, encouraged the establishment of child care facilities at the work place, career comeback programmes and increased maternity leave and flexible work hours. Female labour force participation stood at 54% in 2016 and the Government plan was to increase it to 59% in 2020. Malaysia was also committed to implementing at least 30 percent participation of women in decision-making positions. This target was achieved in the public sector and is a work-in-progress in 4 companies in the private sector. In 2015, the percentage of women in top management positions in public listed companies stood at 26.3. In conclusion, Malaysia has made significant

progress in implementing the SDGs and the Government has promised to deliver the SDGs in partnership with non-governmental and civil society organisations, and the corporate sector for the greater good. Malaysia also stands ready to work with regional and global partners to ensure the realisation of Agenda 2030 and that no one is left behind.

Hyogo Framework 2005

It was mentioned earlier in Chapter Two that Malaysia made 18 statements internationally on disaster risk reduction.¹²¹ Two public statements made in 2015 and 2017 are highlighted here as they are indicative of state practice. The former Deputy Prime Minister of Malaysia at the Third United Nations World Conference On Disaster Risk Reduction at Sendai Japan, 15 March 2015, highlighted the enormous importance of the Conference as nations sought to protect their economy and people from the devastating effects of natural disasters, a feature faced by both developed and developing nations. To this end, the signing of the Hyogo Framework for Action showed a strong commitment by the international community to address disaster risk reduction and to engage in a determined, result-based plan of action. As the Hyogo Framework was coming to an end, the successor document needed to further strengthen the focus on reducing disaster risks and link up with the post-2015 development agenda, and the global agreement on climate change in order to further improve our efforts to build resilience of nations. Though due to its geographical location, Malaysia has been less vulnerable to natural disasters, in recent years, it has faced a range of climate-related disasters due in part to climate change: “Weather extremes are occurring more frequently and with higher intensities.” The floods of 2014 were the worst the nation had faced hitherto as it affected more than half a million people and wrought damage upon public infrastructure estimated at RM2.851 billion. New areas were inundated and flood water rose at an unprecedented level. It therefore, behoves the global community of States to mandatorily adopt a more holistic and innovative approach (es) to address disaster risks as there are close inter-relationship and inextricable links that exist between disaster risks and other key challenges of poverty reduction, urbanization, sustainable development, and environmental stability in light of the reality of global climate change.

DRR has always been in the mainstream of Malaysia’s development policy as manifested by the substantial resources that were provided to reduce underlying risk factors and promote sustainable development in the nation’s primary development plan – the “Five Year Malaysia Plan”. Now in the 11th Malaysia Plan, disaster risk management covered both structural and non-structural measures. The five phases of disaster prevention, mitigation, preparedness, response, and recovery were given emphasis to tackle the problem of floods and other emerging hazards in a holistic manner.

In 2011, the Government adopted the Melaka Declaration on Disaster Risk Reduction in line with the priority areas of the HFA. The Melaka Declaration set down guiding principles for the Malaysia Action Plan for Disaster Risk Reduction (MyDRR) which served to integrate disaster risk reduction and climate change adaptation, engage communities, and build resilience at the local level.

In 2013, Malaysia’s National Platform for Disaster Risk Reduction was formalized. It required the involvement of more stakeholders. Additionally, stakeholders included policy-makers and practitioners from governments, universities, nongovernmental organizations, and representatives

¹²¹UNISDR, Policy, Plans and Statements, <https://www.preventionweb.net/english/professional/policies/index.php?typid=0&stypid=0&cid=105&x=9&y=7>, 27 April 2019

from the private sector to take ownership of disaster risk reduction initiatives in the country. Through this effort, it was possible to combine science and technology for disaster management in Malaysia resulting in the ‘Science to Action Initiative’. The Science to Action Initiative nurtured networking among researchers, academics, government agencies, and the private sector in order to strengthen implementation of a multi-stakeholder local level solutions, initially for floods.

A Scientific Expert Panel on Disaster Risk Reduction was set up to serve as the primary platform for the application of science towards disaster management bringing together key public and private science institutions in the country under the aegis of the former National Science, Technology, and Industry Council chaired by the former Prime Minister of Malaysia to provide timely and evidence-based inputs to support the National Platform for Disaster Risk Reduction.

The Ministry of Education allocated RM20 million to universities in Malaysia to conduct forensic studies, and multi-disciplinary research within several major river basins to support disaster management. The findings from the research were to be channelled to the National Platform and transformed into action oriented initiatives in conjunction with practitioners from the public and private sector as well as the community.

Malaysia also learnt from the best practices of other countries with a view to adapt suitable lessons and sought to make the national disaster management agency more robust and establish a centre of excellence for research on disaster management. Attention was also focussed on the country’s early warning systems to deliver vital information and impact forecast to the right target groups to allow for swift decision making and response to protect people’s livelihoods.

The ASEAN Committee on Disaster Management (ACDM) established in 2003 plays a significant role in building the resilience of ASEAN Member States with the entry into force of the ASEAN Agreement on Disaster Management and Emergency Response (AADMER) which is the only Hyogo Framework for Action-related legally binding instrument in the world. Malaysia was committed to the ACDM to act collectively and expeditiously to disasters in the region as regional collaboration is necessary to realize the vision of ‘ASEAN Responding to Disasters as One’.

Sendai Public Statement 2017

Malaysia’s approach to disaster risk reduction after the adoption of the Sendai Framework for Disaster Risk Reduction (SFDRR) in 2013 was communicated for the first time by the former Deputy Director-General of the National Disaster Management Agency at Cancun at the Global Platform for Disaster Risk Reduction hosted by the Government of Mexico in 2017.¹²² The first step comprised the establishment of a new focal point, the National Disaster Management Agency (NADMA Malaysia) under the Prime Minister’s Department, which came into operation in October 2015 for a sustainable disaster risk management mechanism for a resilient nation. The NADMA mainstreams the disaster risk reduction agenda into the planning and development process through its National Platform on Disaster Risk Reduction and Action Plan or MyDRR through the use of science and technology for disaster risk management in Malaysia that enables

¹²² Country Statement By The Honourable Dato’ Muhammad Yusoff Wazir, Deputy Director General, National Disaster Management Agency, Malaysia At The Global Platform For Disaster Risk Reduction, Cancun, Mexico, 2017

the Government to make informed decisions for action. A specific institution called the Scientific Expert Panel for Disaster Risk Reduction comprising scientific institutions serves as an advisory body to NADMA using an evidence-based approach. Malaysia had adopted the indicators and terminology related to disaster risk reduction. Two (2) workshops were held in June 2016 and March 2017 with relevant stakeholders involved in disaster risk management where mapping DRR-related data availability was highlighted. These developments will enable the nation to be in-line with the Global Targets and Indicators to reduce disaster losses by 2030. As the challenge is to move from managing disasters to managing risks, a National Risk Register was prepared to provide direction for managing risks and by 2018, it was expected that a whole-of-natural hazards risk profile of the country would be available for better disaster risk management. An improved management framework would include early warning systems and emergency management planning: “by identifying and assessing the risks status, it becomes a tool to mitigate the risk and this could be effective in reducing the vulnerability of people, property, the environment and the economy.”¹²³ The national commitments at Cancun 2017 reaffirmed that efforts would be directed at reducing the existing risks, preventing development of new risks and strengthening resilience to disasters.¹²⁴

Appendix Three: Malaysia and Sendai Framework Data Readiness Review Report 2017

This report reviews the availability of data in Malaysia, to report against the indicators recommended to measure the global targets of the Sendai Framework, and identify current gaps.

Do you have a national database for collecting disaster losses? No.

How do you define 'disaster' in your country? Natural disaster.

Do you collect disaster loss data disaggregated by event? Yes.

Do you collect disaster loss data associated with a hazard type? Yes.

Do you collect disaster loss data disaggregated by location? Yes.

Do you collect disaster loss data at all scales, including small-scale disasters? No.

Does the collected disaster loss data cover the entire period 2005-2015? Yes.

By which hazard type do you disaggregate?

Geophysical

Meteorological

Hydrological

Environmental

¹²³ Ibid.

¹²⁴ Id.

Which tool or methodology are you using to collect and store your loss data? Do not know.

Are you using UN DesInventar methodology? No.

Other, please specify + Add link (website / PDF / etc...) Do not know.

Is there an institution in charge of collecting, consolidating and storing loss data? Yes.

If yes, please specify: DOSM.

Please provide names of other institutions/agencies which produce disaster risk reduction-related data, and indicate the type of data they produce: DID, PWD, DOSM.

Is your loss data publically available? No.

When do you plan to start collecting data attributed to disasters? Data attributed to disasters will be collected from 2016 onward, as according to 11th Malaysia Plan 2016-2020.

What resources do you need to collect data on disasters? Capacity, Financial, Technology Transfer

Global target A: Substantially reduce global disaster mortality by 2030

The scope of disaster in this and subsequent targets is defined in paragraph 15 of the Sendai Framework for Disaster Risk Reduction 2015-2030 and applies to small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters caused by natural or man-made hazards, as well as related environmental, technological and biological hazards and risk.

Indicator A-2: Number of deaths attributed to disasters, per 100,000 population.

Do you collect number of deaths attributed to disasters? Yes

The scope of disaster in this and subsequent targets is defined in paragraph 15 of the Sendai Framework for Disaster Risk Reduction 2015-2030 and applies to small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters caused by natural or man-made hazards, as well as related environmental, technological and biological hazards and risk.

Indicator A-2: Number of deaths attributed to disasters, per 100,000 population.

Do you collect number of deaths attributed to disasters disaggregated by event? Yes.

Do you collect number of deaths attributed to disasters associated with a hazard type? Yes.

Do you collect number of deaths attributed to disasters disaggregated by location? Yes.

Do you collect number of deaths attributed to disasters disaggregated by age? Yes.

Do you collect number of deaths attributed to disasters disaggregated by sex? Yes.

Do you collect number of deaths attributed to disasters disaggregated by disability? No.

Do you collect number of deaths attributed to disasters disaggregated by income? No.

Does the collected data cover the entire period 2005-2015? No.

The scope of disaster in this and subsequent targets is defined in paragraph 15 of the Sendai Framework for Disaster Risk Reduction 2015-2030 and applies to small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters caused by natural or man-made hazards, as well as related environmental, technological and biological hazards and risk.

Indicator A-3: Number of missing persons attributed to disasters, per 100,000 population

Do you collect number of missing persons attributed to disasters? Yes.

The scope of disaster in this and subsequent targets is defined in paragraph 15 of the Sendai Framework for Disaster Risk Reduction 2015-2030 and applies to small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters caused by natural or man-made hazards, as well as related environmental, technological and biological hazards and risk.

Indicator A-3: Number of missing persons attributed to disasters, per 100,000 population.

Do you collect number of missing persons attributed to disasters disaggregated by event? Yes.

Do you collect number of missing persons attributed to disasters associated with a hazard type? Yes.

Do you collect number of missing persons attributed to disasters disaggregated by location? Yes.

Do you collect number of missing persons attributed to disasters disaggregated by age? Yes.

Do you collect number of missing persons attributed to disasters disaggregated by sex? Yes.

Do you collect number of missing persons attributed to disasters disaggregated by disability? No.

Do you collect number of missing persons attributed to disasters disaggregated by income? No.

Does the collected data cover the entire period 2005-2015? No.

Global target B: Substantially reduce the number of affected people globally by 2030

Indicator B-2: Number of injured or ill people attributed to disasters, per 100,000 population.

Do you collect number of injured or ill people attributed to disasters? Yes.

Indicator B-2: Number of injured or ill people attributed to disasters, per 100,000 population.

Do you collect number of injured or ill people attributed to disasters disaggregated by event? Yes.

Do you collect number of injured or ill people attributed to disasters associated with a hazard type? Yes.

Do you collect number of injured or ill people attributed to disasters disaggregated by location? Yes.

Do you collect number of injured or ill people attributed to disasters disaggregated by age? Yes.

Do you collect number of injured or ill people attributed to disasters disaggregated by sex? Yes.

Do you collect number of injured or ill people attributed to disasters disaggregated by disability? No.

Do you collect number of injured or ill people attributed to disasters disaggregated by income? No.

Does the collected data cover the entire period 2005-2015? No.

Indicator B-3: Number of people whose damaged dwellings were attributed to disasters.

Do you collect number of people whose dwellings were damaged attributed to disasters? Yes.

Indicator B-3: Number of people whose damaged dwellings were attributed to disasters. UNISDR can use the following sub-indicators to estimate number of people whose dwellings have been damaged attributed to disasters. This indicator will also be necessary for Calculation of C4

Do you collect number of dwellings that were damaged attributed to disasters? Yes.

Indicator B-3: Number of people whose damaged dwellings were attributed to disasters. UNISDR can use the following sub-indicators to estimate number of people whose dwellings have been damaged attributed to disasters. This indicator will also be necessary for Calculation of C4

Does your official statistical data source provide number of people per household? Yes.

Indicator B-3: Number of people whose damaged dwellings were attributed to disasters.

Do you collect number of people whose dwellings were damaged attributed to disasters disaggregated by event? Yes.

Do you collect number of people whose dwellings were damaged attributed to disasters associated with a hazard type? Yes.

Do you collect number of people whose dwellings were damaged attributed to disasters disaggregated by location? Yes.

Do you collect number of people whose dwellings were damaged attributed to disasters disaggregated by age? No.

Do you collect number of people whose dwellings were damaged attributed to disasters disaggregated by sex? Yes.

Do you collect number of people whose dwellings were damaged attributed to disasters disaggregated by disability? No.

Do you collect number of people whose dwellings were damaged attributed to disasters disaggregated by income? No.

Does the collected data cover the entire period 2005- 2015? No.

Indicator B-3: Number of people whose damaged dwellings were attributed to disasters. UNISDR can use the following sub-indicators to estimate number of people whose dwellings have been damaged attributed to disasters. This indicator will also be necessary for Calculation of C4

Do you collect number of dwellings that were damaged attributed to disasters disaggregated by event? Yes.

Do you collect number of dwellings that were damaged attributed to disasters associated with a hazard type? Yes.

Do you collect number of dwellings that were damaged attributed to disasters disaggregated by location? Yes.

Do you collect number of dwellings that were damaged attributed to disasters at all scales? Yes.

Does the collected data cover the entire period 2005- 2015? No.

Indicator B-4: Number of people whose destroyed dwellings were attributed to disasters.

Do you collect number of people whose dwellings were destroyed attributed to disasters? Yes.

Indicator B-4: Number of people whose destroyed dwellings were attributed to disasters.

Note: UNISDR can use the following sub-indicators to estimate number of people whose dwellings have been destroyed attributed to disasters. This indicator will also be necessary for Calculation of C4.

Do you collect number of dwellings that were destroyed attributed to disasters? Yes.

Indicator B-4: Number of people whose destroyed dwellings were attributed to disasters.

Do you collect number of people whose dwellings were destroyed attributed to disasters disaggregated by event? Yes.

Do you collect number of people whose dwellings were destroyed attributed to disasters associated with a hazard type? Yes.

Do you collect number of people whose dwellings were destroyed attributed to disasters disaggregated by location? Yes.

Do you collect number of people whose dwellings were destroyed attributed to disasters disaggregated by age? No.

Do you collect number of people whose dwellings were destroyed attributed to disasters disaggregated by sex? Yes.

Do you collect number of people whose dwellings were destroyed attributed to disasters disaggregated by disability? No.

Do you collect number of people whose dwellings were destroyed attributed to disasters disaggregated by income? No.

Does the collected data cover the entire period 2005-2015? No.

Indicator B-4: Number of people whose destroyed dwellings were attributed to disasters. Note: UNISDR can use the following sub-indicators to estimate number of people whose dwellings have been destroyed attributed to disasters. This indicator will also be necessary for Calculation of C4.

Do you collect number of dwellings that were destroyed attributed to disasters disaggregated by event? Yes.

Do you collect number of dwellings that were destroyed attributed to disasters associated with a hazard type? Yes.

Do you collect number of dwellings that were destroyed attributed to disasters disaggregated by location? Yes.

Do you collect number of dwellings that were destroyed attributed to disasters at all scales? Yes.

Does the collected data cover the entire period 2005 – 2015? No.

Indicator B-5: Number of people whose livelihoods were disrupted or destroyed, attributed to disasters.

Do you collect number of people whose livelihoods were disrupted or destroyed, attributed to disasters? No.

Indicator B-5: Number of people whose livelihoods were disrupted or destroyed, attributed to disasters. UNISDR can use the following sub-indicators to estimate number of people whose livelihoods were disrupted or destroyed, attributed to disasters. This indicator will also be necessary for Calculation of C2.

Do you collect physical damage to the agricultural sector attributed to disasters? Yes.

Indicator B-5: Number of people whose livelihoods were disrupted or destroyed, attributed to disasters.

When do you plan to start collecting data on number of people whose livelihoods were disrupted or destroyed, attributed to disasters? Data collection will follow 11th Malaysia Plan 2016-2020.

What resources do you need to collect data on number of people whose livelihoods were disrupted or destroyed, attributed to disasters? Capacity, Financial, Technology transfer

Indicator B-5: Number of people whose livelihoods were disrupted or destroyed, attributed to disasters. UNISDR can use the following sub-indicators to estimate number of people whose livelihoods were disrupted or destroyed, attributed to disasters. This indicator will also be necessary for Calculation of C2

Do you collect number of hectares on crop land damaged by disasters? Yes.

Do you collect type of crops damaged by disasters? Yes.

Do you collect number of hectares of aquacultures damaged by disasters? Yes.

Do you collect number of fishing vessels damaged by disasters (Fisheries)? Yes.

Do you collect type of fishing vessels damaged by disasters (Fisheries)? Yes.

Do you collect number of hectares of forests damaged by disasters? Yes.

Do you collect type of forests (incl. Plantations) damaged by disasters? Yes.

Do you collect number of livestock lost by disasters? Yes.

Do you collect type of livestock lost by disasters? Yes.

Do you collect physical damage to the agricultural sector attributed to disasters disaggregated by event? Yes.

Do you collect physical damage to the agricultural sector attributed to disasters associated with a hazard type? Yes.

Do you collect physical damaged on agricultural sector attributed to disasters disaggregated by location? Yes.

Do you collect physical damage to the agricultural sector attributed to disasters at all scales? Yes.

Does the collected data cover the entire period 2005-2015? No.

Global target C: Reduce direct disaster economic loss in relation to global GDP Indicator C-2: Direct agricultural loss attributed to disasters. Agriculture is understood to include the crops, livestock, fisheries, apiculture, aquaculture and forest sectors as well as associated facilities and infrastructure.

Do you collect data on direct economic agricultural loss attributed to disasters? Yes.

Indicator C-2: Direct agricultural loss attributed to disasters. Agriculture is understood to include the crops, livestock, fisheries, apiculture, aquaculture and forest sectors as well as associated facilities and infrastructure. UNISDR can use the following sub-indicators to estimate direct economic agricultural loss attributed to disaster.

Do you collect physical damage to the agricultural sector attributed to disasters? Yes.

Do you collect number of hectares on crop land damaged by disasters? Yes.

Do you collect type of crops damaged by disasters? Yes.

Do you collect number of hectares of aquacultures damaged by disasters? Yes.

Do you collect number of fishing vessels damaged by disasters (Fisheries)? Yes.

Do you collect type of fishing vessels damaged by disasters (Fisheries)? Yes.

Do you collect number of hectares of forestry damaged by disasters? Yes.

Do you collect type of forests (incl. Plantations) damaged by disasters? Yes.

Do you collect number of livestock lost by disasters? Yes.

Do you collect type of livestock lost by disasters? Yes.

Do you collect physical damage to the agricultural sector attributed to disasters disaggregated by event? Yes.

Do you collect physical damage to the agricultural sector attributed to disasters associated with a hazard type? Yes.

Do you collect physical damage to the agricultural sector attributed to disasters at all scales? Yes.

Does the collected data cover the entire period 2005-2015? No.

Indicator C-3: Direct economic loss to all other damaged or destroyed productive assets attributed to disasters. Productive assets would be disaggregated by economic sector, including services, according to standard international classifications. Countries would report against those economic sectors relevant to their economies. This would be described in the associated metadata.

Do you collect data on direct economic loss due to all other damaged or destroyed productive assets attributed to disasters? Yes.

Indicator C-3: Direct economic loss to all other damaged or destroyed productive assets attributed to disasters.

Productive assets would be disaggregated by economic sector, including services, according to standard international classifications. Countries would report against those economic sectors relevant to their economies. This would be described in the associated metadata.

Do you collect physical impact to all other damaged or destroyed productive assets attributed to disasters? No.

Indicator C-3: Direct economic loss to all other damaged or destroyed productive assets attributed to disasters.

Productive assets would be disaggregated by economic sector, including services, according to standard international classifications. Countries would report against those economic sectors relevant to their economies. This would be described in the associated metadata.

Please specify the sectors where direct economic loss due to all other damaged or destroyed productive assets attributed to disasters are collected?

Agriculture, Mining and Quarrying, Construction, Services

Do you collect direct economic loss due to all other damaged or destroyed productive assets attributed to disasters disaggregated by event? Yes.

Do you collect direct economic loss due to all other damaged or destroyed productive assets attributed to disasters associated with a hazard type? Yes.

Do you collect direct economic loss due to all other damaged or destroyed productive assets attributed to disasters disaggregated by location? Yes.

Do you collect direct economic loss due to all other damaged or destroyed productive assets attributed to disasters at all scales? Yes.

Does the collected data cover the entire period 2005 – 2015? No.

Indicator C-3: Direct economic loss to all other damaged or destroyed productive assets attributed to disasters.

Productive assets would be disaggregated by economic sector, including services, according to standard international classifications. Countries would report against those economic sectors relevant to their economies. This would be described in the associated metadata.

When do you plan to start collecting data on physical impact to all other damaged or destroyed productive assets attributed to disasters? Data will be collected in line with 11th Malaysia Plan 2016-2020.

What resources do you need to collect data on physical impact to all other damaged or destroyed productive assets attributed to disasters? Capacity, Financial, Technology transfer

Indicator C-4: Direct economic loss in the housing sector attributed to disasters.

Data would be disaggregated according to damaged and destroyed dwellings.

Note: UNISDR can use the following sub-indicators to estimate direct economic loss in the housing sector attributed to disasters.

Do you collect data on direct economic loss in the housing sector attributed to disaster? Yes.

Indicator C-4: Direct economic loss in the housing sector attributed to disasters.

Data would be disaggregated according to damaged and destroyed dwellings.

Note: UNISDR can use the following sub-indicators to estimate direct economic loss in the housing sector attributed to disasters.

Do you collect number of dwellings that were damaged attributed to disasters? Yes.

Indicator C-4: Direct economic loss in the housing sector attributed to disasters.

Data would be disaggregated according to damaged and destroyed dwellings.

Note: UNISDR can use the following sub-indicators to estimate direct economic loss in the housing sector attributed to disasters.

Do you collect number of dwellings that were destroyed attributed to disasters? Yes.

Indicator C-4: Direct economic loss in the housing sector attributed to disasters.

Data would be disaggregated according to damaged and destroyed dwellings.

Note: UNISDR can use the following sub-indicators to estimate direct economic loss in the housing sector attributed to disasters.

Does your official statistical data source provide (average value per square meter of construction, average size of dwelling, average value of dwelling)? Yes.

Indicator C-4: Direct economic loss in the housing sector attributed to disasters.

Data would be disaggregated according to damaged and destroyed dwellings.

Do you collect direct economic loss in the housing sector attributed to disaster disaggregated by event? Yes.

Do you collect direct economic loss in the housing sector attributed to disaster associated with a hazard type? Yes.

Do you collect direct economic loss in the housing sector attributed to disaster disaggregated by location? Yes.

Do you collect direct economic loss in the housing sector attributed to disaster at all scales? Yes.

Does the collected data cover the entire period 2005 – 2015? No.

Indicator C-4: Direct economic loss in the housing sector attributed to disasters.

Data would be disaggregated according to damaged and destroyed dwellings.

Note: UNISDR can use the following sub-indicators to estimate direct economic loss in the housing sector attributed to disasters. Question might have been responded to under B-3 as a proxy for number of people whose dwellings were damaged attributed to disasters.

Do you collect number of dwellings that were damaged attributed to disasters disaggregated by event? Yes.

Do you collect number of dwellings that were damaged attributed to disasters associated with a hazard type? Yes.

Do you collect number of dwellings that were damaged attributed to disasters disaggregated by location? Yes.

Do you collect number of dwellings that were damaged attributed to disasters at all scales? Yes.

Does the collected data cover the entire period 2005 – 2015? No.

Indicator C-4: Direct economic loss in the housing sector attributed to disasters.

Data would be disaggregated according to damaged and destroyed dwellings.

Note: UNISDR can use the following sub-indicators to estimate direct economic loss in the housing sector attributed to disasters. Question might have been responded to under B-4 as a proxy for number of people whose dwellings were destroyed attributed to disasters.

Do you collect number of dwellings that were destroyed attributed to disasters disaggregated by event? Yes.

Do you collect number of dwellings that were destroyed attributed to disasters associated with a hazard type? Yes.

Do you collect number of dwellings that were destroyed attributed to disasters disaggregated by location? Yes.

Do you collect number of dwellings that were destroyed attributed to disasters at all scales? Yes.

Does the collected data cover the entire period 2005 – 2015? No.

Indicator C-5: Direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters. The decision regarding those elements of critical infrastructure to be included in the calculation will be left to the Member States and described in the accompanying metadata. Protective infrastructure and green infrastructure should be included where relevant.

Note: UNISDR can use the following sub-indicators to estimate a proxy for direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters.

Do you collect data on direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters? Yes.

Indicator C-5: Direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters.

The decision regarding those elements of critical infrastructure to be included in the calculation will be left to the Member States and described in the accompanying metadata. Protective infrastructure and green infrastructure should be included where relevant.

Note: UNISDR can use the following sub-indicators to estimate a proxy for direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters.

Do you collect the number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters? Yes.

Indicator C-5: Direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters.

The decision regarding those elements of critical infrastructure to be included in the calculation will be left to the Member States and described in the accompanying metadata. Protective infrastructure and green infrastructure should be included where relevant.

Note: UNISDR can use the following sub-indicators to estimate a proxy for direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters.

Does your official statistical data source provide (average value per square meter of construction for schools, hospitals, average size of critical infrastructures (square meters) average value per kilometer of road construction)? No.

Indicator C-5: Direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters.

The decision regarding those elements of critical infrastructure to be included in the calculation will be left to the Member States and described in the accompanying metadata. Protective infrastructure and green infrastructure should be included where relevant.

Note: UNISDR can use the following sub-indicators to estimate a proxy for direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters.

Do you collect direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters disaggregated by event? Yes.

Do you collect direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters associated with a hazard type? Yes.

Do you collect direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters disaggregated by location? Yes.

Do you collect direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters at all scales? Yes.

Does the collected data cover the entire period 2005 – 2015? No.

Indicator C-5: Direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters.

The decision regarding those elements of critical infrastructure to be included in the calculation will be left to the Member States and described in the accompanying metadata. Protective infrastructure and green infrastructure should be included where relevant.

Note: UNISDR can use the following sub-indicators to estimate a proxy for direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters.

Do you collect number of educational facilities destroyed or damaged by disasters? Yes.

Do you collect number of health facilities destroyed or damaged by disasters? Yes.

Do you collect number of kilometres of roads destroyed or damaged by disasters? Yes.

Other what? Bridges, railways, power sub-stations.

Do you collect number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters disaggregated by event? Yes.

Do you collect number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters associated with a hazard type? Yes.

Do you collect number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters disaggregated by location? Yes.

Do you collect number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters at all scales? Yes.

Does the collected data cover the entire period 2005 - 2015? No.

Indicator C-5: Direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters.

The decision regarding those elements of critical infrastructure to be included in the calculation will be left to the Member States and described in the accompanying metadata. Protective infrastructure and green infrastructure should be included where relevant.

Note: UNISDR can use the following sub-indicators to estimate a proxy for direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters.

When do you plan to start collecting data on number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters? Data will be collected inline with 11th Malaysia Plan 2016-2020.

What resources do you need to collect data on number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters? Capacity, Financial, Technology transfer

Indicator C-5: Direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters.

The decision regarding those elements of critical infrastructure to be included in the calculation will be left to the Member States and described in the accompanying metadata. Protective infrastructure and green infrastructure should be included where relevant.

Note: UNISDR can use the following sub-indicators to estimate a proxy for direct economic loss resulting from damaged or destroyed critical infrastructure attributed to disasters.

When do you plan to start collecting data on statistical data source provide (average value per square meter of construction for schools, hospitals, average size of critical infrastructures (square meters) average value per kilometer of road construction)? Data will be collected inline with 11th Malaysia Plan 2016-2020.

What resources do you need to collect data on statistical data source provide (average value per square meter of construction for schools, hospitals, average size of critical infrastructures (square

meters) average value per kilometer of road construction)? Capacity, Financial, Technology transfer

Indicator C-6: Direct economic loss to cultural heritage damaged or destroyed attributed to disasters.

Do you collect data on direct economic loss to cultural heritage damaged or destroyed attributed to disasters? No.

Indicator C-6: Direct economic loss to cultural heritage damaged or destroyed attributed to disasters.

Note: UNISDR can use the following sub-indicators to estimate a proxy for direct economic loss to cultural heritage damaged or destroyed attributed to disasters.

Do you collect number of cultural heritage mobile and non-mobile assets damaged or destroyed by disasters? No.

Indicator C-6: Direct economic loss to cultural heritage damaged or destroyed attributed to disasters.

Note: UNISDR can use the following sub-indicators to estimate a proxy for direct economic loss to cultural heritage damaged or destroyed attributed to disasters.

Do you collect the costs of reconstruction and/or rehabilitation of damaged and/or destroyed cultural heritage assets? No.

Indicator C-6: Direct economic loss to cultural heritage damaged or destroyed attributed to disasters.

When do you plan to start collecting data on direct economic loss to cultural heritage damaged or destroyed attributed to disasters? Data will be collected inline with 11th Malaysia Plan 2016-2020.

What resources do you need to collect data on direct economic loss to cultural heritage damaged or destroyed attributed to disasters? Capacity, Financial, Technology transfer

Indicator C-6: Direct economic loss to cultural heritage damaged or destroyed attributed to disasters.

Note: UNISDR can use the following sub-indicators to estimate a proxy for direct economic loss to cultural heritage damaged or destroyed attributed to disasters.

When do you plan to start collecting data on number of cultural heritage mobile and non-mobile assets damaged or destroyed by disasters? Data will be collected inline with 11th Malaysia Plan 2016-2020.

What resources do you need to collect data on number of cultural heritage mobile and non-mobile assets damaged or destroyed by disasters? Capacity, Financial, Technology transfer

Indicator C-6: Direct economic loss to cultural heritage damaged or destroyed attributed to disasters.

Note: UNISDR can use the following sub-indicators to estimate a proxy for direct economic loss to cultural heritage damaged or destroyed attributed to disasters.

When do you plan to start collecting data on costs of reconstruction and/or rehabilitation of damaged and/or destroyed cultural heritage assets? Data will be collected inline with 11th Malaysia Plan 2016-2020.

What resources do you need to collect data on costs of reconstruction and/or rehabilitation of damaged and/or destroyed cultural heritage assets? Capacity, Financial, Technology transfer

Global target D: Substantially reduce disaster damage to critical infrastructure

Indicator D-2: Number of destroyed or damaged health facilities attributed to disasters.

Do you collect data on number of destroyed or damaged health facilities attributed to disasters? Yes.

Indicator D-2: Number of destroyed or damaged health facilities attributed to disasters.

Note: Question may have been responded to under C-5 as proxy for damaged and destroyed critical infrastructure

Do you collect number of destroyed or damaged health facilities attributed to disasters disaggregated by event? Yes.

Do you collect number of destroyed or damaged health facilities attributed to disasters associated with a hazard type? Yes.

Do you collect number of destroyed or damaged health facilities attributed to disasters disaggregated by location? Yes.

Do you collect number of destroyed or damaged health facilities attributed to disasters at all scales? Yes.

Does the collected data cover the entire period 2005 - 2015? No.

Indicator D-3: Number of destroyed or damaged educational facilities attributed to disasters.

Do you collect data on number of destroyed or damaged educational facilities attributed to disasters? Yes.

Indicator D-3: Number of destroyed or damaged educational facilities attributed to disasters.

Note: Questions may have been responded to under C-5 as proxy for damaged and destroyed critical infrastructure.

Do you collect number of destroyed or damaged educational facilities attributed to disasters disaggregated by event? Yes.

Do you collect number of destroyed or damaged educational facilities attributed to disasters associated with a hazard type? Yes.

Do you collect number of destroyed or damaged educational facilities attributed to disasters disaggregated by location? Yes.

Do you collect number of destroyed or damaged educational facilities attributed to disasters at all scales? Yes.

Does the collected data cover the entire period 2005 - 2015? No.

Indicator D-4: Number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters.

The decision regarding those elements of critical infrastructure to be included in the calculation will be left to the Member States and described in the accompanying metadata. Protective infrastructure and green infrastructure should be included where relevant.

Do you collect the number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters? Yes.

Indicator D-4: Number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters.

The decision regarding those elements of critical infrastructure to be included in the calculation will be left to the Member States and described in the accompanying metadata. Protective infrastructure and green infrastructure should be included where relevant.

Note: Questions may have been responded to under C-5 as proxy for damaged and destroyed critical infrastructure.

Do you collect number of kilometres of roads destroyed or damaged by disasters? Yes.

Other what? Bridges, railways, power sub-stations.

Do you collect number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters disaggregated by event? Yes.

Do you collect number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters associated with a hazard type? Yes.

Do you collect number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters disaggregated by location? Yes.

Do you collect number of other destroyed or damaged critical infrastructure units and facilities attributed to disasters at all scales? Yes.

Does the collected data cover the entire period 2005 - 2015? No.

Indicator D-6: Number of disruptions to educational services attributed to disasters.

Do you collect data on number of disruptions to educational services attributed to disasters? Yes.

Indicator D-6: Number of disruptions to educational services attributed to disasters.

Do you collect number of disruptions to educational services attributed to disasters disaggregated by event? Yes.

Do you collect number of disruptions to educational services attributed to disasters associated with a hazard type? Yes.

Do you collect number of disruptions to educational services attributed to disasters disaggregated by location? Yes.

Do you collect number of disruptions to educational services attributed to disasters at all scales? Yes.

Does the collected data cover the entire period 2005 - 2015? No.

Indicator D-7: Number of disruptions to health services attributed to disasters.

Do you collect data on number of disruptions to health services attributed to disasters? Yes.

Indicator D-7: Number of disruptions to health services attributed to disasters.

Do you collect number of disruptions to health services attributed to disasters disaggregated by event? Yes.

Do you collect number of disruptions to health services attributed to disasters associated with a hazard type? Yes.

Do you collect number of disruptions to health services attributed to disasters disaggregated by location? Yes.

Do you collect number of disruptions to health services attributed to disasters at all scales? Yes.

Does the collected data cover the entire period 2005 - 2015? No.

Indicator D-8: Number of disruptions to other basic services attributed to disasters.

The decision regarding those elements of basic services to be included in the calculation will be left to the Member States and described in the accompanying metadata.

Do you collect data on number of disruptions to other basic services attributed to disasters? Yes.

Indicator D-8: Number of disruptions to other basic services attributed to disasters.

The decision regarding those elements of basic services to be included in the calculation will be left to the Member States and described in the accompanying metadata.

Do you collect the number of disruptions to water supply by disasters? Yes.

Do you collect the number of disruptions to sewerage by disasters? Yes.

Do you collect the number of disruptions to communication by disasters? Yes.

Do you collect the number of disruptions to power and energy by disasters? Yes.

Do you collect the number of disruptions to transportation by disasters? Yes.

Other what? Banking and Financial services.

Do you collect number of disruptions to other basic services attributed to disasters disaggregated by event? Yes.

Do you collect number of disruptions to other basic services attributed to disasters associated with a hazard type? Yes.

Do you collect number of disruptions to other basic services attributed to disasters disaggregated by location? Yes.

Do you collect number of disruptions to other basic services attributed to disasters at all scales? Yes.

Does the collected data cover the entire period 2005 - 2015? No.

Global target E: National and local DRR strategies by 2020

Indicator E-1: Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015- 2030.

Do you have a national DRR strategy? Yes.

Indicator E-1: Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030.

Is your national DRR strategy adopted? Yes.

Indicator E-1: Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030.

Is your national DRR strategy implemented? Yes.

Indicator E-1: Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015-2030.

Note: The below elements from the Sendai Framework will provide evidence to the question if strategies are in line with the Sendai Framework.

Does the DRR strategy have a clear time frame? Yes.

Does the DRR strategy have clear targets? Yes.

Does the DRR strategy have indicators? No.

Does the DRR strategy integrate DRR within and across sectors? Yes.

Is the DRR strategy embedded within and across all sectors? Yes.

Does the DRR strategy promote policy coherence and compliance? Yes.

Does the DRR strategy define roles and responsibilities? Yes.

Does the DRR strategy prevent the creation of new risk? Yes.

Does the DRR strategy reduce existing risk? Yes.

Does the DRR strategy strengthen economic, social, health and environmental resilience? Yes.

Is the DRR strategy based on disaster risk assessment? Yes.

Does the DRR strategy have a mechanism for follow-up? Yes.

Indicator E-2: Percentage of local governments that adopt and implement local disaster risk reduction strategies in line with national strategies.

Information should be provided on the appropriate levels of government below the national level with responsibility for disaster risk reduction.

Which level of government do you consider as local? Please specify. Local government includes states and districts level.

Indicator E-2: Percentage of local governments that adopt and implement local disaster risk reduction strategies in line with national strategies.

Information should be provided on the appropriate levels of government below the national level with responsibility for disaster risk reduction.

Do you have local DRR strategies led by local government? Yes.

Indicator E-2: Percentage of local governments that adopt and implement local disaster risk reduction strategies in line with national strategies.

Information should be provided on the appropriate levels of government below the national level with responsibility for disaster risk reduction.

What percentage of your local governments has local DRR strategies? Please specify. 40 percent.

Indicator E-2: Percentage of local governments that adopt and implement local disaster risk reduction strategies in line with national strategies.

Information should be provided on the appropriate levels of government below the national level with responsibility for disaster risk reduction.

Are your local DRR strategies adopted? Yes.

Indicator E-2: Percentage of local governments that adopt and implement local disaster risk reduction strategies in line with national strategies.

Information should be provided on the appropriate levels of government below the national level with responsibility for disaster risk reduction.

Are your local DRR strategies aligned to your national DRR strategy? Yes.

Indicator E-2: Percentage of local governments that adopt and implement local disaster risk reduction strategies in line with national strategies.

Information should be provided on the appropriate levels of government below the national level with responsibility for disaster risk reduction.

Are your local DRR strategies implemented? Yes.

Global target F: Substantially enhance international cooperation to developing countries

Indicator F-1: Total official international support, (official development assistance (ODA) plus other official flows), for national disaster risk reduction actions.

Indicator F-2: Total official international support (ODA plus other official flows) for national disaster risk reduction actions provided by multilateral agencies.

Indicator F-3: Total official international support (ODA plus other official flows) for national disaster risk reduction actions provided bilaterally.

Reporting of the provision or receipt of international cooperation for disaster risk reduction shall be done in accordance with the modalities applied in respective countries.

Recipient countries are encouraged to provide information on the estimated amount of national disaster risk reduction expenditure.

Do you collect data on total official ODA support for national DRR actions? No.

Indicator F-1: Total official international support, (official development assistance (ODA) plus other official flows), for national disaster risk reduction actions.

Indicator F-2: Total official international support (ODA plus other official flows) for national disaster risk reduction actions provided by multilateral agencies.

Indicator F-3: Total official international support (ODA plus other official flows) for national disaster risk reduction actions provided bilaterally.

Reporting of the provision or receipt of international cooperation for disaster risk reduction shall be done in accordance with the modalities applied in respective countries.

Recipient countries are encouraged to provide information on the estimated amount of national disaster risk reduction expenditure.

Do you collect data on total other official flows in support of national DRR actions? No.

Indicator F-1: Total official international support, (official development assistance (ODA) plus other official flows), for national disaster risk reduction actions.

Indicator F-2: Total official international support (ODA plus other official flows) for national disaster risk reduction actions provided by multilateral agencies.

Indicator F-3: Total official international support (ODA plus other official flows) for national disaster risk reduction actions provided bilaterally.

Reporting of the provision or receipt of international cooperation for disaster risk reduction shall be done in accordance with the modalities applied in respective countries.

Recipient countries are encouraged to provide information on the estimated amount of national disaster risk reduction expenditure.

Do you collect data on support from multilateral agencies? Yes.

Do you collect data on support from bilateral sources? Yes.

Indicator F-1: Total official international support, (official development assistance (ODA) plus other official flows), for national disaster risk reduction actions.

Indicator F-2: Total official international support (ODA plus other official flows) for national disaster risk reduction actions provided by multilateral agencies.

Indicator F-3: Total official international support (ODA plus other official flows) for national disaster risk reduction actions provided bilaterally.

Reporting of the provision or receipt of international cooperation for disaster risk reduction shall be done in accordance with the modalities applied in respective countries.

Recipient countries are encouraged to provide information on the estimated amount of national disaster risk reduction expenditure.

When do you plan to start collecting data on total official ODA support for national DRR actions?
We did not receive any official ODA support for national DRR actions.

What resources do you need to collect data on total official ODA support for national actions?
Capacity, Financial, Technology transfer

Indicator F-1: Total official international support, (official development assistance (ODA) plus other official flows), for national disaster risk reduction actions.

Indicator F-2: Total official international support (ODA plus other official flows) for national disaster risk reduction actions provided by multilateral agencies.

Indicator F-3: Total official international support (ODA plus other official flows) for national disaster risk reduction actions provided bilaterally.

Reporting of the provision or receipt of international cooperation for disaster risk reduction shall be done in accordance with the modalities applied in respective countries.

Recipient countries are encouraged to provide information on the estimated amount of national disaster risk reduction expenditure.

When do you plan to start collecting data on total other official flows in support of national DRR actions? We did not receive any other official flows in support of national DRR actions.

What resources do you need to collect data on total of other official flows for national actions? Capacity, Financial, Technology transfer

Indicator F-4: Total official international support (ODA plus other official flows) for the transfer and exchange of disaster risk reduction-related technology.

Do you collect data on total official ODA support for the transfer and exchange of DRR related technology? No.

Indicator F-4: Total official international support (ODA plus other official flows) for the transfer and exchange of disaster risk reduction-related technology.

Do you collect data on total other official flows in support for the transfer and exchange of DRR related technology? No.

Indicator F-4: Total official international support (ODA plus other official flows) for the transfer and exchange of disaster risk reduction-related technology.

Does the collected data cover the entire period 2005 - 2015? No.

Indicator F-4: Total official international support (ODA plus other official flows) for the transfer and exchange of disaster risk reduction-related technology.

When do you plan to start collecting data on total official ODA support for the transfer and exchange of DRR related technology? Data on total official ODA support for the transfer and exchange of DRR related technology is not collected.

What resources do you need to collect data on total official ODA support for the transfer and exchange of DRR related technology? Capacity, Financial, Technology transfer

Indicator F-4: Total official international support (ODA plus other official flows) for the transfer and exchange of disaster risk reduction-related technology.

When do you plan to start collecting data on total other official flows in support of transfer and exchange of DRR related technology? Data on other official flows in support of transfer and exchange of DRR related technology is not available.

What resources do you need to collect data on total other official flows in support of transfer and exchange of DRR related technology? Capacity, Financial, Technology transfer

Are you planning to collect historic data on total official international support for the transfer and exchange of DRR related technology for the entire period? No.

What resources do you need to collect data on data coverage 2005-2015? Capacity, Financial, Technology transfer

F-5: Number of international, regional and bilateral programmes and initiatives for the transfer and exchange of science, technology and innovation in disaster risk reduction for developing countries.

Do you collect data on number of programmes and initiatives for the transfer and exchange of science, technology and innovation in disaster risk reduction for developing countries? Yes.

F-5: Number of international, regional and bilateral programmes and initiatives for the transfer and exchange of science, technology and innovation in disaster risk reduction for developing countries.

Does the collected data cover the entire period 2005-2015? No.

F-5: Number of international, regional and bilateral programmes and initiatives for the transfer and exchange of science, technology and innovation in disaster risk reduction for developing countries.

Do you collect data on number of international programmes and initiatives? Yes.

Do you collect data on number of regional programmes and initiatives? Yes.

Do you collect data on number of bilateral programmes and initiatives? Yes.

The scope of disaster in this and subsequent targets is defined in paragraph 15 of the Sendai Framework for Disaster Risk Reduction 2015-2030 and applies to small-scale and large-scale, frequent and infrequent, sudden and slow-onset disasters caused by natural or man-made hazards, as well as related environmental, technological and biological hazards and risk.

F-5: Number of international, regional and bilateral programmes and initiatives for the transfer and exchange of science, technology and innovation in disaster risk reduction for developing countries.

Are you planning to collect historic data on total official international support for the transfer and exchange of DRR related technology for the entire period? No.

What resources do you need to collect data on data coverage 2005-2015? Capacity

Indicator F-6: Total official international support (ODA plus other official flows) for disaster risk reduction capacity-building.

Do you collect data on total official ODA support for disaster risk reduction capacity building? No.

Indicator F-6: Total official international support (ODA plus other official flows) for disaster risk reduction capacity-building.

Do you collect data on total other official flows in support of disaster risk reduction capacity building? No.

Indicator F-6: Total official international support (ODA plus other official flows) for disaster risk reduction capacity-building.

Does the collected data cover the entire period 2005-2015? No.

Indicator F-6: Total official international support (ODA plus other official flows) for disaster risk reduction capacity-building.

When do you plan to start collecting data on total official ODA support for disaster risk reduction capacity building? Data on total official ODA support for disaster risk reduction capacity building is not available.

What resources do you need to collect data on total official ODA support for disaster risk reduction capacity building? Capacity, Financial, Technology transfer

Indicator F-6: Total official international support (ODA plus other official flows) for disaster risk reduction capacity-building.

When do you plan to start collecting data on total other official support in support of disaster risk reduction capacity building? Data on total other official support in support of disaster risk reduction capacity building is not available.

What resources do you need to collect data on total other official flows in support of disaster risk reduction capacity building? Capacity, Financial, Technology transfer

Indicator F-6: Total official international support (ODA plus other official flows) for disaster risk reduction capacity-building.

Are you planning to collect historic data on total official international support for disaster risk reduction capacity building? No.

What resources do you need to collect data on data coverage 2005-2015? Capacity, Financial, Technology transfer

Indicator F-7: Number of international, regional and bilateral programmes and initiatives for disaster risk reduction-related capacity-building in developing countries.

Do you collect data on number of programmes and initiatives for DRR related capacity building in developing countries? No.

Indicator F-7: Number of international, regional and bilateral programmes and initiatives for disaster risk reduction-related capacity-building in developing countries.

Does the collected data cover the entire period 2005-2015? No.

Indicator F-7: Number of international, regional and bilateral programmes and initiatives for disaster risk reduction-related capacity-building in developing countries.

When do you plan to start collecting data on number of programmes and initiatives for DRR related capacity building in developing countries? Data on programmes and initiatives for DRR related to capacity building in developing countries is not available.

What resources do you need to collect data on number of programmes and initiatives for DRR related capacity building in developing countries? Capacity, Financial, Technology transfer

Indicator F-7: Number of international, regional and bilateral programmes and initiatives for disaster risk reduction-related capacity-building in developing countries.

Are you planning to collect historic data on number of international, regional and bilateral programmes and initiatives for DRR related capacity building in developing countries? No.

What resources do you need to collect data on data coverage 2005-2015? Capacity, Financial, Technology transfer

Indicator F-8: Number of developing countries supported by international, regional and bilateral initiatives to strengthen their disaster risk reduction-related statistical capacity.

Do you collect data on initiatives to strengthen your DRR related statistical capacity? No.

Indicator F-8: Number of developing countries supported by international, regional and bilateral initiatives to strengthen their disaster risk reduction-related statistical capacity.

Does the collected data cover the entire period 2005-2015? No.

Indicator F-8: Number of developing countries supported by international, regional and bilateral initiatives to strengthen their disaster risk reduction-related statistical capacity.

When do you plan to start collecting data on initiatives to strengthen your DRR related statistical capacity? Data on initiatives to strengthen our DRR related statistical capacity is not available.

What resources do you need to collect data on initiatives to strengthen your DRR related statistical capacity? Capacity, Financial, Technology transfer

Indicator F-8: Number of developing countries supported by international, regional and bilateral initiatives to strengthen their disaster risk reduction-related statistical capacity.

Are you planning to collect historic data on initiatives to strengthen your DRR related statistical capacity? No.

What resources do you need to collect data on data coverage 2005-2015? Capacity, Financial, Technology transfer

Global target G: Availability of multi-hazard early warning systems and disaster risk information Indicator G-2: Number of countries that have multi-hazard monitoring and forecasting systems.

What are the major hazards affecting your country from the list? Choose all that apply.

Geophysical

Hydrological

Indicator G-2: Number of countries that have multi-hazard monitoring and forecasting systems.

Do you have a multi-hazard monitoring and forecasting systems? Yes

Indicator G-2: Number of countries that have multi-hazard monitoring and forecasting systems.

Which major hazards from the list are considered in your multi-hazard monitoring and forecasting systems?

Geophysical

Meteorological

Hydrological

Indicator G-2: Number of countries that have multi-hazard monitoring and forecasting systems.

Do your monitoring and forecasting systems cover all geographical areas affected by one or more of the major hazards? Yes.

Indicator G-2: Number of countries that have multi-hazard monitoring and forecasting systems.

Do these monitoring and forecasting systems take into account the potential interrelated effects of multiple hazards? Yes.

Indicator G-3: Number of people per 100,000 that are covered by early warning information through local governments or through national dissemination mechanisms.

Do you collect data on the number of people who have access to early warning information through local governments? No.

Indicator G-3: Number of people per 100,000 that are covered by early warning information through local governments or through national dissemination mechanisms.

Do you collect data on number of people who have access to early warning information through national dissemination mechanisms? No.

Indicator G-3: Number of people per 100,000 that are covered by early warning information through local governments or through national dissemination mechanisms.

When do you plan to start collecting data on the number of people with access to early warning information through local governments? Appropriate methods will be discussed.

What resources do you need to collect data on number of people with access to early warning information through local governments? Capacity, Financial, Technology transfer

Indicator G-3: Number of people per 100,000 that are covered by early warning information through local governments or through national dissemination mechanisms.

When do you plan to start collecting data on number of people with access to early warning information through national dissemination mechanisms? Appropriate methods will be discussed at national level.

What resources do you need to collect data on number of people with access to early warning information through national dissemination mechanisms? Capacity, Financial, Technology transfer

Indicator G-3: Number of people per 100,000 that are covered by early warning information through local governments or through national dissemination mechanisms.

Do you collect data on national dissemination mechanisms for early warning? Please specify.

National dissemination mechanisms for early warning was done through main national portal, the "Portal Bencana", under the aegis of NADMA Malaysia, which integrate all early warning systems from other agencies.

Indicator G-3: Number of people per 100,000 that are covered by early warning information through local governments or through national dissemination mechanisms.

Are all people in areas prone to major hazards covered by early warning information? Yes.

Indicator G-4: Percentage of local governments having a plan to act on early warnings.

Do you collect data on percentage of local governments having a plan to act on early warnings? Yes.

Indicator G-4: Percentage of local governments having a plan to act on early warnings.

Do local governments in your country have plans to act on early warnings? Yes.

Indicator G-4: Percentage of local governments having a plan to act on early warnings.

Please specify which major hazards from the list are covered by the plans to act on early warning systems.

Geophysical

Meteorological

Hydrological

Indicator G-4: Percentage of local governments having a plan to act on early warnings.

Do the plans to act on early warnings take into account the potential interrelated effects of multiple hazards? Yes.

Indicator G-5: Number of countries that have accessible, understandable, usable and relevant disaster risk information and assessment available to the people at the national and local levels.

Do you have disaster risk information and assessment? Yes.

Indicator G-5: Number of countries that have accessible, understandable, usable and relevant disaster risk information and assessment available to the people at the national and local levels.

Which major hazards from the list are considered in your risk information and assessment?

Geophysical

Meteorological

Hydrological

Indicator G-5: Number of countries that have accessible, understandable, usable and relevant disaster risk information and assessment available to the people at the national and local levels.

Is risk information and assessment accessible, understandable and usable by the people? Yes.

Indicator G-5: Number of countries that have accessible, understandable, usable and relevant disaster risk information and assessment available to the people at the national and local levels.

Is risk information and assessment available to people at national and local level? Yes.

Indicator G-6: Percentage of population exposed to or at risk from disasters protected through pre-emptive evacuation following early warning.

Member States in a position to do so are encouraged to provide information on the number of evacuated people.

Do you collect data on percentage of population exposed or at risk from disasters protected through pre-emptive evacuation following early warning? Yes.

Indicator G-6: Percentage of population exposed to or at risk from disasters protected through pre-emptive evacuation following early warning.

Member States in a position to do so are encouraged to provide information on the number of evacuated people.

Note: UNISDR can use the following sub-indicator to estimate percentage of population exposed or at risk from disasters protected through pre-emptive evacuation following early warning.

Do you collect number of people evacuated attributed to disasters? Yes.

Appendix Four: Floods – questions we need answers to

1. Describe the stock of current problems, recent progress and remaining challenges in flood management and risk of flood, all on the basis of concrete examples.
2. Elaborate on the case studies and incidents by analysing in depth flood management problems in the different river basins.
3. How to manage the economic, social and environmental impacts and losses in human life?
4. What is being done to study climate variability and climate change expected to increase the frequency and intensity of floods?
7. How is seasonal floodplain inundation that is essential to maintaining healthy rivers, creating new habitats, depositing silts and fertile organic material, and sustaining wetlands managed?
8. Has location of buildings and infrastructure been mapped?
9. Do you have early warning systems? Where are they located?
10. Do you have emergency planning?
11. Do you have the appropriate policy, legal and institutional frameworks?
12. What is the governance framework like between the Federal, State and local councils on the DRR?
13. Is there a Task Force on Flood Prevention and Protection or an equivalent at the Federal, State and local council level? If there is, what is the coordination and accountability strategy?
14. Are there Guidelines on Sustainable Flood Prevention as there was in Europe which served as a basis for the EU Best Practice Document on Flood Prevention, Protection and Mitigation, which led to Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks? In Europe, the Guidelines were complemented by the Model Provisions on Transboundary Flood Management, adopted in 2006.
15. Is there an integrated approach to flood management – one that recognizes both the opportunities provided by floodplains for socio-economic activities and that manages the associated risks – is essential for the sustainable development of river basins?
16. What are the challenges of transboundary cooperation?
17. Where is the location of the Knowledge and Information base?
18. State the available strategies.
19. State the available cost-effective solutions.
20. Where is the early information and data and forecasts available from?

21. What are the challenges of cooperation? Some examples of obstacles are: lack of capacity and resources, insufficient data, differing institutional structures, lack of political will – and even mistrust in some cases.

22. Is Malaysia a State Party to the UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention)? This Convention aims to support the creation of frameworks fostering transboundary cooperation.

Legal and Community Aspects

23. How relevant is the International Convention on the Protection and Use of Transboundary Water courses and International Lakes in Malaysia?

24. Are there any Parliamentary Committees or National Advisory Boards addressing the legal aspects?

25. Is there a relevant Ministry or several of them having jurisdiction over the subject-matter of floods and the Sendai Framework?

26. What are the community level or local council level institutions involved for flood DRR and for the Sendai Framework?

27. Is the UNDP involved? Give examples.

28. Is the Planning and Finance Ministries involved in regulating access to finance and diversified funding streams?

29. Has the conduct of any post-disaster assessment be carried out under a legal provision?

30. How is accountability assigned under the law and its regulations?

31. List the sectoral laws most heavily used and gaps if any: for example, road laws, building and construction laws, land-use laws, environmental and natural resource management, climate change adaptation, dispute settlement regulations.

32. List the subsidiary legislation most used and gaps and challenges if any.

33. Has a review of the law been conducted to align it with the Sendai Framework for DRR including the adoption of definitions for natural hazards, climate change etc...?

34. Has the law provided for an emergency management of DRR? for an Institutional Mandate? An allocation of dedicated resources? Facilitated the participation of communities of civil society and vulnerable groups? Established accountability of the relevant actors? Has the DRM law also guided post-disaster recovery process even if not a sufficient level of detail?

35. Has the law supported the institutional framework for DRR and identified flood zones? International institutions such as the UNDP? The International Federation of the Red Cross and Red Crescent Societies? Ministries in charge of damaged buildings and other ecosystems? Do the constitutions of the various entities support their actions? What are the national standards prescribed for such activity? How has the law supported the training of civil society

in these standards? Are there draft guidelines on buildings, flood plains/ river basins, dams, on construction materials?

36. The by-laws of the Town and Country Planning Act 1976: do they provide sufficiently for zoning of areas subject to DRR under the Sendai Framework?

37. Urgent need to review all sectoral and Federal and State laws, by-laws and develop plans to integrate DRR considerations into development including urban development.

38. Do the laws support the role of the Government, private sector and civil society in DRR? World Bank? Crises damage both national and local government institutions and services.

39. Do the laws support post-disaster needs assessment and recovery?

40. Do the laws support a recovery process and framework established through a wide participatory process and based on a comprehensive analysis of gaps, challenges and opportunities for recovery?

41. Do the laws support the principle in floods management, that is “Building back better”? Support all tiers of government with regards to

(a) information management

(b) post-disaster needs assessment

(c) design and implementation of recovery intervention

(d) financial package

(e) restore affected communities and those most vulnerable?

(f) Homes? Public institutions like municipal buildings, schools, hospitals kindergartens and health care institutions?

(g) Bridges, roads, water and sanitation systems?

(h) create new jobs

(i) better energy efficiency? and

(j) improved access for people with disabilities?

42. Implications for shipping, ports and Marine Department?

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Appendix Five: Minutes of Meetings

Minutes of Pre-Workshop Meeting on 3rd April 2019 preceding the First National Ocean Accounts Workshop, 4-5 April 2019

The Department of Statistics Malaysia (DOSM) Putrajaya organized four meetings to introduce the UNESCAP Consultant team to the stakeholders. The UN Consultant team comprised Dr Michael Bordt ESCAP, Regional Advisor on Environment Statistics, Mr P. Teerapong Research Assistant Economy and Environment Statistics Section, and Ms Lyutong Cai Technical Support Economy and Environment Statistics Section. The local consultant Prof Dr Mary George, Faculty of Law and Institute of Ocean and Earth Sciences, University of Malaya was also invited to attend all the four meetings. Hereafter, the UN Consultant Team and Local Consultant are referred to as the Team.

Two members of DOSM, YBrs. Mrs HjH Nazaria Baharudin, Deputy Chief Statistician (Technical Development and Social Programme) and Mrs. Siti Zakiah Muhamad Isa, Director of Agriculture and Environment, Statistics Division, accompanied the Team on the visits of 3rd April 2019. These visits were to meet, first, the Director-General of DOSM; secondly, the ocean accounts staff at DOSM; thirdly, a visit to the Department of Fisheries and Marine Parks, Ministry of Agriculture and Agro-based Industries (Putrajaya); and finally, the Malaysian Institute of Maritime Affairs (Kuala Lumpur).

At the First meeting, with the Chief Statistician of Malaysia DOSM, YBhg Dato' Sri Dr Mohd Uzir Mahidin, Dato' Sri Dr Uzir, welcomed the Team and recalled statements made by the Prime Minister of Malaysia to continuously improve one self. Dr Michael Bordt explained the purpose and importance of the First National Ocean Accounts Workshop. Dato' Sri Dr Uzir urged the Team to do something special as the topic of ocean accounts was exploratory in nature and wished the Team the best in this undertaking. At the Second meeting, with the ocean accounts staff of the DOSM, Mrs. Siti Zakiah Muhamad Isa updated the Team on the DOSM's current work projects. The DOSM has been working on Agricultural SEEA, Agriculture Production Index and Food Balance Sheet. Dr Michael Bordt informed DOSM of the concerns about the oceans and the lack of a coherent way of measuring the oceans. The objective was to build capacity in the country with the stakeholders.

At the Third meeting, with the Department of Fisheries including Marine Parks under the Ministry of Agriculture and Agro-based Industries, Mrs HjH Nazaria Baharudin of DOSM introduced the Team. The Department of Fisheries highlighted various concerns and progress made in various areas under their jurisdiction. These included protecting marine parks, fishing, fishing gear, shark action plan, monitoring, control and surveillance /compliance, conservation of resources, marine tracking of fish, classification of the seas into Zones A, B and C for fishing purposes and vessel tagging. The Team and the local consultant introduced the objective of the First Workshop on National Accounts for the Oceans for Malaysia and the Draft Scoping Report respectively. The last meeting was with the Malaysian Institute of Maritime Affairs (MIMA) also led by Mrs. HjH Nazaria Baharudin of DOSM. The Team was introduced and the topic of the First National Workshop on Ocean Accounts for Malaysia was highlighted. Dr. Michael Bordt gave a brief

overview of ocean accounts partnership. The Chair stressed the importance of the project and MIMA highlighted the Blue Economy Project that they were working on for the Ministry of Foreign Affairs at the IORA forum. Meeting ended around 5.30 pm.

The List of Participants for each of the Meetings on 3 April is attached herewith.

Prepared by:
Mary George
Local Consultant
University of Malaya
3 April 2019

Minutes of 4th and 5th April 2019

World waiting on Malaysia to lead the way

No meeting was conducted before the commencement of the First National Workshop for Ocean Accounts in Malaysia. The First National Workshop for Ocean Accounts in Malaysia was held on 4th and 5th April 2019 at the Department of Statistics Malaysia (DOSM) organized by DOSM with UNESCAP guidance, Putrajaya. It was attended by 53 participants from 20 stakeholder agencies related to ocean matters. The single issue for determination was the selection of a topic for the Pilot Study based on the Draft Scoping Report. The topic selected after two days of deliberations was “Living Resources of the Straits of Malacca” that received the most votes from the stakeholders (twenty-two). The UNESCAP also delivered on valuable Teaching Modules on SEEA and Ocean Accounts.

Prepared by:
Mary George
Local Consultant
University of Malaya
3 April 2019

Minutes of 22nd April 2019

The meeting on 22nd April was held at DOSM at 5.30 pm. The agenda was to consider the way forward on the topic for the Pilot. The meeting was chaired by Mrs Zakiah. The local consultant was given the floor first and spoke of the general re-organisation that would be made to the Draft Scoping Report such reorganization of Chapter Two to reflect Malaysia’s concerns in ocean governance. Other amendments include an expansion of the Executive Summary, of the Matrix and a discussion of all the topics selected for the Pilot in the Scoping Report. Other comments from DOSM on the Draft Scoping Report concerned the expansion of stakeholder presentations during the First Workshop and whether the local consultant would assist in doing the SEEA-SNA Accounts. The local consultant replied that was happy to assist in any area except in an area she had no expertise in. There were further deliberations on the topic for the Pilot. It was tentatively

suggested that perhaps fisheries could be considered based on the topic selected at the First Workshop. For this purpose, it was decided to plan a meeting with the Department of Fisheries in the last week of April 2019 followed by a High-Level Meeting with all relevant stakeholders in the first week of May. It was suggested that the local consultant prepare a Gantt Chart for the meeting with the Department of Fisheries in the last week of April 2019. The draft Gantt Chart would then be further refined by the DOSM.

The meeting ended at 7.30 pm.

Prepared by:
Mary George
Local Consultant
University of Malaya
16 April 2019