

MALAYSIA

Draft National Plan of Action

CTI-CFF

Coral Triangle Initiative
on Coral Reefs, Fisheries and Food Security

October 2009



Ministry of Science,
Technology and Innovation



MALAYSIA

*Draft National Plan
of Action*



CTI-CFF

Coral Triangle Initiative
on Coral Reefs, Fisheries and Food Security

Coral Triangle Initiative Leaders' Declaration on Coral Reefs, Fisheries and Food Security

Manado, North Sulawesi
Indonesia
15th May 2009



We, the Leaders of Indonesia, the Philippines, Timor Leste, Papua New Guinea, Solomon Islands and Malaysia:

Do hereby declare:

TO OFFICIALLY LAUNCH the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF) to address threats to the marine, coastal, and small island ecosystems within the Coral Triangle region, through accelerated and collaborative action, taking into consideration multi-stakeholder participation in all of our six countries;

TO AGREE that the Coral Triangle Initiative primarily focuses on areas of cooperation in relation to coral reefs, fisheries, food security, and adaptation to climate change;

TO ADOPT the CTI Regional Plan of Action, a living and non-legally binding document, to conserve and sustainably manage coastal and marine resources within the Coral Triangle region, that takes into consideration laws and policies of each country, as endorsed by the first CTI Ministers Meeting in Port Moresby;

TO RECOGNIZE that the implementation of the CTI-CFF is a voluntary cooperation and without prejudice to the sovereignty, territorial integrity, sovereign rights of the six countries respectively over their marine resources, and the position of each state on the on-going and future negotiation on delimitation of maritime boundaries between the countries;

TO EMPHASIZE that cooperation of CTI-CFF shall be subject to the laws; regulations; national policies and priorities of the respective countries; and the application of relevant sustainable development principles to transboundary management, conservation and development within the Coral Triangle region; as well as taking into consideration the relevant multilateral, regional and bilateral environmental agreements;

TO TASK our relevant Ministers to formulate the implementation modalities of CTICFF with a view to enhancing the cooperation;

TO ESTABLISH a permanent secretariat for CTI-CFF to service the ongoing CTI-CFF implementation process;

TO CALL for the mobilization and effective allocation of sustainable financial resources needed to implement the CTI Regional and National Plans of Action.

Excerpt from statement

by YAB DATO' SRI
MOHD NAJIB TUN ABDUL RAZAK
PRIME MINISTER OF MALAYSIA

...paragraph

2. Malaysia being a biodiversity rich nation has always taken various measures to conserve and sustainably utilize our rich biological resources. The National Policy on Biological Diversity launched in 1998, gives clear direction for the management of biodiversity in the country. Malaysia as an active member of the Convention on Biological Diversity has also played an important and leadership role in promoting and implementing the objective of the Convention domestically, regionally as well as at the international level.



...paragraph

4. It is indeed unfortunate that knowledge about the oceans is still very limited and that the development of maritime countries often depends on the potential to exploit sustainably the marine resources. Enhancing the knowledge and understanding of the connectivities of large marine ecosystems, ocean dynamics, air-sea interaction, seabed changes and coastal processes are prerequisites for managing the marine environment and ecosystems in a more prudent way towards supporting sustainable economic opportunities from ocean resources. Results from marine scientific research provide inputs for policy makers in pursuing developmental options which will benefit society.

...paragraph

6. In this context, I believe that the CTI Project must be implemented based on national priorities and in line with national policies to ensure that countries participating in the CTI project can contribute and benefit meaningfully from this Initiative. The Project should build upon existing initiatives and projects in this area should avoid the duplication and wastage of resources. There must be tangible outputs which are implementable and sustainable beyond the duration of this project.

...paragraph

12. ... This Summit will go down the chapters of history for providing the highest political impetus to the conservation efforts of the region's rich marine biodiversity, and which is in line with the Convention on Biological Diversity on marine and coastal biodiversity. I would like to announce Malaysian contribution of USD 1 million to the CTI projects.

**CORAL TRIANGLE INITIATIVE SUMMIT
MANADO, NORTH SULAWESI, INDONESIA
15 MAY 2009**

Foreword

by DATUK SERI DR MAXIMUS JOHNNITY ONGKILI, JP

Although the scientific boundary of the Coral Triangle Initiative (CTI) covers only part of Malaysia, mainly Sabah coasts and within the Sulu and Sulawesi Seas, Malaysia is committed to the sustainable use and preservation of the marine resources under the CTI efforts.

This initiative is undertaken through cooperation with CTI Member Countries and Partners. We also acknowledge that the CTI concept can also be adopted outside the scientific boundary within the respective countries' exclusive economic zones and subject to national and international laws.



As an elected member of the Executive Council of UNESCO Intergovernmental Oceanographic Commission (IOC) and the Convention of Biological Diversity (CBD), Malaysia is aligned towards responsible and integrated management of the coastal and marine resources and biodiversity.

This involves measuring, monitoring and mitigating risks due to human intervention and climate change, focusing on threats to food security and livelihood of the coastal communities while ensuring sustainable use and equitable sharing of benefits arising out of the utilisation of genetic resources.

I am proud that this Malaysian National Plan of Action (NPOA) reflects the commitment and support by related Ministries and Agencies to ensure that we achieve the goals and targets set out in the Regional Plan of Action.

This NPOA is a living and non-legally binding document that is subject for review and prioritisation especially in the framework of the national KPIs and KRAs in the 10th Malaysia Plan.

The implementation of the NPOA shall be guided by principles from existing national commitments and undertakings. Informed decision-making is crucial as oceans, coastal and environmental management must be based on best available science and technologies.

I thank and congratulate all parties for their valuable contribution and involvement in the development of the NPOA, in particular WWF Malaysia and Sea Resources Management Sdn Bhd, as well as the CTI National Focal Point - the Interim National Coordinating Committee (NCC) lead by the National Oceanography Directorate (NOD), MOSTI – for its guidance and technical inputs.

I am confident this NPOA can set a common platform for implementation based on the existing national objectives and plans, and chart a new standard in marine resources management for the sustainable benefit of the nation.

“Championing Discovery, Transforming Innovation”

DATUK SERI DR MAXIMUS JOHNNITY ONGKILI, JP
MINISTER
MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION
THE GOVERNMENT OF MALAYSIA

Foreword

by DATIN MADINAH MOHAMAD

The Coral Triangle Initiative for Coral Reefs, Fisheries and Food Security (CTI-CFF) has gone through an impressive process of endorsement from the five other Member Countries such as Indonesia, Papua New Guinea, Solomon Islands, Timor Leste. Malaysia, for one, has been participating in the various CTI related events since the inception of the CTI initiated by Indonesia. This cooperation was done in a concerted effort complementing the Sulu Sulawesi Marine Eco-region Program (SSME) between three countries; Malaysia, Indonesia and the Philippines. The bigger scope of the CTI with the addition of the adaptation to climate change issues will add value to the SSME program in many ways. Malaysia would benefit in terms of capacity building towards technology transfer, human capital development, knowledge management and potential financial assistance from donor agencies.



On 6th May 2009, the Malaysian Cabinet approved the Ministry of Science, Technology and Innovation (MOSTI) to be the national CTI focal point with the National Oceanography Directorate (NOD) as its secretariat. The Ministry has received encouraging support with the involvement of various stakeholders such as the Conservation and Environmental Management Division, Marine Parks Department (NRE), Department of Fisheries (Federal), Sabah Fisheries Department, Sabah Marine Parks, Ministry of Foreign Affairs and Attorney General's Chambers.

The Malaysian National Coordination Committee (NCC) convened its inaugural meeting on 2nd October 2009. Activities post-CTI Summit in Manado includes national stakeholders' consultations and workshops towards the development of the Draft National Plan of Action (NPOA). The NCC members agreed upon the framework and structure of NCC and endorsed the Draft National Plan of Action.

The Draft National Plan of Action (NPOA) was successfully developed over a short period of time, mainly through the enthusiastic cooperation provided by the various government departments and agencies cutting across various Ministries. The NPOA comprises a set of 12 guiding principles embodied in the 134 action plans spread among five goals. The action plans are categorised according to sub-headings of planning & management, funding, policy & administration, information & awareness, and monitoring, control & surveillance. These action plans, of which some are projects / programs that are already commissioned, approved, proposed and new (unfunded), provide a comprehensive program inclusive of implementation target dates, performance indicators and responsible implementers / actors.

The next step forward would be to prioritise the action plans which are spread across 5 to 10 years to be incorporated into the 10th Malaysia Plan (RMK-10) programs. In order to implement the action plans, there is a need to develop and identify, in accordance to the Regional Plan of Action (RPOA), particularly the national coordination mechanisms & implementing partners, financial resources and monitoring & evaluation of the various action plans in the Draft NPOA.

With the NCC in place and the NPOA drafted and discussed during the 4th Senior Officials' Meeting in Kota Kinabalu, Sabah, Malaysia is confident of the progress of the Coral Triangle Initiative. Close cooperation with CTI member countries and strategic alliances with various international donors and partners, NGOs, private entities and expert individuals are crucial in ensuring successful implementation of the regional plan of action towards responsible and sustainable management of our marine resources for the benefit of future generations.

Thank You

DATIN MADINAH MOHAMAD
SECRETARY GENERAL
MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION
THE GOVERNMENT OF MALAYSIA

Glossary

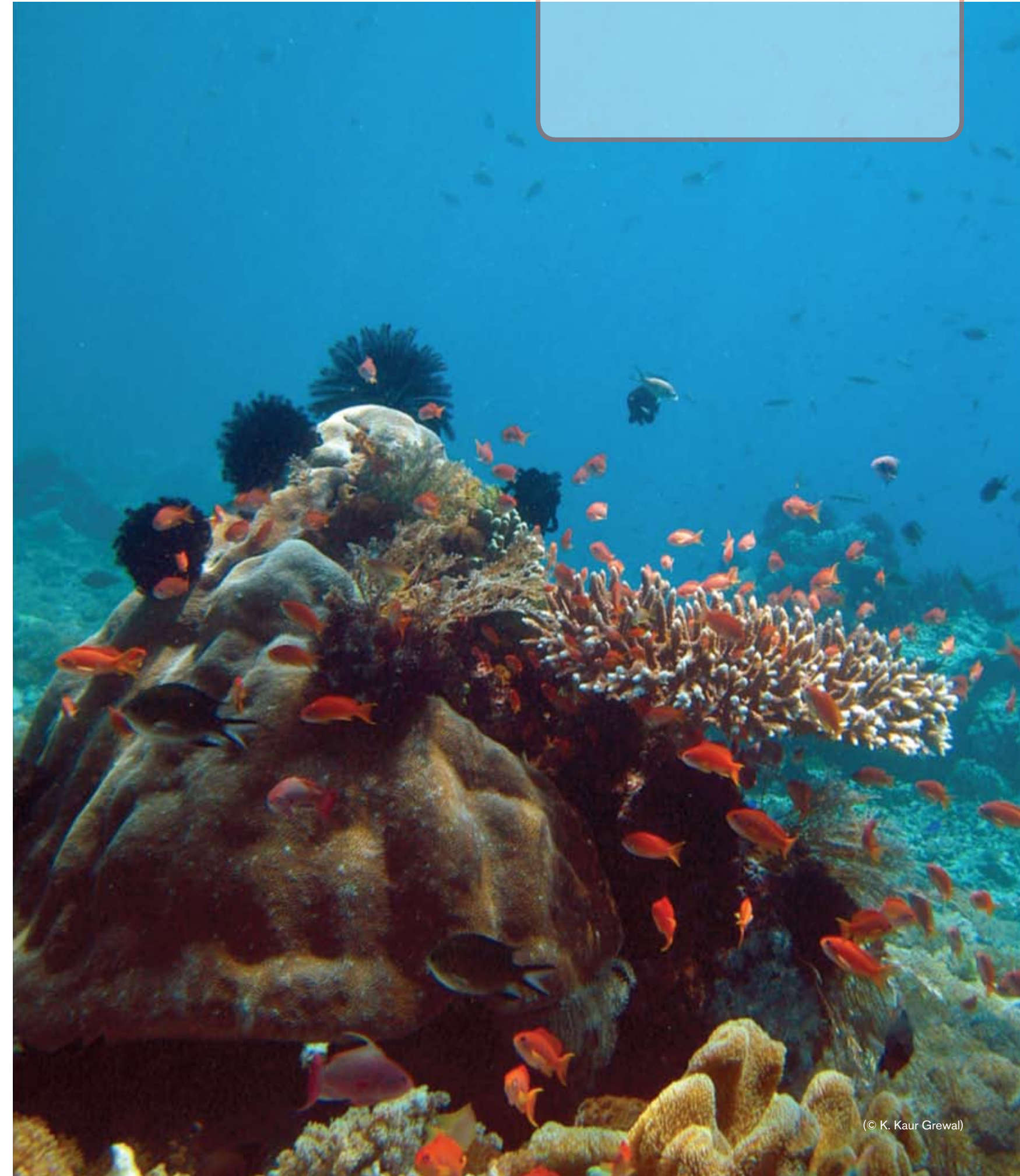
ABI	Agro-Biotechnology Institute Malaysia
ARSM	Malaysian Remote Sensing Agency
BIMP-EAGA	Brunei, Indonesia, Malaysia, Philippines - East Asean Growth Area
CITES	Convention on International Trade in Endangered Species
CPUE	Catch per unit effort
CT	Coral Triangle
CTI	Coral Triangle Initiative
CTI NCC	National Coordinating Committee for Coral Triangle Initiative
CTMPAS	Coral Triangle Marine Protected Area System
CTSP	Coral Triangle Support Program
DID	Department of Irrigation and Drainage
DMPM	Department of Marine Park, Malaysia
DoF	Department of Fisheries
DTCP	Department of Town and Country Planning
DTRP	Department of Town and Regional Planning, Sabah
EAF	Ecosystem Approach to Fisheries
EAFM	Ecosystem Approach to Fisheries Management
EBM	Ecosystem-based Management
EC	European Commission
EEZ	Exclusive Economic Zone
EMS	Environmental Monitoring Station
ENC	Electronic Navigational Chart
EPU	Economic Planning Unit
FCA	Full - Cycle Aquaculture
FAO	Food and Agriculture Organisation
FRI	Fisheries Research Institute
FRIM	Forest Research Institute of Malaysia
ha	Hectare
HAB	Harmful Algal Bloom
ICM	Integrated Coastal Zone Management
IEC	Information, education and communication
IOES	Institute of Ocean and Earth Sciences
ISMP	Integrated Shoreline Management Plan
IMO	International Maritime Organisation
IUCN	International Union for Conservation of Nature
IUU	Illegal, unreported and unregulated
JUPEM	Department of Survey and Mapping Malaysia
LKIM	Fisheries Development Authority of Malaysia
LRFT	Live - reef fish trade
MCS	Monitoring, Control and Surveillance
MFRDM	Marine Fisheries Resource Development & Management
MIMA	Maritime Institute of Malaysia
MIS	Mangrove Information System
MITI	Ministry of International Trade and Industry

MKN	National Security Council
MMEA	Malaysian Maritime Enforcement Agency
MMD	Malaysian Meteorological Department
MNRE	Ministry of Natural Resources and Environment
MOA	Ministry of Agriculture and Agro-based Industry
MoF	Ministry of Finance
MoFA	Ministry of Foreign Affairs
MOSTI	Ministry of Science, Technology, and Innovation
MOT	Ministry of Transport
MPA	Marine Protected Area
MRF	Marine Research Foundation
MSY	Maximum Sustainable Yield
MTDC	Malaysian Technology Development Corporation
NATC	National Agriculture Training College
NCC	National Coordination Committee
NAHRIM	National Hydraulics Research Institute of Malaysia
NCECCAM	National Centre of Excellence on Climate Change Adaptation for Marine and Coastal Environments
NGO	Non-Governmental Organisation
NOD (MOSTI)	National Oceanography Directorate (MOSTI)
NHC (RMN)	National Hydrographic Centre (Royal Malaysian Navy)
NPOA	National Plan of Action
PCA	Priority Conservation Area
PHIMAL	Philippines – Malaysia
PSSA	Particularly Sensitive Sea Area
PSSE	Prime Scientific Sailing Expedition Program
RAMSAR	The Convention on Wetlands of International Importance, especially as Waterfowl Habitat
RMC	Royal Malaysian Customs
RMN	Royal Malaysian Navy
RMP	Royal Malaysian Police
RPOA	Regional Plan of Action
RPOA - IUU	Regional Plan of Action (RPOA) to Promote Responsible Fishing Practices including Combating IUU Fishing in the Region of the South China Sea, Arafura-Timor, Sulu Sea and Sulu Sea and Sulawesi Sea
SEEN	Sabah Environment Education Network
SIMCA	Sugud Islands Marine Conservation Area
SIRIM	Standards and Industrial Research Institute of Malaysia
SRM	Sea Resources Management Sdn Bhd
S2S	Sea to Space
SSME	Sulu Sulawesi Marine Ecoregion
SWD	Sabah Wildlife Department
TAC	Total Allowable Catch
TED	Turtle Excluder Device
TMMP	Tun Mustapha Marine Park
TPM	Technology Park Malaysia
VMS	Vessel Monitoring System

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Section 1: INTRODUCTION

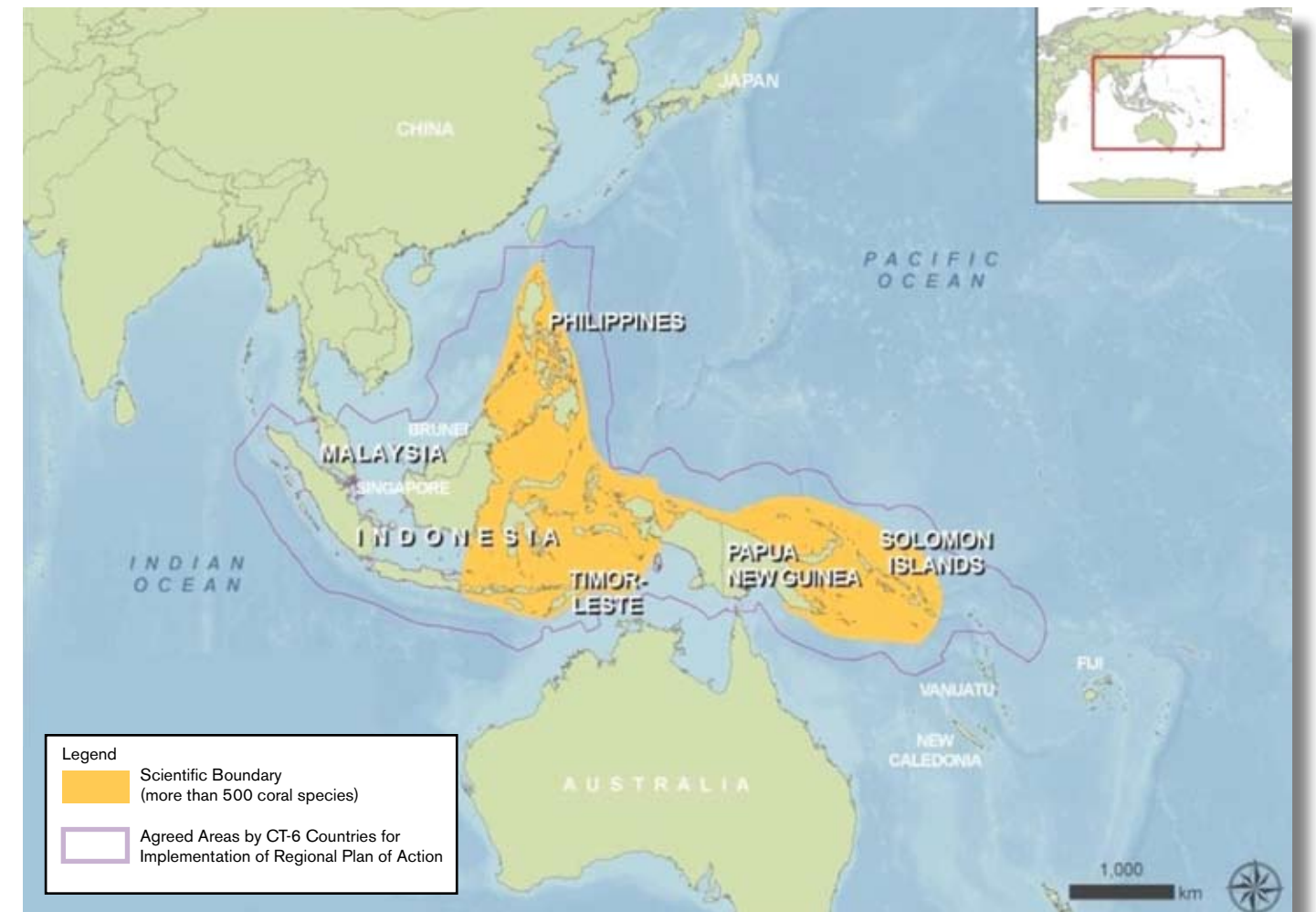
❖ Vision for Malaysia's Coral Triangle Waters

Healthy and productive Malaysian Coral Triangle coastal and marine areas, rich in biodiversity, wisely managed and developed for the equitable benefit of all, now and in the future.

❖ The Coral Triangle

Malaysia lies at the western extremity of the Coral Triangle (CT) (see map). Using coral and reef fish diversity as the two major criteria, the boundaries of the CT are defined as covering all or part of the exclusive economic zones of six countries: Indonesia, Malaysia, Papua New Guinea, the Philippines, the Solomon Islands and Timor-Leste. These boundaries encompass all of Malaysian waters in the Sulu Sea and Sulawesi Sea.

Covering only 1.6% of global oceanic area, the CT hosts 76% of all known coral species, 37% of all known coral reef fish species, 53% of the world's coral reefs, the greatest extent of mangrove forests in the world, and spawning and juvenile growth areas for the world's largest tuna fishery. Moreover, the biogeographical conditions within the CT may also enable the region to maintain its exceptional productivity in the face of future impacts of climate change, making it potentially the world's most important refuge for marine life.



Malaysia has a long coastline in relation to its hinterland. Most Malaysians live in the coastal zone and much of our wealth is derived from the coastal zone. All States have a coastline. Valuable resources are concealed beneath the waves, and complex interactions between activities on the water and those that take place on land test our governance structures and the quality of decision-making. Together with extensive coral reef systems off the east coast of Peninsular Malaysia, the Malaysian CT waters are a priceless national treasure. Malaysia is committed to implementation of the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI) Regional plan of Action (RPOA) to the maximum extent that is consistent with national goals and capabilities.

❖ **Challenges and the CTI NPOA Response**

At present, Malaysia faces many challenges in marine and coastal areas, including: erosion, siltation, water pollution, multiple-use conflict, loss of mangrove habitat and other coastal forests, coral reef degradation, other coastal habitat loss, reduced numbers in species populations, and more. The Malaysian CTI National Plan of Action (NPOA) represents a decisive response to these challenges.

A total of 12 Principles are articulated to guide implementation (Section 2). These Principles represent existing treaty, policy and declaration commitments (see Annex A), and fully embody the nine (9) Principles outlined in the CTI RPOA.

Through a total of 134 Actions that directly contribute to achievement of the CTI RPOA Goals and Targets, and a comprehensive program of implementation target dates and performance indicators, the Malaysian CTI NPOA marks an important milestone in the quest for responsible, sustainable management of our coasts and seas.



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Section 2: Guiding Principles

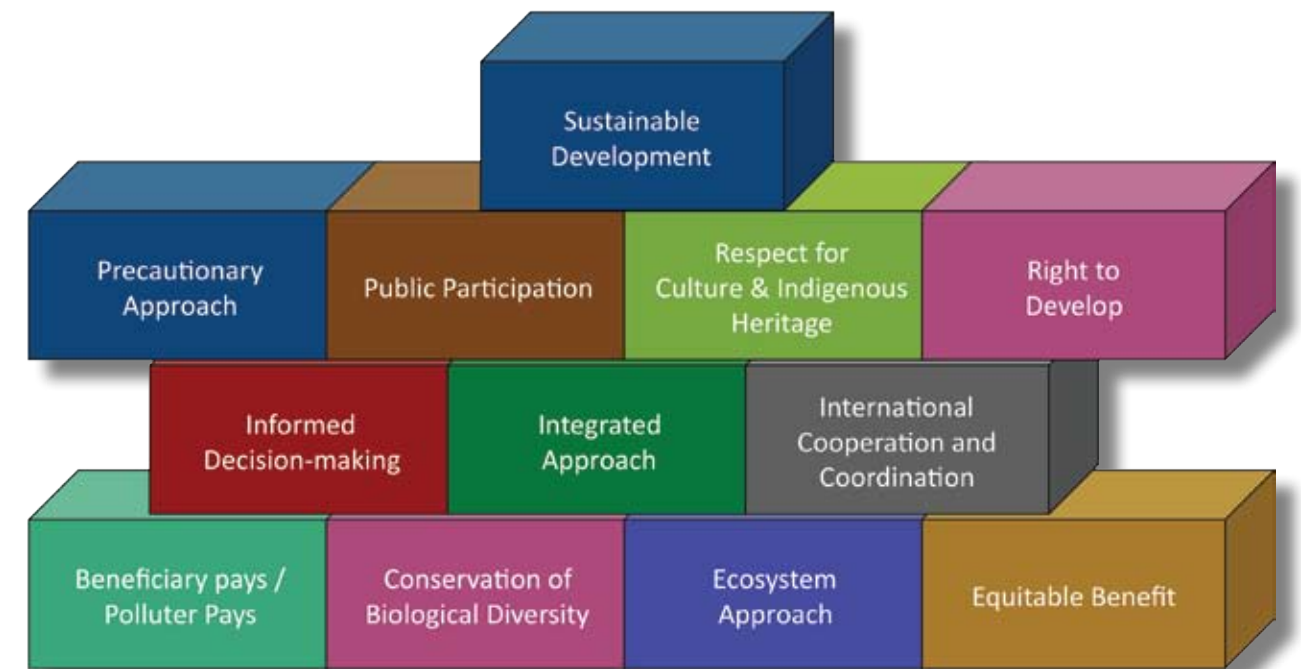


(© T. ter Horst)

Section 2: GUIDING PRINCIPLES

The following principles will guide the Malaysian CTI National Plan of Action.

These principles reflect existing commitments and undertakings arising from Malaysia's participation in a broad array of international treaties and fora (as detailed in **Annex A**). They also encompass fully the nine Guiding Principles of the CTI Regional Plan of Action.



1. Sustainable Development

Marine and coastal resources will be used to meet present needs without compromising the ability of future generations to meet their own needs.

2. Precautionary Approach

Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

3. Public Participation

Marine and coastal issues are best handled with the participation of all concerned citizens, at the relevant level. Each individual shall have appropriate access to information concerning the marine and coastal environment that is held by public authorities and the opportunity to participate in decision-making processes. Public awareness and participation will be encouraged by making information widely available.

4. Respect for Culture and Indigenous Heritage

Indigenous people and their communities and other local communities have a vital role to play in marine and coastal management and development because of their knowledge and traditional practices. The identity, culture and interests of indigenous people and other local communities will be respected, and they will be afforded opportunity for effective participation in the achievement of sustainable marine and coastal development.

5. Right to Develop

Malaysia has the sovereign right to exploit its marine and coastal resources pursuant to its own environmental and other policies.

6. Informed Decision-making

Decisions concerning marine and coastal management, and environmental protection will be based upon best available science. Continuous effort will be made to improve Malaysia's capacity to collect, analyse, assess and apply information for sustainable use of marine resources and conservation of biological diversity.

Concrete, quantitative goals will be established that are measurable and linked to specific and realistic timetables for achievement. Specific milestones will be adopted to define progress toward achieving these goals.

7. Integrated Approach

In order to achieve sustainable development, environmental protection shall constitute part of the development process and cannot be considered in isolation from it. Where appropriate, institutional, administrative and legislative arrangements will be established and/or strengthened for the development of:

- *integrated management of coastal and marine ecosystems; and*
- *plans and strategies for coastal and marine areas, along with their integration within national development plans.*

8. International Cooperation and Coordination

Marine issues can transcend national boundaries and interests, necessitating coordinated regional and/or global effort. Where appropriate, Malaysia will support such international effort. Goals and activities will be supportive of international and regional commitments already made under relevant legal instruments and multilateral processes. These efforts will be without prejudice to the sovereign rights, sovereignty, and jurisdiction of Malaysia in officially promulgated 'Malaysian Territorial Waters'.

Wherever possible, measures will be taken to ensure that activities within Malaysia's jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Wherever practicable, relevant existing forums will be used to implement actions under CTI.

9. Beneficiary Pays / Polluter Pays

Internalisation of resource use and environmental costs will be promoted, taking into account the approach that:

- *the polluter should, in principle, bear the cost of the pollution and*
- *the beneficiary should pay for the use of natural resources,*

with due regard to the public interest.

10. Conservation of Biological Diversity

Measures will be undertaken to conserve and, where appropriate, restore biological diversity and the productivity of marine species and habitats, with particular recognition of the uniqueness, fragility and vulnerability of island ecosystems.

11. Ecosystem Approach

Management regimes that transcend political boundaries will be used to conserve ecosystems and natural habitats, and for the maintenance and recovery of viable populations of species in their natural surroundings. Appropriate scientific methodologies focused on levels of biological organisation, which encompass the essential structure, processes, functions and interactions among organisms and their environment will be used.

12. Equitable Benefit

The developmental and environmental needs of present and future generations will be met equitably, and poverty reduction will be supported.

Section 3: Commitments to Action



Section 3: COMMITMENTS TO ACTION

GOAL 1: PRIORITY SEASCAPES DESIGNATED AND EFFECTIVELY MANAGED

Large-scale geographies prioritized for investments and action, where best practices are demonstrated and expanded.

TARGET 1: “PRIORITY SEASCAPES” DESIGNATED, WITH INVESTMENT PLANS COMPLETED AND SEQUENCED.By **2012**

A set of priority seascapes across the Coral Triangle are designated, to serve as the geographic focus of major investments and action during 2010 – 2020. Comprehensive *Seascape Investment Plans* for each priority seascape are completed, along with an overall scheme for the sequencing of investments across the 10-year timeframe of the CTI Plan of Action.

❖ **Malaysian Implementation Actions****Planning and Management**

Action 1: Complete the National Coastal Zone Physical Plan for Peninsular Malaysia.

Action 2: Complete a National Coastal Zone Physical Plan for East Malaysia.

Action 3: Identify and assess Particularly Sensitive Sea Areas (PSSA) within Malaysian Priority Seascapes.

Funding

Action 4: Jointly develop investment plans with seascape partners for all identified Priority Seascapes (including the existing SSME seascape).

Information and Awareness

Action 5: Complete the tagging program for economically important pelagic fish species in the Sulu and Sulawesi Seas.

Action 6: Jointly complete Rapid Seascape Assessments for the Malacca Strait and the Sunda Shelf region of the South China Sea (in recognition that Priority Seascapes can cover areas outside of the CTI boundary as long as the major portion of the seascape is within the CT countries).

Action 7: Conduct regular oceanographic surveys in the SSME, and other Malaysian waters.

Planning and Management

Action 1: Complete the National Coastal Zone Physical Plan for Peninsular Malaysia.

Output	Indicators	Target Date
An up-to-date source of information on natural and economic assets, vulnerability and demographic status in coastal areas of Peninsular Malaysia. The formulation of policy and zoning for the protection and utilisation of coastal areas. Implementation strategy of National Coastal Zone Physical Plan.	<ul style="list-style-type: none"> National Coastal Physical Plan promulgated for public access. Extent to which policy and zonation have been finalised for coastal areas. 	2010
		Primary Actors
		DTCP State Government Agencies

Action 2: Complete a National Coastal Zone Physical Plan for East Malaysia.

Output	Indicators	Target Date
An up-to-date source of information on natural and economic assets, vulnerability and demographic status in coastal areas of East Malaysia. The formulation of policy and zoning for the protection and utilisation of coastal areas. Implementation strategy of National Coastal Zone Physical Plan.	<ul style="list-style-type: none"> National Coastal Physical Plan promulgated for public access. Extent to which policy and zonation have been finalised for coastal areas. 	2015
		Primary Actors
		DTRP Sabah State Government Sarawak State Government

Action 3: Identify and assess Particularly Sensitive Sea Areas (PSSA) within Malaysian Priority Seascapes.

Output	Indicators	Target Date
PSSAs delineated. Enhanced scientific characterisation and understanding of oceanographic and ecological components within PSSAs.	<ul style="list-style-type: none"> Number of PSSAs nominated to IMO. Number of relevant published scientific papers and reports. Databases on PSSAs available to the public. 	2012
		Primary Actors
		NOD (MOSTI) DoF DMPM Sabah Parks Universities DTCP DTRP Marine Department FRI

Funding

Action 4: Jointly develop investment plans with seascape partners for all identified Priority Seascapes (including the existing SSME seascape).

Output	Indicators	Target Date
Identified goals and key actions for each 'Priority Seascape', along with the required financial investments for a 10-year period. Identified potential investment sources.	<ul style="list-style-type: none"> Investment Plan for Priority Seascapes lodged with the CTI Regional Coordinating Committee. Number and value of investment sources. 	2012
		Primary Actors
		NOD (MOSTI) EPU MoF MNRE MOA State Governments Private Sectors

Information and Awareness

Action 5: Complete the tagging program for economically important pelagic fish species in the Sulu and Sulawesi Seas.

Output	Indicators	Target Date
Information relevant to pelagic fisheries management with neighbouring countries. Comprehensive record keeping on the status of key pelagic species. Improved understanding of migration routes and patterns; and feeding and spawning grounds of pelagic fishes.	<ul style="list-style-type: none"> Number of fish and range of species tagged. Number of fish tags recovered. Number of tagging locations. 	2011 (complete existing program)
		Ongoing
		Primary Actors
		DoF DoF Sabah DoF Sarawak FRI Universities MFRDM

Action 6: Jointly complete Rapid Seascape Assessments for the Malacca Strait and the Sunda Shelf region of the South China Sea (in recognition that Priority Seascapes can cover areas outside of the CTI boundary as long as the major portion of the seascape is within the CT countries).

Output	Indicators	Target Date
Rapid Seascape Assessments of physical, ecological, economic, social and political factors are completed for the Malacca Strait and the Sunda Shelf region of the South China Sea.	<ul style="list-style-type: none"> Assessment reports lodged with the CTI Regional Coordinating Committee. 	2011
Identification of seascape boundaries.		Primary Actors NOD (MOSTI) Universities, DoF DoF Sarawak MNRE DTCP NHC (RMN) ARSM Marine Department State Governments
GIS and databases incorporating data.		

Action 7: Conduct regular oceanographic surveys in the SSME, and other Malaysian waters.

Output	Indicators	Target Date
Regular, comprehensive oceanographic reports and associated scientific papers are publicly available.	<ul style="list-style-type: none"> Number of oceanographic research expeditions (survey and mapping) conducted in the SSME and other areas. Number of scientific papers on aspects of oceanography in the SSME and other areas published in refereed journals. Environmental overlay data available for ENCs. Coastal / ocean features database and information system. Number of survey and status reports on coastal/ocean features. 	Ongoing
Oceanographic data accessible from National Oceanographic Data Centre.		Primary Actors NOD (MOSTI) MOSTI Universities NHC (RMN) FRI DMPM Sabah Parks MMD DTCP

TARGET 2: MARINE AND COASTAL RESOURCES WITHIN ALL “PRIORITY SEASCAPES” ARE BEING SUSTAINABLY MANAGED.

By **2020**

The marine and coastal resources within all identified priority seascapes are being sustainably managed (as measured by agreed criteria and progress toward established quantitative targets), and are contributing significantly to environmentally sustainable development benefitting coastal communities and broader economies dependent upon these resources.

❖ **Malaysian Implementation Actions**

Planning and Management

- Action 1:** Working closely with seascape partners, jointly adopt specific elements of a sustainably managed Seascape Program for each seascape based on local conditions.
- Action 2:** Develop and strengthen capacity - building activities within national seascape programs designed to (i) share best practices and lessons learned; (ii) develop critical skills and knowledge; (iii) strengthen technical and institutional capacity, and (iv) empower coastal communities to participate in management programs.
- Action 3:** Start to mobilise domestic and international funding to support Priority Seascape programs.
- Action 4:** Conduct periodic monitoring and evaluation of Priority Seascape programs.
- Action 5:** Establish an inter - sectoral committee to develop and guide the implementation of an ICM plan at the SSME demonstration and replication sites throughout Malaysia.
- Action 6:** Implement management and conservation strategy for SSME mangrove forest reserves, and apply this strategy with necessary adaptations throughout Malaysia.
- Action 7:** Rehabilitate abandoned shrimp farms to their natural state or for other sustainable aquaculture uses.
- Action 8:** Develop economically feasible and ecologically suitable seaweed farming using best culturing techniques and seaweed strains in Sabah.

Funding

- Action 9:** Raise internal and external funds to implement the CTI NPOA and SSME programs, including from international conservation NGOS.

Information and Awareness

Action 10: Strengthen coordination amongst the Sabah Environment Education Network (SEEN) (comprising policy-makers, practitioners, planners, and trainers from government agencies, NGOs, and private sector) to undertake Environmental Education efforts in Sabah.

Action 11: Develop and utilise a Mangrove Information System (MIS) for the Malaysian coast in the SSME.

Action 12: Conduct regular oceanographic surveys in the SSME, and other Malaysian waters.

Action 13: Analyse and document data obtained from the 'Prime Scientific Sailing Expedition Program 2009' (EPSP09) (18 June – 5 August 2009) and other expeditions.

Planning and Management

Action 1: Working closely with seascape partners, jointly adopt specific elements of a sustainably managed Seascape Program for each seascape based on local conditions.

Output	Indicators	Target Date
A sustainably managed Seascape Program addressing economic, social, political and ecological aspects; public/private partnerships; and PSSAs is developed for each seascape.	<ul style="list-style-type: none"> Sustainably managed Seascape Programs are promulgated publicly. Number and comprehensiveness of monitoring reports. Number of meetings with seascape partners. 	2012
		Primary Actors

Action 2: Develop and strengthen capacity - building activities within national seascape programs designed to (i) share best practices and lessons - learned; (ii) develop critical skills and knowledge; (iii) strengthen technical and institutional capacity and (iv) empower coastal communities to participate in management programs.

Output	Indicators	Target Date
Comprehensive and robust capacity building mechanisms for sustainable seascape management.	<ul style="list-style-type: none"> Funding allocation for capacity - building programs. Number of co-management or community-driven programs. Number of training workshops and courses. Number of professionals trained and qualified in seascape management. 	Ongoing
		Primary Actors

Action 3: Start to mobilise domestic and international funding to support Priority Seascape programs.

Output	Indicators	Target Date
The financial resources necessary (including new and additional funding) to support designated priority seascape programs are being generated from both domestic and international funding sources.	<ul style="list-style-type: none"> Number of program elements that are fully funded. Sources of funds. Number of projects implemented with available funds. Number of seascape - related endowments created. 	2013
		Primary Actors

Action 4: Conduct periodic monitoring and evaluation of Priority Seascape programs.

Output	Indicators	Target Date
Priority seascape programs are monitored and progress evaluated periodically based on 'Key Elements for Sustainably Managed Seascapes' and quantitative targets established for each seascape.	<ul style="list-style-type: none"> Frequency of monitoring activities. Range of monitoring activities. Number of milestones (quantitative targets) achieved. 	Periodic
		Primary Actors

Action 5: Establish an inter-sectoral committee to develop and guide the implementation of an ICM plan at the SSME demonstration and replication sites throughout Malaysia.

Output	Indicators	Target Date
An inter-sectoral, multidisciplinary committee of government officials, academics and relevant stakeholders to develop and oversee implementation of ICM plans.	<ul style="list-style-type: none"> Range of skills, agencies and organisations represented on the committee. ICM plans for the SSME sites are promulgated. 	2010 (Committee established) 2011 (ICM plans promulgated)
		Ongoing (Implementation)
		Primary Actors

Action 6: Implement management and conservation strategy for SSME mangrove forest reserves, and apply this strategy with necessary adaptations throughout Malaysia.

Output	Indicators	Target Date
A more robust and healthy mangrove coverage. Strategies developed for SSME and other mangrove reserves.	<ul style="list-style-type: none"> Number and area of mangrove forest gazetted as permanent forest reserves. Percentage/area increase (ha) of mangrove coverage (including replanted mangrove). Ecosystem productivity. Number of eco-tourism visitors. Mangrove biodiversity. Water quality. Change in coastal erosion risk (km of area at risk of erosion). Number of other mangrove forest reserves outside of SSME with a strategy. 	2012
		Primary Actors
		Sabah Forestry Department Forestry Department DID FRIM

Action 7: Rehabilitate abandoned shrimp farms to their natural state or for other sustainable aquaculture uses.

Output	Indicators	Target Date
Abandoned shrimp aquaculture farms are brought back into production through alternative aquaculture initiatives or are returned to their natural state.	<ul style="list-style-type: none"> Number and area (ha) of alternative farms operating on formerly abandoned shrimp farm areas. Percentage of abandoned shrimp farms that have been rehabilitated. 	2012
		Primary Actors
		DoF Sabah DoF ABI District Offices State Governments

Action 8: Develop economically feasible and ecologically suitable seaweed farming using best culturing techniques and seaweed strains in Sabah.

Output	Indicators	Target Date
Increased areas of economically feasible and ecologically suitable seaweed farming. Sabah will be a significant producer of farmed seaweed. Development of downstream seaweed processing, value - added and associated industries.	<ul style="list-style-type: none"> Number of seaweed farmers. Total allocated areas (ha). Tonnage of farmed seaweed produced. Export level and global market share. Number of new strains and hybrids. Amount of funding allocated for seaweed research. 	2015
		Primary Actors
		DoF Sabah MOSTI (SIRIM, TPM, ABI, MTDC) Universities Sabah State Government LKIM

Funding

Action 9: Raise internal and external funds to implement the CTI NPOA and SSME programs, including from international conservation NGOs.

Output	Indicators	Target Date
CTI NPOA and SSME projects are all fully funded from domestic and international sources as required.	<ul style="list-style-type: none"> Number of CTI NPOA and SSME that are fully funded as a percentage of the total. Amount (in Ringgit Malaysia) that is allocated to CTI NPOA and SSME projects. 	Ongoing
		Primary Actors
		NOD (MOSTI) CTI NCC DoF Sabah EPU MoFA Private Sectors

Information and Awareness

Action 10: Strengthen coordination amongst the Sabah Environment Education Network (SEEN) (comprising policy- makers, practitioners, planners, and trainers from government agencies, NGOs, and private sector) to undertake Environmental Education efforts in Sabah.

Output	Indicators	Target Date
Environmental education efforts in Sabah enhanced through strengthened coordination amongst SEEN members.	<ul style="list-style-type: none"> Number of environmental education events run by SEEN. Number and variety of coordination activities conducted amongst SEEN members. Number of SEEN members participating in coordination activities. Level of Sabah coastal communities' environmental awareness. 	Ongoing
		Primary Actors
		MOE SEEN

Action 11: Develop and utilize a Mangrove Information System (MIS) for the Malaysian coast in the SSME.

Output	Indicators	Target Date
A publicly accessible, web-enabled database providing mangrove data, educational material, maps showing mangrove coverage, etc. Scientific baseline information freely available for managers and researchers	<ul style="list-style-type: none"> Number of website hits. Area (ha) of mapped mangrove. Application of information system to mangrove areas outside of the SSME. 	2010
		Primary Actors
		Sabah Forestry Department Universities

Action 12: Conduct regular oceanographic surveys in the SSME, and other Malaysian waters.

Output	Indicators	Target Date
Regular, comprehensive oceanographic reports and associated scientific papers are publicly available.	<ul style="list-style-type: none"> Number of oceanographic research expeditions (survey and mapping) conducted in the SSME and other areas. Number of scientific papers on aspects of oceanography in the SSME and other areas published in refereed journals. Environmental overlay data available for ENCs. Coastal / ocean features database and information system. Number of survey and status reports on coastal/ocean features. 	Ongoing
Oceanographic data accessible from National Oceanographic Data Centre.		Primary Actors NOD (MOSTI) MOSTI Universities NHC (RMN) FRI DMPM Sabah Parks MMD DTCP PETRONAS

Action 13: Analyse and document data obtained from the 'Prime Scientific Sailing Expedition Program 2009' (EPSP09) (18 June – 5 August 2009) and other expeditions.

Output	Indicators	Target Date
Management of marine and coastal resources is enhanced through analysis of data derived from the PSSE.	<ul style="list-style-type: none"> Number of refereed scientific papers published of relevance to the socio-economic status of coastal communities that draw upon data arising from the scientific expedition. Number of follow-up projects arising from the scientific expedition that have potential to benefit management of marine and coastal resources. 	2010
		Primary Actors NOD (MOSTI) MOSTI Universities MMD

GOAL 2: ECOSYSTEM APPROACH TO MANAGEMENT OF FISHERIES (EAFM) AND OTHER MARINE RESOURCES FULLY APPLIED

TARGET 1: STRONG LEGISLATIVE, POLICY, AND REGULATORY FRAMEWORKS IN PLACE FOR ACHIEVING AN ECOSYSTEM APPROACH TO FISHERIES MANAGEMENT (EAFM).

By 2020

At the national and regional levels, a strong legislative, policy, and regulatory framework is in place for achieving an Ecosystem Approach to Fisheries Management (EAFM), designed to plan, develop and manage fisheries in a manner that addresses the multiple needs and desires of societies, without jeopardizing the options for the future generations to benefit from the full range of goods and services provided by marine ecosystems (in accordance with the UN FAO 2003 definition of EAFM)

EAFM is a key approach toward addressing common trans-boundary policy and regulatory concerns, such as (i) over-fishing of shared pelagic stocks; (ii) illegal cross-border fishing by small-scale fishers (stimulated by depletion of local coastal fisheries), commercial-scale fishing operations, and trans-shipment; (iii) fishing overcapacity; and (iv) by-catch of protected and endangered species.

❖ Malaysian Implementation Actions

Planning and Management

Action 1: Implement an EAFM Plan for small pelagic fisheries for the SSME demonstration and replication sites throughout Malaysia.

Action 2: Design and implement management measures and protocols, including economic incentives for protection and management of marine turtle populations and their habitats.

Policy and Administration

Action 3: Strengthen a high - level EAFM Steering Committee comprising inter-agency government representatives and stakeholders.

Action 4: Establish a national policy on EAFM.

Action 5: Assess human resource capacity to identify and address gaps in EAFM implementation.

Action 6: Update the Fisheries Act 1985 to encompass EAFM principles.

Action 7: Harmonise relevant legislation between neighbouring CTI Countries.

Action 8: Finalise legally binding measures to conform to EC Regulation 1005/2008.

Action 9: Develop an EAFM Strategy for Sabah fisheries.

Information and Awareness

Action 10: Develop a system for effective information sharing on enforcement between CT countries with focal points designated.

Action 11: Determine the status and issues of IUU fishing, especially along borders within the SSME.

Action 12: Conduct regular tagging programs for economically important pelagic fish species in the Sulu, Sulawesi and Andaman Seas.

Monitoring, Control and Surveillance

Action 13: Extend and improve the VMS program to monitor all tuna vessels, and to achieve internationally bench-marked standards of operational performance.

Action 14: Develop a program for the coastal community and fishers to report illegal activities to the MMEA.

Action 15: Double the number of MMEA officers and enhance training relevant to CTI targets and activities.

Action 16: Increase the number and capacity of maritime enforcement assets.

Action 17: Strengthen collaborative MCS programs with neighbouring countries.

Action 18: Strengthen initiatives to combat IUU fishing in line with the RPOA - IUU.

Planning and Management

Action 1: Implement an EAFM Plan for small pelagic fisheries for the SSME demonstration and replication sites throughout Malaysia.

Output	Indicators	Target Date
Small pelagic fisheries at the SSME demonstration and replication sites are managed in accordance with an EAFM Plan.	<ul style="list-style-type: none"> Quantity of 'trash fish' as a percentage of fish landings. Tonnage of small pelagic fish landings. Average size of landed fish by species. Modification of fishing gear. Number of vessels using by-catch reduction technology. Number of turtles caught in fishing activities. Status of small pelagic stocks, biodiversity and ecosystems. Amount of data on marine ecosystems. Number of licensed fishing vessels, gear types and registered fishers. Number of fisheries certified as sustainable. 	Commence 2009
		Ongoing
		Primary Actors DoF Sabah SSME Sub-Committee on Sustainable Fisheries NGOs

Action 2: Design and implement management measures and protocols, including economic incentives for protection and management of marine turtle populations and their habitats.

Output	Indicators	Target Date
An effective sea turtle and habitat management program that involves fishing industry and stakeholders in turtle conservation.	<ul style="list-style-type: none"> Number of turtles caught in fishing activities. Number of marine turtle nesting reserves. Number of fisheries employing TED. Number of frequency of turtle conservation awareness programs. Number of new economic incentives. 	2010
		Primary Actors DoF Sabah Sabah Wildlife Department NGOs

Policy and Administration

Action 3: Strengthen a high - level EAFM Steering Committee comprising inter-agency government representatives and stakeholders.

Output	Indicators	Target Date
A high - level committee of government officials from relevant agencies and selected stakeholders is strengthened to oversee EAFM implementation.	<ul style="list-style-type: none"> Number of meetings or dialogues Range of skills, agencies and organisations represented on the committee. 	2010
		Primary Actors DoF DoF Sabah NOD (MOSTI) MIMA NGOs Universities

Action 4: Establish a national policy on EAFM.

Output	Indicators	Target Date
A policy to guide EAFM throughout Malaysia.	<ul style="list-style-type: none"> Promulgation of EAFM policy. Level of access to policy content. 	2010
		Primary Actors EAFM Steering Committee

Action 5: Assess human resource capacity to identify and address gaps in EAFM implementation.

Output	Indicators	Target Date
Human resource capacity needs to implement EAFM identified and addressed.	<ul style="list-style-type: none"> Number of appropriately qualified personnel. Number of successfully completed EAFM projects. Number of new training initiatives. 	2011
		Primary Actors
		DoF DoF Sabah Universities Relevant SSME Sub - Committees

Action 6: Update the Fisheries Act 1985 to encompass EAFM principles.

Output	Indicators	Target Date
Updated fisheries legislation and regulations that reflect EAFM and the FAO International Code of Conduct for Responsible Fisheries.	<ul style="list-style-type: none"> Enactment of new fisheries legislation. Number of licensed fisheries vessels and gear - types, and registered fishers. Promulgation of TAC and a quota system. 	2012
		Primary Actors
		DoF DoF Sabah

Action 7: Harmonise relevant legislation between neighbouring CTI Countries.

Output	Indicators	Target Date
A harmonized legislative framework between Malaysia and its CT neighbours.	<ul style="list-style-type: none"> Common provisions reflecting EBM and EAFM principles. Common language in legislation. Consistent offence descriptions and equivalent penalties. 	2015
		Primary Actors
		MMEA Attorney General's Chambers DoF DoF Sabah MNRE MoFA RMC Department of Immigration

Action 8: Finalise legally binding measures to conform to EC Regulation 1005/2008.

Output	Indicators	Target Date
A sustainable and profitable seafood export industry that is able to access the EU market.	<ul style="list-style-type: none"> Legally binding practices and standards enacted. Quantity of export seafood exports. Value of seafood exports. Number of certified exporters. 	2010
		Primary Actors
		DoF Ministry of Health MoA MITI

Action 9: Develop an EAFM Strategy for Sabah fisheries.

Output	Indicators	Target Date
A Strategy to guide EAFM for Sabah fisheries.	<ul style="list-style-type: none"> Promulgation of a Sabah EAFM Strategy. Level of access to content of Strategy. 	2010
		Primary Actors
		DOF Sabah Sabah Parks Sabah Forestry Department Relevant SSME Sub – Committees

Information and Awareness

Action 10: Develop a system for effective information sharing on enforcement between CT countries with focal points designated.

Output	Indicators	Target Date
An operational information sharing system between CT Countries and the establishment of agreed communication procedures. Mutual understanding between enforcement agencies amongst CT Countries.	<ul style="list-style-type: none"> Extent of information exchange. Number of meetings on collaborative enforcement. 	2010
		Primary Actors
		MMEA RMN DOF Sabah RMP

Action 11: Determine the status and issues of IUU fishing, especially along borders within the SSME.

Output	Indicators	Target Date
Comprehensive understanding of IUU fishing and the drivers of these activities, especially along borders within the SSME.	<ul style="list-style-type: none"> Number of reports. Adjustment in enforcement focus. Level of transfer and sharing of lessons learned. 	2010
		Primary Actors
		MMEA DoF Sabah DoF Universities

Action 12: Conduct regular tagging programs for economically important pelagic fish species in the Sulu, Sulawesi and Andaman Seas.

Output	Indicators	Target Date
Information relevant to pelagic fisheries management with neighbouring countries. Comprehensive record keeping on the status of key pelagic species. Improved understanding of migration routes and patterns; and feeding and spawning grounds of pelagic fishes.	<ul style="list-style-type: none"> Number of fish and range of species tagged. Number of fish tags recovered. Number of tagging locations. 	2011 (complete existing program)
		Ongoing
		Primary Actors DoF FRI DoF Sabah Universities DoF Sarawak MFRDM

Monitoring, Control and Surveillance

Action 13: Extend and improve the VMS program to monitor all tuna vessels, and to achieve internationally bench-marked standards of operational performance.

Output	Indicators	Target Date
Enhanced monitoring and surveillance of tuna vessels. Performance audit. Expansion of VMS to other deep - sea gear types.	<ul style="list-style-type: none"> Number of vessels with a VMS transponder. Percentage of operational days for the VMS Centre. Percentage of total days at sea per vessel during which the VMS transponder is functioning. Number of arrests and successful prosecutions. 	2015
		Primary Actors DoF DoF Sabah

Action 14: Develop a program for the coastal community and fishers to report illegal activities to the MMEA.

Output	Indicators	Target Date
Community involvement with MMEA for reporting illegal activities.	<ul style="list-style-type: none"> Number of arrests and successful prosecutions. Number of reports received from communities and fishers. 	2011
		Primary Actors MMEA DoF Sabah

Action 15: Double the number of MMEA officers and enhance training relevant to CTI targets and activities.

Output	Indicators	Target Date
Enhanced monitoring and enforcement capacity.	<ul style="list-style-type: none"> Number of training activities relevant to CTI targets and activities. Number of MMEA officers. Area of surveillance coverage (sq km). 	2015
		Primary Actors MMEA

Action 16: Increase the number and capacity of maritime enforcement assets.

Output	Indicators	Target Date
Adequate maritime enforcement capacity.	<ul style="list-style-type: none"> Number and capability of maritime enforcement assets. Number of arrests and successful prosecutions. Area of surveillance coverage (sq km) Number of enforcement patrol days at sea. 	2015
		Primary Actors MMEA RMP RMN DoF Sabah Sabah Parks

Action 17: Strengthen collaborative MCS programs with neighbouring countries.

Output	Indicators	Target Date
Coordinated and mutually supportive enforcement between neighbouring countries.	<ul style="list-style-type: none"> Number of collaborative enforcement activities. Amount of information sharing and communications between relevant agencies. Number of arrests and successful prosecutions. Number of meetings on collaborative enforcement. 	2010
		Primary Actors MMEA RMN DoF Sabah RMP

Action 18: Strengthen initiatives to combat IUU fishing in line with the RPOA - IUU.

Output	Indicators	Target Date
Improved MCS of fisheries.	<ul style="list-style-type: none"> Level of biodiversity, particularly of endangered or threatened species. Status of coral reefs. Number of arrests and successful prosecutions. Number of vessels with a fully functioning VMS transponder. 	Ongoing
		Primary Actors MMEA DoF RMN RMP NGOs

TARGET 2: IMPROVED INCOME, LIVELIHOODS AND FOOD SECURITY IN AN INCREASINGLY SIGNIFICANT NUMBER OF COASTAL COMMUNITIES ACROSS THE REGION THROUGH A NEW SUSTAINABLE COASTAL FISHERIES AND POVERTY REDUCTION INITIATIVE (COASTFISH).

By **2020**

Through a new, collaborative *Sustainable Coastal Fisheries and Poverty Reduction Initiative* (COASTFISH) designed to apply an EAFM, a significant improvement has been achieved in the incomes, livelihoods and food security of millions of people living in targeted coastal communities. (Note: in each CT6 country, quantitative targets for COASTFISH will be established).

❖ **Malaysian Implementation Actions**

Planning and Management

Action 1: Nominate selected coastal communities in Sabah to participate in the CTI COASTFISH program.

Action 2: As a SSME initiative, develop joint pilot projects with Indonesia and the Philippines to establish experimental farms for the culture of high-value seaweed species, and share improved quality seed stocks for seaweed farms.

Action 3: Rehabilitate abandoned shrimp farms to their natural state or for other sustainable aquaculture uses.

Action 4: Address problems faced by seaweed farmers.

Action 5: Develop economically feasible and ecologically suitable seaweed farming using best culturing techniques and seaweed strains in Sabah.

Funding

Action 6: Develop a Malaysian COASTFISH Investment Plan, and share information on the development process and contents of the plan with other CT countries.

Action 7: Mobilise domestic and international funding, technology, and expertise to support Malaysian COASTFISH initiatives.

Information and Awareness

Action 8: Share technologies, information and approaches of relevance to COASTFISH with other CT countries.

Action 9: Produce maps denoting the location and boundary of COASTFISH sites in Sabah.

Action 10: Implement public education and awareness initiatives focusing on sustainable fisheries, aquaculture, living aquatic resources exploitation and trade.

Action 11: Undertake education and public awareness programs to foster better understanding among the general public of the multiple values of mangrove forests.

Action 12: Produce baseline data on trends in CPUE; incomes from fishing and non-fishing activities; and exploitation level of key species.

Action 13: Use satellite imagery to assist in the prediction of fish aggregation and harmful algal bloom (HAB) in coastal waters.

Planning and Management

Action 1: Nominate selected coastal communities in Sabah to participate in the CTI COASTFISH program.

Output	Indicators	Target Date
The food security, income and sustainable livelihoods of selected Sabah coastal communities are enhanced through application of EAFM under the COASTFISH program.	<ul style="list-style-type: none"> Selected Sabah coastal communities nominated formally as COASTFISH Sites. Income of coastal communities. Number of fishers engaged in alternative livelihoods. 	2010
		Primary Actors

Action 2: As a SSME initiative, develop joint pilot projects with Indonesia and the Philippines to establish experimental farms for the culture of high-value seaweed species, and share improved quality seed stocks for seaweed farms.

Output	Indicators	Target Date
A number of experimental pilot seaweed farms have been established jointly with SSME neighbours, and are successfully producing high-value seaweed and sharing improved quality seed stocks.	<ul style="list-style-type: none"> Number of jointly established experimental seaweed farms in the SSME. Sharing of improved quality seed stocks. Tonnage of high-value seaweed produced by joint, experimental farms. 	2011
		Primary Actors

Action 3: Rehabilitate abandoned shrimp farms to their natural state or for other sustainable aquaculture uses.

Output	Indicators	Target Date
Abandoned shrimp aquaculture farms are brought back into production through alternative aquaculture initiatives or are returned to their natural state.	<ul style="list-style-type: none"> Number and area (ha) of alternative farms operating on formerly abandoned shrimp farm areas. Percentage of abandoned shrimp farms that have been rehabilitated. 	2012
		Primary Actors

Action 4: Address problems faced by seaweed farmers.

Output	Indicators	Target Date
The general operating environment and overall risk profile for seaweed farmers is improved comprehensively by addressing issues such as lack of security (piracy); transportation (ban of pump use boat); poor access to good quality seedlings; poor farm infrastructure; low farm-gate prices due to poor quality of harvested crops, diseases, crop-grazing; and paucity of skilled local workers.	<ul style="list-style-type: none"> Number of security incidents associated with seaweed farming. Level of investment (in Ringgit Malaysia) directed to seaweed farms. Tonnage of seaweed produced by Malaysian farms. Quantity and price of seedlings that are rated as 'good quality'. Farm-gate price for seaweed. 	2012
		Primary Actors
		DoF Sabah MOA MMEA Universities NGOs RMP LKIM

Action 5: Develop economically feasible and ecologically suitable seaweed farming using best culturing techniques and seaweed strains in Sabah.

Output	Indicators	Target Date
<p>Increased areas of economically feasible and ecologically suitable seaweed farming.</p> <p>Sabah will be a significant producer of farmed seaweed.</p> <p>Development of downstream seaweed processing, value - added and associated industries.</p>	<ul style="list-style-type: none"> Number of seaweed farmers. Total allocated areas (ha). Tonnage of farmed seaweed produced. Export level and global market share. Number of new strains and hybrids. Amount of funding allocated for seaweed research. 	2015
		Primary Actors
		DoF Sabah MOSTI (NOD, ABI, TPM, SIRIM) Universities Sabah State Governments

Funding

Action 6: Develop a Malaysian COASTFISH Investment Plan, and share information on the development process and contents of the plan with other CT countries.

Output	Indicators	Target Date
A Malaysian COASTFISH Investment Plan that outlines and costs a set of strategic actions covering: fisheries status; alternative livelihood, enterprise and industry growth options; market analyses; legal analyses; future climate change impacts and options for applying EAFM. The development process for the Plan has been shared with other CT countries.	<ul style="list-style-type: none"> A COASTFISH Investment Plan lodged with CTI Regional Coordinating Committee. Frequency and comprehensiveness of correspondence and dialogue with other CT countries on the development process for the Investment Plan. 	2012
		Primary Actors
		NOD (MOSTI) ABI DoF Sabah EPU Relevant SSME Sub – Committees NGOs

Action 7: Mobilise domestic and international funding, technology, and expertise to support Malaysian COASTFISH initiatives.

Output	Indicators	Target Date
Domestic and international funding, technology and expertise have been mobilised for Malaysian COASTFISH sites through activities such as investor forums; approaches to public funding agencies and small-scale finance mechanisms for fishers.	<ul style="list-style-type: none"> Number of investor forums. Amount of investment in Ringgit Malaysia mobilised for Malaysian COASTFISH sites Number of applications submitted to public funding agencies. Number of projects that entail the sharing of technology and expertise. Extent of satellite imagery available for COASTFISH areas. 	Ongoing
		Primary Actors
		NOD (MOSTI) DoF Sabah MoF EPU DID (Coastal Division) ARSM Universities

Information and Awareness

Action 8: Share technologies, information and approaches of relevance to COASTFISH with other CT countries.

Output	Indicators	Target Date
Information on Malaysian COASTFISH technologies, techniques, methodologies and approaches are shared with CT countries through activities such as: seminars, workshops, exchange visits, internet, and lessons-learned reports.	<ul style="list-style-type: none"> Number of seminars, workshops and meetings held to share information. Number of exchange visits. Number of information sharing and lessons - learned reports issued. 	Ongoing
		Primary Actors
		MOSTI (NOD, ABI, TPM, SIRIM) NOD (MOSTI) DoF Sabah

Action 9: Produce maps denoting the location and boundary of COASTFISH sites in Sabah.

Output	Indicators	Target Date
Maps showing the location of Malaysian COASTFISH sites, along with other spatially-referenced data.	<ul style="list-style-type: none"> Number of COASTFISH sites denoted on maps. Quantity and nature of other spatially-referenced data shown on maps. 	2010
		Primary Actors
		NOD (MOSTI) JUPEM DoF Sabah

Action 10: Implement public education and awareness initiatives focusing on sustainable fisheries, aquaculture, living aquatic resources exploitation and trade.

Output	Indicators	Target Date	
An improved level of awareness amongst the general public, and especially amongst stakeholders, of the importance and value of sustainable fisheries and aquaculture.	<ul style="list-style-type: none"> Number of public education and awareness campaigns. Indication of awareness in survey responses. Survey indication of increased willingness to pay for certified fisheries products. 	Ongoing	
		Primary Actors	
		DoF DoF Sabah NOD (MOSTI) MOE	Universities Private Sectors NGOs

Action 11: Undertake education and public awareness programs to foster better understanding among the general public of the multiple values of mangrove forests.

Output	Indicators	Target Date	
Improved level of awareness and appreciation amongst the general public of the value and contribution of mangrove forests.	<ul style="list-style-type: none"> Number of ecotourism operators and visitors to mangrove areas. Indication of awareness in survey responses. Participation rate in mangrove-relevant NGOs. Number of public education awareness campaigns. 	Ongoing	
		Primary Actors	
		Sabah Forestry Department NOD (MOSTI) MOE	Universities Private Sectors NGOs

Action 12: Produce baseline data on trends in CPUE; incomes from fishing and non-fishing activities; and exploitation level of key species.

Output	Indicators	Target Date	
A comprehensive set of baseline data is available detailing current CPUE and trends; income from fishing and non-fishing activities; and exploitation levels of key species.	<ul style="list-style-type: none"> Number of data categories captured in the baseline dataset. Currency of data. Span of years over which data extends. 	2012	
		Primary Actors	
		DoF NOD (MOSTI) DoF Sabah	Universities Private Sectors NGOs

Action 13: Use satellite imagery to assist in the prediction of fish aggregation and harmful algal bloom (HAB) in coastal waters.

Output	Indicators	Target Date	
Processed satellite imagery data to support fisheries and coastal management.	<ul style="list-style-type: none"> Area of imagery coverage (sq km). Breadth of imagery spectrum. Resolution of imagery. Number of ground-truthing expeditions. Processed satellite imagery available on NOD data center. 	2014	
		Primary Actors	
		MOST (S2S,ARSM) DoF	Private Sectors Universities LKIM

TARGET 3: EFFECTIVE MEASURES IN PLACE TO HELP ENSURE EXPLOITATION OF SHARED TUNA STOCKS IS SUSTAINABLE, WITH TUNA SPAWNING AREAS AND JUVENILE GROWTH STAGES ADEQUATELY PROTECTED

By 2020

Effective national and regional measures – developed using an ecosystem approach to fisheries management – will be in place to help ensure (through appropriate mechanisms) that exploitation of shared stocks for all species of tuna is sustainable and that, in particular, tuna spawning areas and juvenile growth stages are adequately protected. Such measures will help ensure long-term contributions of tuna fisheries to economic growth, incomes, employment, and food security.

❖ **Malaysian Implementation Actions**

Planning and Management

- Action 1:** Implement EAFM for the Sabah Tuna Fishery leading to sustainable certification based on internationally recognised certification standards.
- Action 2:** Nominate a balanced representative delegation of Government officers, NGO members, academics, fishers, and private-sector companies to participate in the informal CTI Forum on Tuna Governance.
- Action 3:** Implement project proposal on seafood security to assess sustainability and accessibility of resource supply in Malaysia.

Information and Awareness

- Action 4:** Complete tuna-stock survey and determine MSY.
- Action 5:** Update baseline data on trends in CPUE; incomes from subsistence, artisanal and commercial tuna fisheries; and contribution of tuna fisheries to the local economy and employment.
- Action 6:** Exchange information with neighbouring countries on shared fish stocks, specifically on tunas and other highly migratory species as well as small pelagics.
- Action 7:** As a SSME initiative, share information on existing legislation and policies for the management of tuna and small pelagics.
- Action 8:** Conduct regular oceanographic surveys in the SSME, and other Malaysian waters.

Planning and Management

Action 1: Implement EAFM for the Sabah Tuna Fishery leading to sustainable certification based on internationally recognised certification standards.

Output	Indicators	Target Date
A sustainable tuna fishery that reflects EAFM.	<ul style="list-style-type: none"> The Sabah Tuna Fishery is certified as sustainable. 	2015
		Primary Actors
		DoF Sabah

Action 2: Nominate a balanced representative delegation of Government officers, NGO members, academics, fishers, and private-sector companies to participate in the informal CTI Forum on Tuna Governance.

Output	Indicators	Target Date
A balanced representative delegation nominated.	<ul style="list-style-type: none"> Range of skills, agencies and organisations represented on the committee. 	2010
		Primary Actors
		NOD (MOSTI) DoF DoF Sabah

Action 3: Implement project proposal on seafood security to assess sustainability and accessibility of resource supply in Malaysia.

Output	Indicators	Target Date
Enhanced understanding of Malaysian seafood security.	<ul style="list-style-type: none"> Number of reports. Project completion. 	2011
		Primary Actors
		DoF DoF Sabah DoF Sarawak NOD (MOSTI) MIMA

Information and Awareness

Action 4: Complete tuna - stock survey and determine MSY.

Output	Indicators	Target Date
Improved understanding of migration routes and patterns; and feeding and spawning grounds of tuna stocks. Sustainable harvest limits for tuna stocks.	<ul style="list-style-type: none"> Promulgation of a tuna survey report and MSY. Number and geographic coverage of survey expeditions. 	2012
		Primary Actors
		DoF FRI MOA NOD (MOSTI)

Action 5: Update baseline data on trends in CPUE; incomes from subsistence, artisanal and commercial tuna fisheries; and contribution of tuna fisheries to the local economy and employment.

Output	Indicators	Target Date
Updated baseline data is available detailing current CPUE and trends; incomes from subsistence, artisanal and commercial tuna fisheries; and contribution of tuna fisheries to the local economy and employment.	<ul style="list-style-type: none"> Number of data categories captured in the baseline dataset. Currency of data. Span of years over which data extends. Level of employment in the local tuna fisheries sector. Quantity and value of tuna exports. 	2012
		Primary Actors
		DoF Sabah DoF Sarawak NGOs

Action 6: Exchange information with neighbouring countries on shared fish stocks, specifically on tunas and other highly migratory species as well as small pelagics.

Output	Indicators	Target Date
Information exchange system/process established.	<ul style="list-style-type: none"> Number of meetings/forums between countries. Regional data exchange on tunas and other highly migratory species. Public access to data. 	Ongoing
		Primary Actors
		DoF DoF Sabah DoF Sarawak Relevant SSME Sub - Committees NOD (MOSTI)

Action 7: As a SSME initiative, share information on existing legislation and policies for the management of tuna and small pelagics.

Output	Indicators	Target Date
Improved understanding of the legislative & policy environment of SSME member States for the sustainable management of tuna and small pelagics.	<ul style="list-style-type: none"> Number of meetings/forums between countries. 	2010
		Primary Actors
		DoF Sabah Relevant SSME Sub - Committees

Action 8: Conduct regular oceanographic surveys in the SSME, and other Malaysian waters.

Output	Indicators	Target Date
Regular, comprehensive oceanographic reports and associated scientific papers are publicly available. Oceanographic data accessible from National Oceanographic Data Centre. Accessible oceanographic data for management of tuna stocks/pelagics.	<ul style="list-style-type: none"> Number of oceanographic research expeditions conducted in the SSME and other areas. Number of scientific papers on aspects of oceanography in the SSME and other areas published in refereed journals. Environmental overlay data available for ENCs. Number of status reports. 	Ongoing
		Primary Actors
		NOD (MOSTI) FRI MOSTI DMPM Universities Sabah Parks NHC (RMN) MMD

TARGET 4: A MORE EFFECTIVE MANAGEMENT AND MORE SUSTAINABLE TRADE IN LIVE-REEF FISH AND REEF-BASED ORNAMENTALS ACHIEVED.

By 2020

A more effective management and more sustainable trade in live-reef fish and reef-based ornamentals achieved, with the following objectives:

- a substantial reduction – across the CTI Implementation Area – of destructive fishing practices linked to the live-reef food fish (LRF) and ornamentals trade compared to an agreed baseline year; and
- for identified “LRF and ornamentals priority areas” that provide significant supply for international trade, an increasing number of these priority areas will achieve viable population levels for selected targeted species (species to be determined).

❖ Malaysian Implementation Actions

Planning and Management

- Action 1:** Implement a sustainability certification scheme and standards for Malaysia LRF production.
- Action 2:** Nominate a balanced representative delegation of Government officers, NGO members, academics, fishers, and private-sector companies to participate in the informal CTI Forum on Tuna Governance.
- Action 3:** Implement and adopt Full-Cycle Aquaculture (FCA) to alleviate pressure on wild stocks.
- Action 4:** Implement best management practice for aquaculture, with emphasis on the production of reef fish.
- Action 5:** Implement seasonal closure of spawning aggregation areas.

Policy and Administration

- Action 6:** Develop a national management plan and policy for LRF and ornamentals trade that reflect EAFM and livelihood issues.

Information and Awareness

- Action 7:** Identify issues, lessons - learned, and success factors related to the sustainable management of LRF and reef - based ornamentals trade and publish data into the public domain.
- Action 8:** Collect and collate baseline information on groupers, humphead wrasse, and other targeted reef fish and ornamentals.
- Action 9:** Promote voluntary adoption by traders of a Code of Practice for sustainable LRFT.

Action 10: Conduct an in-depth study on the value chain of LRFT for effective management.

Action 11: Survey, identify and map marine spawning aggregation areas.

Action 12: Undertake consumer survey of seafood consumption.

Action 13: Promote sustainably - captured and cultured seafood to restaurant owners and wholesalers.

Action 14: Strengthen public awareness on the consequences of IUU fishing.

Monitoring, Control and Surveillance

Action 15: Impose and monitor export ban on humphead wrasse.

Action 16: Impose and monitor export quota on targeted reef fish and ornamentals other than humphead wrasse.



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Planning and Management

Action 1: Implement a sustainability certification scheme and standards for Malaysia LRF production.

Output	Indicators	Target Date
Enhanced sustainability of the LRF and ornamental species trade.	<ul style="list-style-type: none"> A certification scheme and standards promulgated. Number of certified fisheries. Status of LRFT and ornamental wild stock populations. Number of training programs. 	2012
		Primary Actors
		DoF DoF Sabah DoF Sarawak NGOs MoA

Action 2: Nominate a balanced representative delegation of Government officers, NGO members, academics, fishers, and private-sector companies to participate in the informal CTI Forum on Tuna Governance.

Output	Indicators	Target Date
A balanced representative delegation nominated.	<ul style="list-style-type: none"> Range of skills, agencies and organisations represented on the committee. 	2010
		Primary Actors
		NOD (MOSTI) DoF DoF Sabah

Action 3: Implement and adopt Full-Cycle Aquaculture (FCA) to alleviate pressure on wild stocks.

Output	Indicators	Target Date
A more stable population of LRF and reef-based ornamentals in the wild.	<ul style="list-style-type: none"> Number of ecologically sustainable (low environmental impact) FCA units and area (sq km). Production data. Adoption of FCA best - practice technology and systems. Status of wild stock populations. 	2010
		Primary Actors
		DoF Sabah DoF Sarawak NGOs Universities

Action 4: Implement best management practice for aquaculture, with emphasis on the production of reef fish.

Output	Indicators	Target Date
Widespread application of best practice measures in the aquaculture sector.	<ul style="list-style-type: none"> Quantity and quality of reef fish produced from aquaculture units. Number of trained staff in aquaculture units. 	2011
		Primary Actors
		DoF Sabah

Action 5: Implement seasonal closure of spawning aggregation areas.

Output	Indicators	Target Date
Healthy, productive, and protected spawning aggregations leading to high levels of recruitment in marine populations (enhanced biodiversity).	<ul style="list-style-type: none"> Number of seasonal or temporal closure areas. 	2015
		Primary Actors
		DoF Sabah DoF Sarawak

Policy and Administration

Action 6: Develop a national management plan and policy for LRF and ornamentals trade that reflect EAFM and livelihood issues.

Output	Indicators	Target Date
A national management plan and policy for LRF and ornamentals trade that reflects EAFM.	<ul style="list-style-type: none"> Promulgation of a national management plan and policy. Level of access to content of plan and policy. 	2012
		Primary Actors
		DoF DoF Sabah DoF Sarawak MoA NGOs

Information and Awareness

Action 7: Identify issues, lessons - learned, and success factors related to the sustainable management of LRF and reef - based ornamentals trade and publish data into the public domain.

Output	Indicators	Target Date
Improved understanding of issues, concrete lessons – learned, and success factors related to the sustainable management of LRF and ornamentals trade. Information available in the public domain.	<ul style="list-style-type: none"> Level of public awareness. Number of reports. Level of access to information. 	2010
		Primary Actors
		DoF DoF Sabah DoF Sarawak Universities

Action 8: Collect and collate baseline information on groupers, humphead wrasse, and other targeted reef fish and ornamentals.

Output	Indicators	Target Date
Comprehensive baseline information on groupers, humphead wrasse, and other targeted reef fish and ornamentals.	<ul style="list-style-type: none"> Number of reports and publications on groupers, humphead wrasse, other LRFT species as well as marine ornamentals. Currency of data. Number of categories captured in the baseline dataset. Number of reports and publications. 	2011
		Primary Actors
		DoF DoF Sabah DoF Sarawak NGOs Universities FRI

Action 9: Promote voluntary adoption by traders of a Code of Practice for sustainable LRFT.

Output	Indicators	Target Date
Voluntary Code of Practice implemented by traders.	<ul style="list-style-type: none"> Trade data. Number of traders adopting the Code of Practice. 	2011
		Primary Actors
		DoF Sabah DoF Sarawak NGOs

Action 10: Conduct an in-depth study on the value chain of LRFT for effective management.

Output	Indicators	Target Date
Comprehensive outline of trade practice and market linkages.	<ul style="list-style-type: none"> Number of reports on value chain of LRFT. 	2010
		Primary Actors
		DoF Sabah NGOs

Action 11: Survey, identify and map marine spawning aggregation areas.

Output	Indicators	Target Date
Marine spawning aggregation areas identified and mapped.	<ul style="list-style-type: none"> Number of reports of surveys. 	Ongoing
		Primary Actors
		DoF Sabah Sabah Parks FRI NGOs Universities

Action 12: Undertake consumer survey of seafood consumption.

Output	Indicators	Target Date
Better understanding of consumer preferences. Enhanced consumer awareness of the issues related to the consumption of LRF from wild populations.	<ul style="list-style-type: none"> Number of reports publicly available. 	2010
		Primary Actors
		DoF Sabah NGOs

Action 13: Promote sustainably - captured and cultured seafood to restaurant owners and wholesalers.

Output	Indicators	Target Date
Enhanced awareness amongst restaurant owners and wholesalers of the issues related to LRFT.	<ul style="list-style-type: none"> Number of restaurants using only sustainably – captured and cultured seafood products. Ratio of cultured and wild stocks in the market. 	2013
		Primary Actors
		DoF Sabah NGOs Universities

Action 14: Strengthen public awareness on the consequences of IUU fishing.

Output	Indicators	Target Date
Enhanced awareness of the consequences of destructive fishing practices and other IUU fishing issues.	<ul style="list-style-type: none"> Number of education/awareness programs. Number of arrests and successful prosecutions of violators. Extent of media coverage on IUU fishing issues. 	2009
		Primary Actors
		DoF MMEA NGOs

Monitoring, Control and Surveillance

Action 15: Impose and monitor export ban on humphead wrasse.

Output	Indicators	Target Date
Increased stability of wild stocks population of humphead wrasse.	<ul style="list-style-type: none"> Humphead wrasse population status. Number of arrests and successful prosecutions. 	2010
		Primary Actors
		DoF DoF Sabah DoF Sarawak MNRE

Action 16: Impose and monitor export quota on targeted reef fish and ornamentals other than humphead wrasse.

Output	Indicators	Target Date
Improved sustainability of targeted reef fish and ornamentals population.	<ul style="list-style-type: none"> Trade data. Number of arrests and successful prosecutions. Status of LRFT species populations. 	2012
		Primary Actors
		DoF DoF Sabah DoF Sarawak



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GOAL 3: MARINE PROTECTED AREAS (MPAs) ESTABLISHED AND EFFECTIVELY MANAGED

(including Community-based resource utilization and management)

TARGET 1: REGION-WIDE CORAL TRIANGLE MPA SYSTEM (CTMPAS) IN PLACE AND FULLY FUNCTIONAL

By 2020

A comprehensive, ecologically representative and well-managed region-wide *Coral Triangle MPA System* (CTMPAS) in place – composed of prioritized individual MPAs and networks of MPAs that are connected, resilient, and sustainably financed, and designed in ways that (i) generate significant income, livelihoods, and food security benefits for coastal communities; and (ii) conserve the region's rich biological diversity. In accordance with emerging scientific consensus, CTMPAS will include the following aspirational targets for the region as a whole:

- **Ultimate targets:** Significant percentage of total area of each major near-shore habitat type within the Coral Triangle region (e.g., coral reefs, seagrass beds, mangroves, beach forests, wetland areas and marine/offshore habitat) will be in some form of designated protected status, with 20% of each major marine and coastal habitat type in strictly protected “no-take replenishment zones” (to ensure long-term, sustainable supplies of fisheries).
- **Interim targets for 2020:** At least X* hectares of total marine areas across the region in some form of designated protected status, and at least Y* percent of each major marine and coastal habitat type across the region in strictly protected “no-take replenishment zones”

*Note: still to be determined

❖ Malaysian Implementation Actions

Planning and Management

Action 1: Strengthen MPA management human resource capacity through recruitment and training.

Action 2: Establish a representative system of MPAs.

Action 3: Design and implement a spatial zoning plan and gear-based management strategies within the Kudat-Banggi Priority Conservation Area (PCA).

Action 4: Establish and enforce additional marine sanctuaries (no-take zones).

Action 5: Plan and execute action plans for mangrove restoration along the Malaysian coast in the SSME.

Action 6: As a SSME initiative, develop joint pilot projects with Indonesia and the Philippines to establish experimental farms for the culture of high-value seaweed species, and share improved quality seed stocks for seaweed farms.

Action 7: Assess Management Effectiveness for Sabah MPAs.

Funding

Action 8: As a public/private partnership initiative, establish a 'Malaysian MPA Working Group' involving companies in relevant industries with a view to mobilizing new private-sector financial and in-kind support for MPAs and promoting best practices.

Policy and Administration

Action 9: Develop an Integrated MPA Management Strategy and framework for a MPA network.

Action 10: Gazette and establish Tun Mustapha Marine Park.

Action 11: Implement management and conservation strategy for SSME mangrove forest reserves, and apply this strategy with necessary adaptations throughout Malaysia.

Action 12: Review existing MPA plans and programs with regard particularly to goals, objectives, principles and operational design elements.

Information and Awareness

Action 13: Survey of coral reef areas, particularly in marine parks.

Action 14: Study and document the role of established no-take replenishment zones in Malaysia.

Action 15: Develop and utilize a Mangrove Information System (MIS) for the Malaysian coast in the SSME.

Action 16: Identify additional priority coral reef sites for reef restoration programs.

Action 17: Describe lessons - learned, best practices, failures and successes from existing MPA initiatives such as Turtle Island Park, especially with regard to (i) enforcement/trans-border patrol, (ii) sustainable financing options, and (iii) community-based resource management, and publish this information into the public domain.

Action 18: Implement a program on connectivity related research, such as larval dispersal, genetics, spawning aggregations, etc.

Action 19: Census and map MPAs in the SSME to include bio-physical and socio-economic data, along with spatial mapping of: areas with climate change resilience; fisheries-based food security data; and poverty data, overlaid with data on climate change vulnerability of marine ecosystems.

Action 20: Conduct research on reef resilience against global climate change.

Planning and Management

Action 1: Strengthen MPA management human resource capacity through recruitment and training.

Output	Indicators	Target Date
An increased complement of appropriately qualified Park managers and rangers.	<ul style="list-style-type: none"> Number of park managers and rangers academically qualified in MPA management. Number of MPA management personnel days spent on training courses. 	2012
		Primary Actors
		DMPM Sabah Parks

Action 2: Establish a representative system of MPAs.

Output	Indicators	Target Date
A system of MPAs is in place to protect a representative sample of coastal and marine habitats, e.g. seagrass beds, mud flats, algal beds, coral reefs, mangrove forests, rocky coast, etc.	<ul style="list-style-type: none"> The number of MPAs that predominantly protect habitats other than coral reef. The amount of funding allocated to management of the representative MPAs. 	2015
		Primary Actors
		DMPM NOD (MOSTI) Sabah Parks Universities MNRE NGOs

Action 3: Design and implement a spatial zoning plan and gear-based management strategies within the Kudat-Banggi Priority Conservation Area (PCA).

Output	Indicators	Target Date
A coastal - use spatial zoning plan established for the Kudat-Banggi Priority Conservation Area including: marine water quality standards/criterion; regulations to prevent the use of damaging fishing gear and a long-term management plan.	<ul style="list-style-type: none"> Inclusion of the zoning plan of the Kudat-Banggi Priority Conservation Area into the relevant district town & country planning physical plans. Gear-based management strategy developed and supported by regulations. Marine water quality. Income of traditional and indigenous communities Level of extraction of natural resources Overfishing and by - catch data. 	2013
		Primary Actors
		DoF - Sabah Sabah Parks NGOs Universities

Action 4: Establish and enforce additional marine sanctuaries (no-take zones).

Output	Indicators	Target Date
A strengthened network of scientifically based marine sanctuaries (no-take zones) is established, enforced, and monitored regularly, to provide refuge for fish stock replenishment.	<ul style="list-style-type: none"> Number of marine sanctuaries. Density of fish aggregations in "boundary" areas (i.e. less than 1 km from nearest marine sanctuary boundary). Landing tonnage by local fishers from areas near the reserves / sanctuaries. 	2012
		Primary Actors
		DoF - Sabah Sabah Parks

Action 5: Plan and execute action plans for mangrove restoration along the Malaysian coast in the SSME.

Output	Indicators	Target Date
Scientifically-based, practical mangrove restoration plans are developed and effectively implemented along the Malaysian coast in the SSME area.	<ul style="list-style-type: none"> Number of mangrove restoration plans promulgated Amount of funding allocated for relevant mangrove restoration programs Area and density of coverage for mangrove forest on the SSME Malaysian coast 	2015
		Primary Actors
		Sabah Forestry Department

Action 6: As a SSME initiative, develop joint pilot projects with Indonesia and the Philippines to establish experimental farms for the culture of high-value seaweed species, and share improved quality seed stocks for seaweed farms.

Output	Indicators	Target Date
A number of experimental pilot seaweed farms have been established jointly with SSME neighbours, and are successfully producing high-value seaweed and sharing improved quality seed stocks.	<ul style="list-style-type: none"> Number of jointly established experimental seaweed farms in the SSME. Sharing of improved quality seed stocks. Tonnage of high-value seaweed produced by joint, experimental farms. 	2011
		Primary Actors
		DoF Sabah MOSTI (NOD, ABI, TPM, SIRIM) LKIM Universities Relevant SSME Sub – Committees

Action 7: Assess Management Effectiveness for Sabah MPAs.

Output	Indicators	Target Date
A sound appreciation of the strengths and weakness of management arrangements for Sabah MPAs.	<ul style="list-style-type: none"> Number of gazetted Sabah MPAs that have been reviewed for management effectiveness. The breadth of management aspects that have been reviewed. 	2010
		Primary Actors
		Sabah Parks

Funding

Action 8: As a public/private partnership initiative, establish a 'Malaysian MPA Working Group' involving companies in relevant industries with a view to mobilizing new private-sector financial and in-kind support for MPAs and promoting best practices.

Output	Indicators	Target Date
A wide array of relevant private-sector industries actively participating in a 'Malaysian MPA Working Group' resulting in new sources of funding and support for MPAs.	<ul style="list-style-type: none"> Number of private-sector companies participating in a MPA working group Amount of MPA funding and in-kind support from the private-sector Frequency and attendance levels for meetings of a 'Malaysian MPA Working Group' 	2010
		Primary Actors
		DMPM Sabah Parks Private Sectors

Policy and Administration

Action 9: Develop an Integrated MPA Management Strategy and framework for a MPA network.

Output	Indicators	Target Date	
<p>An Integrated MPA Management Strategy is in place that takes a holistic perspective in implementing a risk-based approach to management of MPAs.</p> <p>Partnerships are formed with the organisations directly responsible for various aspects of land-use management, and a planning and stakeholder consultation process is incorporated.</p> <p>The policy, institutional and legislative foundation for integrated management of MPAs as a coherent network reflects best practice.</p>	<ul style="list-style-type: none"> An Integrated MPA Management Strategy is promulgated and publicly available. Posting of the Strategy on the internet. Multidisciplinary committees or other bodies established to guide implementation of the Strategy. Funding allocated for implementation of the Strategy. 	2015	
			Primary Actors
			DMPM Sabah Parks

Action 10: Gazette and establish Tun Mustapha Marine Park (TMMP).

Output	Indicators	Target Date	
Gazettement of TMMP in domestic law with appropriate institutional arrangements in place.	<ul style="list-style-type: none"> A Sabah State enactment passing the existence of TMMP into law. Amount of funding allocated to management of TMMP. Number of personnel assigned to manage TMMP. 	2015	
			Primary Actors
			Sabah State Government State Attorney-General's Chambers Sabah Parks

Action 11: Implement management and conservation strategy for SSME mangrove forest reserves, and apply this strategy with necessary adaptations throughout Malaysia.

Output	Indicators	Target Date	
<p>A more robust and healthy mangrove coverage.</p> <p>Strategies developed for SSME and other mangrove reserves.</p>	<ul style="list-style-type: none"> Number and area of mangrove forest gazetted as permanent forest reserves. Percentage/area increase (ha) of mangrove coverage (including replanted mangrove). Ecosystem productivity. Number of eco-tourism visitors. Mangrove biodiversity. Water quality. Change in coastal erosion risk (km of area at risk of erosion). Number of other mangrove forest reserves outside of SSME with a strategy. 	2012	
			Primary Actors
			Sabah Forestry Department Forestry Department DID FRIM

Action 12: Review existing MPA plans and programs with regard particularly to goals, objectives, principles and operational design elements.

Output	Indicators	Target Date
MPA plans and programs reflect harmonized goals, objectives, principles and operational design elements that are consistent with best practice.	<ul style="list-style-type: none"> Commonality of terms and definitions between relevant MPA plans and programs 	2010
		Primary Actors
		DMPM Sabah Parks

Information and Awareness

Action 13: Survey of coral reef areas, particularly in marine parks.

Output	Indicators	Target Date
A baseline inventory of resources, which would include, inter alia, description of: <ul style="list-style-type: none"> bathymetry, tides and currents water quality new coral reef species seabed topography key threats areas vulnerable to the key threats 	<ul style="list-style-type: none"> Area of coral reef that has been surveyed. Number of coral reef charts available. Number of survey expeditions. Availability of survey reports and charts on line. 	2015
		Primary Actors
		NOD (MOSTI) Sabah Parks NHC (RMN) DMPM Universities ARSM

Action 14: Study and document the role of established no-take replenishment zones in Malaysia.

Output	Indicators	Target Date
Improved understanding of the role of no-take replenishment zones, including as a fish refuge for stock maintenance or enhancement, a dive destination for tourism, and a site for research e.g. the Sugud Islands Marine Conservation Area (SIMCA).	<ul style="list-style-type: none"> Published reports and scientific papers on the role of no-take replenishment zones. Number of research expeditions undertaken in no-take replenishment zones. 	2012
		Primary Actors
		DoF Sabah Sabah Parks Universities NGOs

Action 15: Develop and utilize a Mangrove Information System (MIS) for the Malaysian coast in the SSME.

Output	Indicators	Target Date
A publicly accessible, web-enabled database providing mangrove data, educational material, maps showing mangrove coverage, etc. Scientific baseline information freely available for managers and researchers.	<ul style="list-style-type: none"> Number of website hits. Area (ha) of mapped mangrove. Application of information system to mangrove areas outside of the SSME 	2012
		Primary Actors
		Sabah Forestry Department MOSTI (ARSM, NOD)

Action 16: Identify additional priority coral reef sites for restoration.

Output	Indicators	Target Date
An increased number of coral reef sites are identified for rejuvenation and ecosystem restoration.	<ul style="list-style-type: none"> Number of coral reef restoration projects. Amount of funding allocated to coral reef restoration. 	2010
		Primary Actors
		DoF DoF Sabah Sabah Parks

Action 17: Describe lessons - learned, best practices, failures and successes from existing MPA initiatives such as Turtle Island Park, especially with regard to (i) enforcement/trans-border patrol, (ii) sustainable financing options, and (iii) community-based resource management, and publish this information into the public domain.

Output	Indicators	Target Date
A publicly available (freely downloadable from the internet) report on the achievements and challenges of managing Malaysian marine parks.	<ul style="list-style-type: none"> The availability of a relevant report in the public domain The frequency of updates for the report The number of case studies cited in the report 	2011
		Primary Actors
		DMPM Sabah Parks

Action 18: Implement a program on connectivity related research, such as larval dispersal, genetics, spawning aggregations, etc.

Output	Indicators	Target Date
An active program of research that maps the connectivity between different ecosystem elements, and between ecosystems.	<ul style="list-style-type: none"> Number of scientific papers published on Malaysian marine ecosystems connectivity. Number of projects researching marine ecosystem connectivity. Amount of funding allocated to research on marine ecosystem connectivity. 	2011
		Primary Actors
		DoF FRI Universities

Action 19: Census and map MPAs in the SSME to include bio-physical and socio-economic data, along with spatial mapping of: areas with climate change resilience; fisheries-based food security data; and poverty data, overlaid with data on climate change vulnerability of marine ecosystems.

Output	Indicators	Target Date
GIS maps that have up-to-date and accurate overlays on each relevant aspect of SSME MPA.	<ul style="list-style-type: none"> Availability of accurate, comprehensive GIS maps on the internet. Number of research programs that focus on collecting relevant data to complete GIS maps. Funding allocated to the collection of data in SSME MPAs. 	2011
		Primary Actors
		Sabah Parks MOSTI (ARSM, NOD) JUPEM Universities

Action 20: Conduct research on reef resilience against global climate change.

Output	Indicators	Target Date
A sound understanding and appreciation of the resilience of Malaysian coral reefs to likely climate change pressures.	<ul style="list-style-type: none"> Number of scientific papers on Malaysian coral reef resilience to climate change published in refereed journals. Number of research programs undertaken on coral reefs. Amount of funding allocated to research on the climate change impacts on coral reefs. 	2012
		Primary Actors DMPM Sabah Parks NOD (MOSTI) Universities DoF FRI

GOAL 4: CLIMATE CHANGE ADAPTATION MEASURES ACHIEVED

TARGET 1: REGION-WIDE EARLY ACTION PLAN FOR CLIMATE CHANGE ADAPTATION FOR THE NEAR-SHORE MARINE AND COASTAL ENVIRONMENT AND SMALL ISLAND ECOSYSTEMS DEVELOPED AND IMPLEMENTED.

By **2012**
(plan)

By **2012**
(full implementation)

A region-wide *Early Action Plan for Climate Change Adaptation* for the near-shore marine and coastal environment (including small island ecosystems) is completed, followed by full implementation in each CTI country – addressing economic and livelihood needs of coastal communities heavily dependent on marine and coastal resources, and biodiversity conservation objectives.



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❖ **Malaysian Implementation Actions**

Planning and Management

- Action 1:** Form an inter-agency committee for planning and management of the environmental data collection and archiving system.
- Action 2:** Increase the number of data collection stations in Malaysian waters, and expand the type and amount of data collected.
- Action 3:** Operate a dedicated oceanographic research vessel.
- Action 4:** Complete the National Coastal Zone Physical Plan for Peninsular Malaysia.
- Action 5:** Complete a National Coastal Zone Physical Plan for East Malaysia.
- Action 6:** Complete Integrated Shoreline Management Plans (ISMP) for the Malaysian coastline.
- Action 7:** Complete National Coastal Vulnerability Index for Coastal strategic Assets and major Urban Centers in Peninsular Malaysia.
- Action 8:** Complete National Coastal Vulnerability Index for Coastal strategic Assets and major Urban Centers in East Malaysia.
- Action 9:** Complete the Malaysian Climate Change Coastal Adaptation Plan, with a focus on sustainable management of fisheries and livelihood diversification.
- Action 10:** Protect multiple representatives of resilient habitats covering a range of physiographic conditions within the Malaysian CTI area, with priority given to areas that have physiographic characteristics that make them inherently resilient to climate change. Drawing on lessons learned, apply to the remainder of Malaysian waters.
- Action 11:** Identify and reduce non-climate stresses on Malaysian marine, coastal and small-island ecosystems that directly decrease the capacity of these ecosystems to endure climate change.

Action 12: To the fullest extent possible consistent with Malaysian climate change adaptation planning and national capacity, implement the CTI 'Region – wide Early Action Plan for Climate Change Adaptation'.

Action 13: Conduct a national climate change capacity needs assessment, and develop a capacity building program to support climate change adaptation measures.

Policy and Administration

Action 14: Revise and update Environmental Quality Act 1974, to incorporate modern environmental management best practice.

Information and Awareness

Action 15: Strengthen coordination amongst the Sabah Environment Education Network (SEEN) (comprising policy- makers, practitioners, planners, and trainers from government agencies, NGOs, and private sector) to undertake Environmental Education efforts in Sabah.

Action 16: Conduct oceanographic surveys in the SSME.



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Planning and Management

Action 1: Establish an inter-agency committee for planning and management of the environmental data collection and archiving system.

Output	Indicators	Target Date
Enhanced coordination of marine environmental data collection and archiving system.	<ul style="list-style-type: none"> Number of stations in operation. Level and type of data sets. 	2010
		Primary Actors
		NHC (RMN) NOD (MOSTI) NAHRIM JUPEM ARSM DID MMD RMN MNRE

Action 2: Increase the number of data collection stations in Malaysian waters, and expand the type and amount of data collected.

Output	Indicators	Target Date
An extensive network of data collection stations collecting, processing, analysing and distributing data.	<ul style="list-style-type: none"> Number of stations in operation. Number of trained officers, technicians and trained volunteers. Level of data distribution (how many recipient agencies). 	2015
		Primary Actors
		JUPEM DID MMD RMN MNRE Marine Department NOD (MOSTI)

Action 3: Operate a dedicated oceanographic research vessel.

Output	Indicators	Target Date
Enhanced oceanographic data of the Malaysian CTI area	<ul style="list-style-type: none"> Commissioning of a dedicated oceanographic ship. Number of oceanographic research days. Number of trained oceanographers. Amount of oceanographic data. 	2015
Established data and information on resources available within the Malaysian EEZ and Continental Shelf		Primary Actors
		MOSTI NOD (MOSTI) NHC (RMN)/RMN DoF Ministry of Finance

Action 4: Complete the National Coastal Zone Physical Plan for Peninsular Malaysia

Output	Indicators	Target Date
An up-to-date source of information on natural and economic assets, vulnerability and demographic status in coastal areas of Peninsular Malaysia.	<ul style="list-style-type: none"> National Coastal Physical Plan promulgated for public access. Extent to which policy and zonation have been finalised for coastal areas. 	2010
The formulation of policy and zoning for the protection and utilisation of coastal areas.		Primary Actors
		DTCP State Government Agencies
Implementation strategy of National Coastal Zone Physical Plan.		

Action 5: Complete a National Coastal Zone Physical Plan for East Malaysia.

Output	Indicators	Target Date
An up-to-date source of information on natural and economic assets, vulnerability and demographic status in coastal areas of East Malaysia.	<ul style="list-style-type: none"> National Coastal Physical Plan promulgated for public access. Extent to which policy and zonation have been finalised for coastal areas. 	2015
The formulation of policy and zoning for the protection and utilisation of coastal areas.		Primary Actors
		DTCP DTRP Sabah State Government Sarawak State Government
Implementation strategy of National Coastal Zone Physical Plan.		

Action 6: Complete Integrated Shoreline Management Plans (ISMP) for the Malaysian coastline.

Output	Indicators	Target Date
Comprehensive and well supported coastal planning framework.	<ul style="list-style-type: none"> Length (km) of Shoreline covered. Availability of ISMP reports on the internet. 	2015
		Primary Actors
		DID NAHRIM Private sector Sabah State Government Sarawak State Government

Action 7: Complete National Coastal Vulnerability Index for Coastal strategic Assets and major Urban Centers in Peninsular Malaysia.

Output	Indicators	Target Date
Documented description of coastal vulnerability to climate change in Peninsular Malaysia, including:	<ul style="list-style-type: none"> Evenly distributed number of sites where research is carried out. 	2011
<ul style="list-style-type: none"> Guidelines for future planning. Standard criteria for coastal vulnerability assessment. 		Primary Actors
		DID MMD Private sector Universities

Action 8: Complete National Coastal Vulnerability Index for Coastal Strategic Assets and major Urban Centers in East Malaysia.

Output	Indicators	Target Date
Documented description of coastal vulnerability to climate change in East Malaysia, including:	<ul style="list-style-type: none"> Evenly distributed number of sites where research is carried out. 	2012
<ul style="list-style-type: none"> Guidelines for future planning. Standard criteria for coastal vulnerability assessment. 		Primary Actors
		DID MMD Private sector Universities

Action 9: Complete the Malaysian Climate Change Coastal Adaptation Plan, with a focus on sustainable management of fisheries and livelihood diversification.

Output	Indicators	Target Date
Description of geographic locations where climate change adaptation is required.	<ul style="list-style-type: none"> Climate change Coastal Adaptation Plan promulgated and freely available. Number of Programs implementing adaptation measures. 	2013
		Primary Actors
		DID MNRE NOD (MOSTI) MMD DoF DMPM Sabah Parks Universities,

Action 10: Protect multiple representatives of resilient habitats covering a range of physiographic conditions within the Malaysian CTI area, with priority given to areas that have physiographic characteristics that make them inherently resilient to climate change. Drawing on lessons learned, apply to the remainder of Malaysian waters.

Output	Indicators	Target Date
Multiple, representative sites for climate change resilient marine and coastal habitats are protected as refuges to reseed affected areas.	<ul style="list-style-type: none"> Number of protected sites. Range of different habitat sites protected. Total area of coverage (ha) of protected habitats. 	2011 (CTI areas)
		2013 (remainder of Malaysia)
		Primary Actors
		For CTI region in Sabah: Sabah Parks DoF Sabah DMPM NOD (MOSTI) Sabah Forestry Department For remainder of Malaysian waters: DMPM State Governments DoF FRIM DID

Action 11: Identify and reduce non-climate stresses on Malaysian marine, coastal and small-island ecosystems that directly decrease the capacity of these ecosystems to endure climate change.

Output	Indicators	Target Date
The resilience of small-island ecosystems to climate change impact is improved through a reduction in non-climate stresses such as: over-fishing, destructive fishing; pollution; invasive marine species; marine debris; land-based nutrient loads and suspended solids; tourism impact; and others.	<ul style="list-style-type: none"> Number of tourism visitors to selected small islands. Fish landing tonnage caught in small island waters. Amount of marine debris and litter collected from small island beaches and near-shore waters. Arrests and successful prosecutions for destructive fishing near small islands. Number of tertiary sewage treatment plants on small islands. 	2015
		Primary Actors
		NOD (MOSTI) DoF DoF Sabah DoF Sarawak Sabah Parks DMPM MMEA District Offices

Action 12: To the fullest extent possible consistent with Malaysian climate change adaptation planning and national capacity, implement the CTI 'Region - wide Early Action Plan for Climate Change Adaptation'.

Output	Indicators	Target Date
Malaysia implements the region-wide 'Early Action Plan for Climate Change Adaptation' for near-shore and marine and coastal environments to the fullest practical extent.	<ul style="list-style-type: none"> Amount of funding allocated for implementation of the Plan. Number and scope of activities undertaken domestically in accordance with the Plan. Number of joint activities undertaken within the region in implementation of the Plan. 	2015
		Primary Actors
		NOD (MOSTI) DoF DoF Sabah DoF Sarawak DMPM Sabah Parks MNRE MOF EPU

Action 13: Conduct a national climate change capacity needs assessment, and develop a capacity building program to support climate change adaptation measures.

Output	Indicators	Target Date
A climate change capacity needs assessment has indicated where additional capacity to support climate change adaptation would be beneficial, and a capacity building program is in place to strengthen those areas.	<ul style="list-style-type: none"> Number of capacity building initiatives taken Number of people responsible for marine and coastal management who have received relevant training Amount of funding allocated to climate change adaptation capacity building 	2011
		Primary Actors
		DoF DoF Sabah DoF Sarawak DMPM Sabah Parks Ministry of Higher Education NOD (MOSTI) Universities

Policy and Administration

Action 14: Revise and update Environmental Quality Act 1974, to incorporate modern environmental management best practice.

Output	Indicators	Target Date
A Revised and updated Environmental Quality Act, which incorporates modern environmental management best practice	<ul style="list-style-type: none"> Enactment of an updated Environmental Quality Act. Provisions in the new legislation that embody EBM. 	2012
		Primary Actors
		MNRE Attorney General's Chambers

Information and Awareness

Action 15: Strengthen coordination amongst the Sabah Environment Education Network (SEEN) (comprising policy-makers, practitioners, planners, and trainers from government agencies, NGOs, and private sector) to undertake Environmental Education efforts in Sabah.

Output	Indicators	Target Date
Environmental education efforts in Sabah enhanced through strengthened coordination amongst SEEN members.	<ul style="list-style-type: none"> Number of environmental education events run by SEEN. Number and variety of coordination activities conducted amongst SEEN members. Number of SEEN members participating in coordination activities. 	Ongoing
		Primary Actors
		SEEN

Action 16: Conduct oceanographic surveys in the SSME.

Output	Indicators	Target Date
Comprehensive oceanographic research reports and associated scientific papers are publicly available	<ul style="list-style-type: none"> Number of oceanographic research expeditions conducted in the SSME area. Number of scientific papers on aspects of oceanography in the SSME published in refereed journals. 	2011
		Primary Actors
		NOD (MOSTI) Universities NHC (RMN) MMD Marine Department DoF JUPEM ARSM NAHRIM

TARGET 2: NETWORKED NATIONAL CENTERS OF EXCELLENCE ON CLIMATE CHANGE ADAPTATION FOR MARINE AND COASTAL ENVIRONMENTS ARE ESTABLISHED AND IN FULL OPERATION.

By **2012**

A regional network of *National Centers of Excellence on Climate Change Adaptation for Marine and Coastal Environments* is established, with national centers operational in each CT country, designed to (i) improve understanding of future climate change impacts and related issues; and (ii) support comprehensive application of effective adaptation measures to mitigate these impacts, with a focus on biodiversity conservation and economic and livelihood needs of communities heavily dependent on marine and coastal resources. the sequencing of investments across the 10-year timeframe of the CTI Plan of Action.

❖ **Malaysian Implementation Actions**

Planning and Management

Action 1: Establish a 'National Center of Excellence on Climate Change Adaptation for Marine and Coastal Environments' (NCECCAM).

Action 2: As a pilot phase activity for the NCECCAM, estimate the economic cost of climate change impacts on Malaysian marine and coastal environments in the absence of adaptation measures, and analyse the costs and benefits of various adaptation options.



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Action 1: Establish a 'National Center of Excellence on Climate Change Adaptation for Marine and Coastal Environments' (NCECCAM).

Output	Indicators	Target Date
A Malaysian NCECCAM is established and engaged in activities designed, inter alia, to (i) improve understanding of future climate change impacts and related issues; and (2) support comprehensive application of effective adaptation measures to mitigate these impacts, with a focus on biodiversity conservation and economic and livelihood needs of communities heavily dependent on marine and coastal resources.	<ul style="list-style-type: none"> Number of projects, programs and other activities undertaken by the NCECCAM. The nature of NCECCAM activities. Amount of funding allocated in support of the NCECCAM. Number of people assigned to the NCECCAM. 	2010
		Primary Actors

Action 2: As a pilot phase activity for the NCECCAM, estimate the economic cost of climate change impacts on Malaysian marine and coastal environments in the absence of adaptation measures, and analyse the costs and benefits of various adaptation options.

Output	Indicators	Target Date
Sufficient data to enable Malaysian decision-makers to choose wisely between various options in response to climate change impacts on marine and coastal environments.	<ul style="list-style-type: none"> A report on economic modelling for climate change impacts and various adaptation options. A report on the non-economic consequences and benefits of various adaptation options, including the option of taking no adaptation measures. 	2013
		Primary Actors



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GOAL 5: THREATENED SPECIES STATUS IMPROVING.

TARGET 1: IMPROVED STATUS OF SHARKS, SEA TURTLES, SEABIRDS, MARINE MAMMALS, CORALS, SEAGRASS, MANGROVES AND OTHER IDENTIFIED THREATENED SPECIES.

By **2015**
(population declines halted)

By **2020**
(toward improved status)

Populations of sharks, turtles, marine mammals, corals, seagrass, mangroves and other threatened marine species on the IUCN Red List of Threatened Species (or listed under CITES) will no longer be declining (2015), followed by a clear trend towards and improved status (2020), as key steps for preventing their extinction and supporting healthier marine ecosystems.

❖ Malaysian Implementation Actions

Planning and Management

- Action 1:** Complete and implement the Conservation and Management plan for Marine Mammals.
- Action 2:** Implement the NPOA for Conservation and Management of Sharks.
- Action 3:** Implement the NPOA for Conservation and Management of Sea Turtles.
- Action 4:** Complete and implement a NPOA for Sea Birds.
- Action 5:** Complete and implement a NPOA for Seagrasses.
- Action 6:** Complete and implement a NPOA on invasive species.
- Action 7:** Establish a Network of Experts for Invasive Marine Species.
- Action 8:** Implement ballast water management procedures to reduce the risk of introduction of invasive marine species.
- Action 9:** Implement State and National Plan of Actions for Mangrove Conservation and Management.
- Action 10:** Complete and implement the NPOA on IUU Fishing.
- Action 11:** Review and strengthen where appropriate existing legislation on endangered species management, including but not limited to harvest and trade.
- Action 12:** Design and implement management measures and protocols, including enforcement and economic incentives for the protection and management of endangered species and their habitats.
- Action 13:** Designate conservation areas, sanctuaries or seasonal exclusion zones critical to endangered species.
- Action 14:** Establish and enhance VMS, inspections at sea, in port, and at landing sites, and the national on-board observer program for fisheries and by-catch monitoring.
- Action 15:** Introduce net retention and recycling schemes to minimize the disposal of fishing gear at sea and on beaches.

Policy and Administration

Action 16: Assess, develop and implement policy to address by - catch of threatened and endangered species in capture fisheries.

Information and Awareness

Action 17: Collate, organise and disseminate existing data on endangered species populations, habitat utilization and threats.

Action 18: Strengthen research on genetics and identify areas of critical habitat for threatened and endangered species.

Action 19: Identify cultural and economic uses of endangered species (both consumptive and non-consumptive), and assess the level and impact of traditional harvest, with particular attention to shark fins and turtle eggs.

Action 20: Research ballast water treatment technology and practices to combat the introduction of invasive marine species.

Funding

Action 21: Ensure sustainable funding mechanisms are in place to promote conservation of threatened and endangered species.

Planning and Management

Action 1: Complete and implement the Conservation and Management plan for Marine Mammals.

Output	Indicators	Target Date
Comprehensive marine mammal conservation and protection framework. Increased knowledge on marine mammal populations and issues, with data applied to their management and conservation.	<ul style="list-style-type: none"> Conservation and Management Plan for Marine Mammals developed. Conservation and research programs on marine mammals established and conducted. Identification of critical habitats of marine mammals in Malaysia. Number of fishery/marine mammal interactions (sightings and by-catch). Marine mammal population density. Diversity, distribution and seasonality of marine 	2012
		Primary Actors
		MIMA DoF NGOs Universities

Action 2: Implement the NPOA for Conservation and Management of Sharks.

Output	Indicators	Target Date
Augmented shark and ray populations.	<ul style="list-style-type: none"> By-catch levels in capture fisheries. Key predator species population status. Ecosystem populations balance. Data on life history and other aspects of natural history. 	Ongoing
		Primary Actors
		DoF Sabah Parks FRI NGOs Universities

Action 3: Implement the NPOA for Conservation and Management of Sea Turtles.

Output	Indicators	Target Date
Healthy and robust sea turtle populations. Comprehensive understanding of threats and mitigation options to reduce sea turtle hatchling mortality.	<ul style="list-style-type: none"> Turtle and fisheries interaction rates. Turtle by-catch. Number of vessels using TED. Number of turtle nesting sites. Number of NPOA objectives met. Sea turtle sightings at sea and at nesting sites. Nesting at sights previously abandoned. Number of hatchlings entering maritime estate. Level of turtle egg production. Number of turtle eggs traded. 	Ongoing
		Primary Actors
		DoF Sabah Parks FRI NGOs Universities

Action 4: Complete and implement a NPOA for Seabirds.

Output	Indicators	Target Date
Augmented seabird populations.	<ul style="list-style-type: none"> By-catch levels in capture fisheries. Ecosystem populations balance. Severity of marine debris on seabirds (i.e. death via ingestion). 	2012
		Primary Actors
		DoF MNRE DMPM NGOs Universities

Action 5: Complete and implement a NPOA for Seagrasses.

Output	Indicators	Target Date
Healthy seagrass pastures fulfilling ecological roles. Seagrass meadows identified and mapped.	<ul style="list-style-type: none"> Seagrass coverage area. Protective status accorded to 20% of seagrass areas (e.g. through MPAs). Ecosystem balance. Status related populations not declining. Map of seagrass meadows. Economic value of significant seagrass meadows. 	2012
		Primary Actors
		DoF MNRE DMPM NGOs Universities

Action 6: Complete and implement a NPOA on invasive species.

Output	Indicators	Target Date
Comprehensive marine conservation and protection framework which addresses introduction, eradication and control of invasive species	<ul style="list-style-type: none"> Incidence of recruitment of marine invasive species. Invasive species eradication programmes in place. Control measures in place to prevent introduction of invasive species. 	2011
		Primary Actors
		DoF DMPM MNRE MOSTI NOD (MOSTI) MIMA Universities

Action 7: Establish a Network of Experts for Invasive Marine Species.

Output	Indicators	Target Date
A network of experts established on Invasive Marine Species.	<ul style="list-style-type: none"> Number of activities developed to address marine invasive species issues. Range of skills, agencies and organisations represented on the Network of Experts. 	2011
		Primary Actors
		DoF DoF Sabah NOD (MOSTI) MOSTI NGOs Universities

Action 8: Implement ballast water management procedures to reduce the risk of introduction of invasive marine species.

Output	Indicators	Target Date
The risk of invasive marine species entering Malaysian waters is reduced through the implementation of ballast water management procedures.	<ul style="list-style-type: none"> Level of vessel compliance with ballast water management procedures. Ballast water management procedures promulgated and publicly available. Number and extent of recorded outbreaks of invasive marine species in Malaysian waters. 	2015
		Primary Actors
		Marine Department Ports Authorities and Operators MMEA MOT MIMA

Action 9: Implement State and National Plan of Actions for Mangrove Conservation and Management.

Output	Indicators	Target Date
Healthy mangrove forests fulfilling ecological roles. Greater awareness on the importance of mangrove ecosystems.	<ul style="list-style-type: none"> Coverage area ecosystem balance. Status of related populations. Economic value of significant mangrove forests. Designation of RAMSAR sites and compliance thereafter. 	2012
		Primary Actors
		DoF MNRE DMPM NGOs Sabah Forestry Department FRI Universities

Action 10: Complete and implement the NPOA on IUU fishing.

Output	Indicators	Target Date
Broad understanding of IUU fishing activities and primary drivers (mapped locations of hotspots). Safer cross-border maritime areas. Strengthened initiatives to combat IUU in line with the RPOA - IUU. Strengthened joint sea and air	<ul style="list-style-type: none"> Number and frequency of IUU fishing incidences. Number of educational programs. Populations of threatened species Number of cross - border infringements. MCS coverage (area and number days/year). Number of vessels implementing responsible fishing practices. Level of understanding amongst coastal communities of adverse effects from IUU fishing. Number of inter-agency operations. 	2010
		Primary Actors
		MMEA DoF Sabah RMN RMP

Action 11: Review and strengthen where appropriate existing legislation on endangered species management, including but not limited to harvest and trade.

Output	Indicators	Target Date
Uniform legislative framework (Federal/State) providing comprehensive endangered species conservation mechanisms.	<ul style="list-style-type: none"> Identification of threatened species, and level of national protection accorded. Identification of threats to endangered species. Provisions included in current and/or future policies and legislation that provide for conservation measures (e.g. habitat protection, recovery plans, etc.) 	2012
		Primary Actors
		DoF Sabah DoF MNRE Attorney General's Chambers MIMA

Action 12: Design and implement management measures and protocols, including enforcement and economic incentives for the protection and management of endangered species and their habitats.

Output	Indicators	Target Date
Effective endangered species and habitat management program that involves fishing industry and stakeholders.	<ul style="list-style-type: none"> Number of endangered species reported as caught in fishing activities. Number of sea turtle nesting reserves. Number of fisheries employing TED. Number and frequency of endangered species conservation awareness programs. 	2011
		Primary Actors
		DoF Sabah

Action 13: Designate conservation areas, sanctuaries or seasonal exclusion zones critical to endangered species.

Output	Indicators	Target Date
Conservation areas, sanctuaries and seasonal exclusion zones enhanced and endangered species populations augmented.	<ul style="list-style-type: none"> Number of eco-tourism visitors. Protected areas (ha). Number of nesting, breeding, and feeding sites protected. Status of endangered species populations. 	2012
		Primary Actors
		DoF Sabah Sabah Parks

Action 14: Establish and enhance VMS; inspections at sea, in port, and at landing sites; and the national on-board observer program for fisheries and by-catch monitoring.

Output	Indicators	Target Date
Augmented VMS coverage and data levels. On-board observer program in place as standard practice, inclusive of by - catch monitoring.	<ul style="list-style-type: none"> Number of vessels with fully operational VMS (days/year/vessels correlated with days at sea). Number of detentions and successful prosecutions for fisheries violations. Number of trained fisheries observers. Number of 'at-sea' days for fisheries observers. 	2010
		Primary Actors

Action 15: Introduce net retention and recycling schemes to minimize the disposal of fishing gear at sea and on beaches.

Output	Indicators	Target Date
Reduced discard of fishing gear at sea leading to a more robust marine habitat. Better education and awareness among fishermen.	<ul style="list-style-type: none"> Scale of abandoned fishing gear in marine environment. Number of recycling centers. Value (in Ringgit Malaysia) of recycling operations. 	2010
		Primary Actors

Policy and Administration

Action 16: Assess, develop and implement policy to address by - catch of threatened and endangered species in capture fisheries.

Output	Indicators	Target Date
Policy framework promoting threatened and endangered species conservation measures and strategies. Intensive campaigns to increase knowledge and awareness among fishers on trawl vessels of the marine turtle issue and use of TEDs. Active threatened and endangered species conservation measures adopted by the marine capture fisheries sector (longline, trawl nets, gill nets, lift nets). Improved understanding of the scale, locations, and seasons for threatened and endangered species and fishery interactions. Reduction in threatened and endangered species by-catch.	<ul style="list-style-type: none"> Establishment and implementation of observer programmes and landing site inspections. Level of endangered species by-catch. Number of vessels using TED. Number of certified endangered species-friendly fisheries. Number of turtle nesting sites. Number of fishermen trained in by-catch reporting and release. Endangered species population status 	2010
		Primary Actors

Information and Awareness

Action 17: Collate, organise and disseminate existing data on endangered species populations, habitat utilization and threats.

Output	Indicators	Target Date
Open-access web-enabled database providing information on endangered species populations, habitat coverage, and threats. High level of community awareness for sustainable fishery practices (EAF and EBM)	<ul style="list-style-type: none"> Number of website visits and downloads. Number of institutions providing data. Number of associated research projects. Increased awareness at all levels of society (i.e. local community, agencies, organizations, institutions). 	2010
		Primary Actors

Action 18: Strengthen research on genetics and identify areas of critical habitat for threatened and endangered species.

Output	Indicators	Target Date
Improved understanding of endangered species population, life-histories, genetic variation and interactions with the bio-physical marine environment, including identification of migratory corridors, breeding grounds, nesting beaches, inter-nesting and feeding areas for endangered species.	<ul style="list-style-type: none"> Number and area (ha) of protected nesting sites. Number and area (ha) of other sea turtle habitat in reserves. Temporal and spatial fishery restrictions. Areas key to endangered species identified and protected. Number of scientific papers published in referenced journals. Amount of funding for relevant scientific research. 	2012
		Primary Actors

Action 19: Identify cultural and economic uses of endangered species (both consumptive and non-consumptive), and assess the level and impact of traditional harvest, with particular attention to shark fins and turtle eggs.

Output	Indicators	Target Date
Understanding of cultural factors associated with (and economic value of) turtle egg and shark fin consumption. Quantification of the effect of egg consumption on turtle populations and shark finning to shark populations.	<ul style="list-style-type: none"> Level of cultural acceptance (perception) for sea turtle and shark conservation. Number and area of sea turtle protected sites (ha). Number of sea turtle eggs traded in markets. Population status of shark identified by species. 	2012
		Primary Actors

Action 20: Research ballast water treatment technology and practices to combat the introduction of invasive marine species.

Output	Indicators	Target Date
Enhanced technical understanding of requirements necessary to combat the introduction of marine invasive species.	<ul style="list-style-type: none"> Number of research papers and relevant reports publicly available. Level of research funding (in Ringgit Malaysia) 	2013
		Primary Actors
		MOSTI NOD (MOSTI) MNRE Marine Department Universities

Funding

Action 21: Ensure sustainable funding mechanisms are in place to promote conservation of threatened and endangered species.

Output	Indicators	Target Date
Successful conservation and endangered species financing program is in place. Productive bio-physical marine environment. Duplication of SSME program in other locations	<ul style="list-style-type: none"> Number of regional conservation objectives achieved. Status of marine biodiversity. Socio-economic status of coastal communities (poverty rates). 	2010
		Primary Actors
		MOSTI DoF Sabah MNRE Universities NGOs

Section 4:
Coordination
Mechanisms and
Implementation Partners



Section 4: Coordination Mechanisms and Implementation Partners

❖ Historical Management Challenges

Malaysia recognises that ecologically sustainable management of coastal and marine resources is beyond the capacity of any single agency or tier of government and requires cooperative mechanisms between all three spheres of government, industry and community. The Malaysian Federal, State and Local Governments each play a role in managing coastal marine space and its ecosystems.

Among the many challenges to effective coastal and marine management in Malaysia, the following two have been particularly significant:

- Fragmented management based upon singular or sectoral issues;
- Overly focused decision-making, which has occasionally resulted in unintended and undesirable outcomes through the cumulative impact of many small decisions.

In the past, marine and coastal management were weakened by jurisdictional overlap; an occasionally inconsistent legislative framework; a low level of stakeholder participation in decision-making; limited financial resources and human capacity; and under-developed infrastructure, maritime enforcement capability and research assets. More recently, many of these weaknesses have been addressed and Malaysia is now well positioned to implement its commitments under the CTI RPOA.

❖ CTI Coordination and Implementation

A National CTI Coordinating Committee (NCC) will guide, strategically manage and monitor implementation of the Malaysian CTI-NPOA. The NCCC will also direct multi-stakeholder cooperative processes to promote country-level implementation and help overcome excessive single-sector focus.

At the strategic and (where relevant) operational levels, the NCC will serve the following functions:

- Plan, coordinate, oversee, monitor, review, evaluate and update CTI-NPOA implementation;
- Assess, support, prioritise and endorse country-level projects, and comment on regional-level projects and project proposals relevant to the CTI-NPOA;
- Coordinate and facilitate project funding priorities at the country-level, and participate in funding prioritisation, decision-making and where required implementation for regional or cross-jurisdictional projects and programs;
- Act as the central focal point of contact with other CT6 countries;
- Take into consideration, and when necessary take action on, any information or advice provided by CTI regional bodies;
- Support, plan and coordinate joint activities and programs of the NCC members, and provide the structure and mechanisms to consult, liaise and involve external partners and stakeholders;
- Provide input on and participate in regional CTI processes and decision-making; and
- Other functions that are found to be necessary for effective implementation of the CTI NPOA.

The NCCC will be facilitated by the Ministry of Science, Technology and Innovation: National Oceanography Directorate (as the Malaysian CTI focal point). The component members of the NCC include but are not restricted to the following:

Ministry of Science, Technology and Innovation

- National Oceanography Directorate (NOD)
- Sea to Space (S2S)
- International Division
- Malaysian Meteorology Department (MMD)
- Malaysian Remote Sensing Agency
- Astronautic Technology Sdn Bhd (ATSB)
- National Space Agency (ANGKASA)

Ministry of Natural Resources and Environment

- Conservation and Environmental Management
- Department of Marine Park

Ministry of Agriculture and Agro-based Industry

- Fisheries Department

Ministry of Foreign Affairs

- Multilateral Economy and Environment Division (MEED)

Prime Ministers' Department

- Economic Planning Unit
- Malaysian Maritime Enforcement Agency
- Attorney General's Chambers
- National Security Council

Ministry of Housing and Local Government (MHLG)

- Department of Town and Country Planning

Ministry of Higher Education

- Higher Education Department

Ministry of Tourism, Culture and Environment, Sabah

- Sabah Parks
- Sabah Wildlife Department

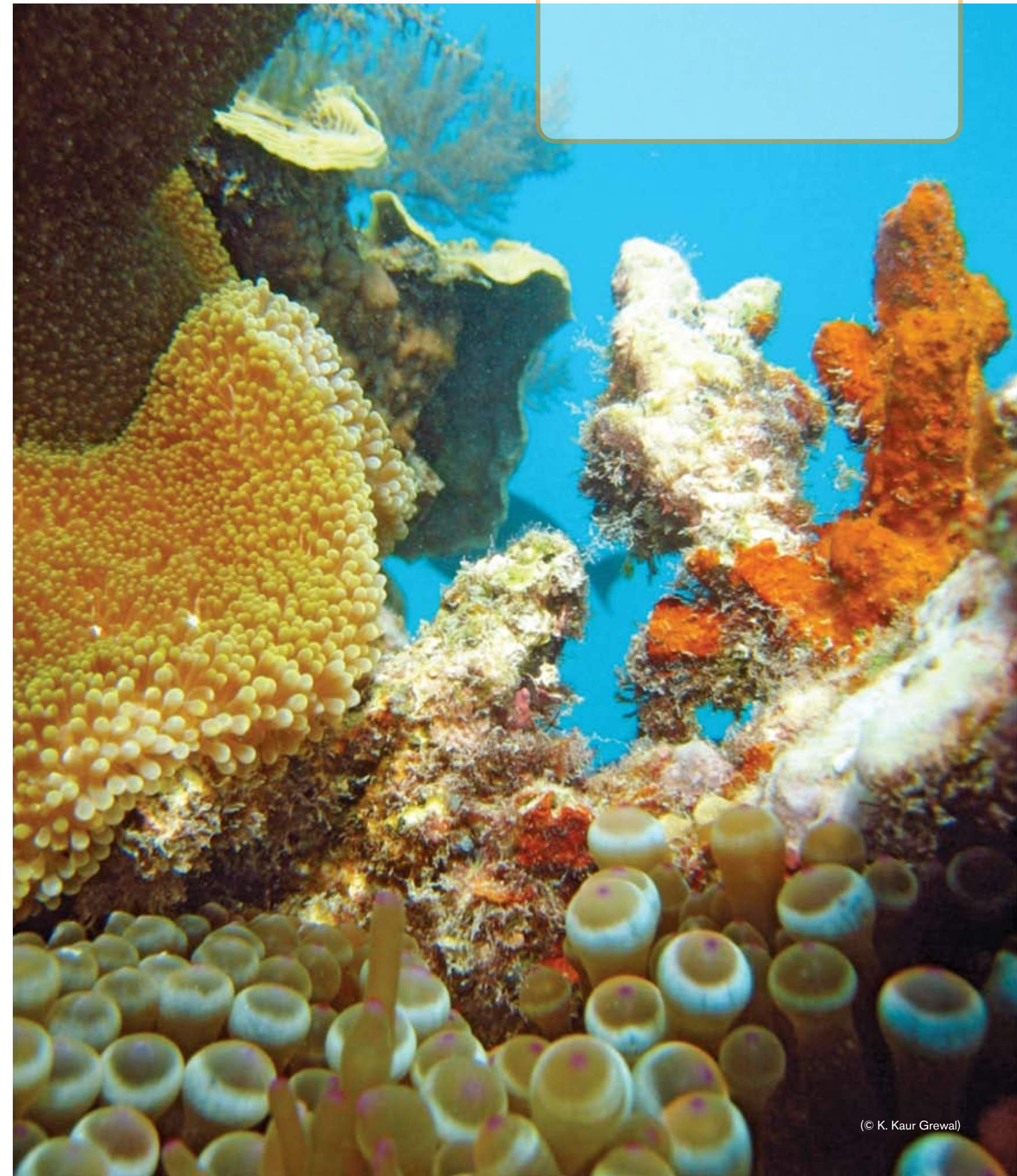
Ministry of Agriculture and Food Industry, Sabah

- Sabah Fisheries Department

Sabah Economic Planning Unit

Stakeholder representation in the NCC process will entail participation by NGOs, coastal community representatives, academic and marine-related research institutions, and private-sector representatives.

**Section 5:
Financial Resources**



Section 5: Financial Resources

❖ Domestic Context

Malaysia's developmental direction and domestic funding allocation requires functional Ministries to identify necessary programs and estimate funding requirements. Such programs will be reviewed by relevant agencies such as the Economic Planning Unit (EPU) in the Prime Minister's Department and the Ministry of Finance (MoF). The functional Ministries identified as 'primary actors' for the actions outlined in this CTI NPOA will need to make provision for the associated projects.

External funds for CTI projects may be considered on a case-by-case basis in the context of perceived costs and benefits. The EPU, Ministry of Finance (MoF), Ministry of Science, Technology and Innovation (MOSTI) and Ministry of Natural Resources and Environment (MNRE) each play a role in consideration of non-domestic funding to implement CTI National Actions. These bodies will work in close consultation with the NCC and National CTI Focal Point (National Oceanography Directorate) in evaluation of external funding opportunities.

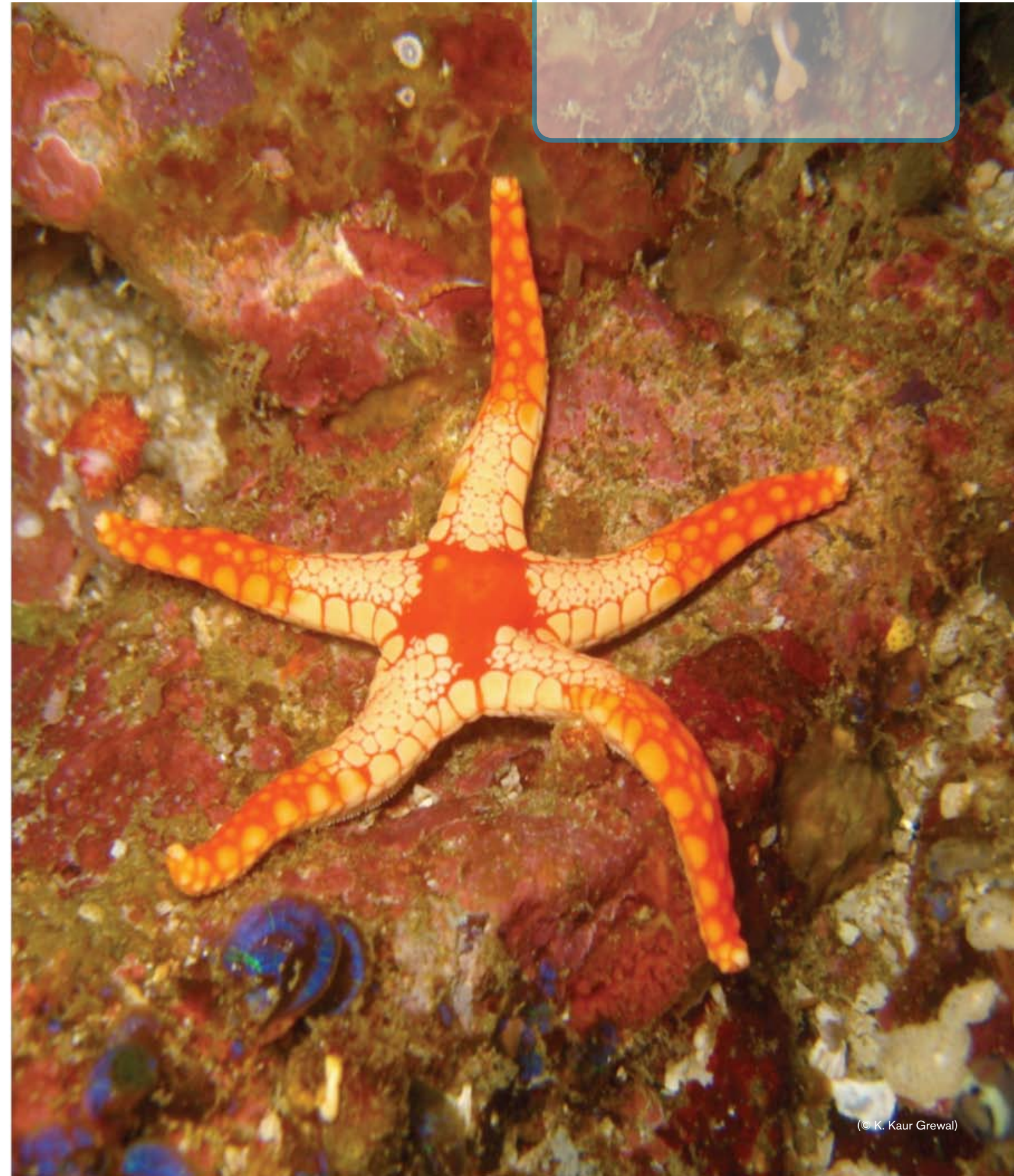
❖ Elements of the General Approach to External Financial Resources

The general approach to collaboration in external financial allocation will also encompass the following four primary elements:

1. Engagement with any relevant external funding institution;
2. Information and assessment of funding needs and funding implementation through strategic financial planning and review;
3. Mobilising funding to link directly to national CTI actions where appropriate and beneficial to achieving implementation of the CTI-NPOA; and
4. Collaborative development of the funding architecture as necessary to distribute funds in support of regional and national actions.



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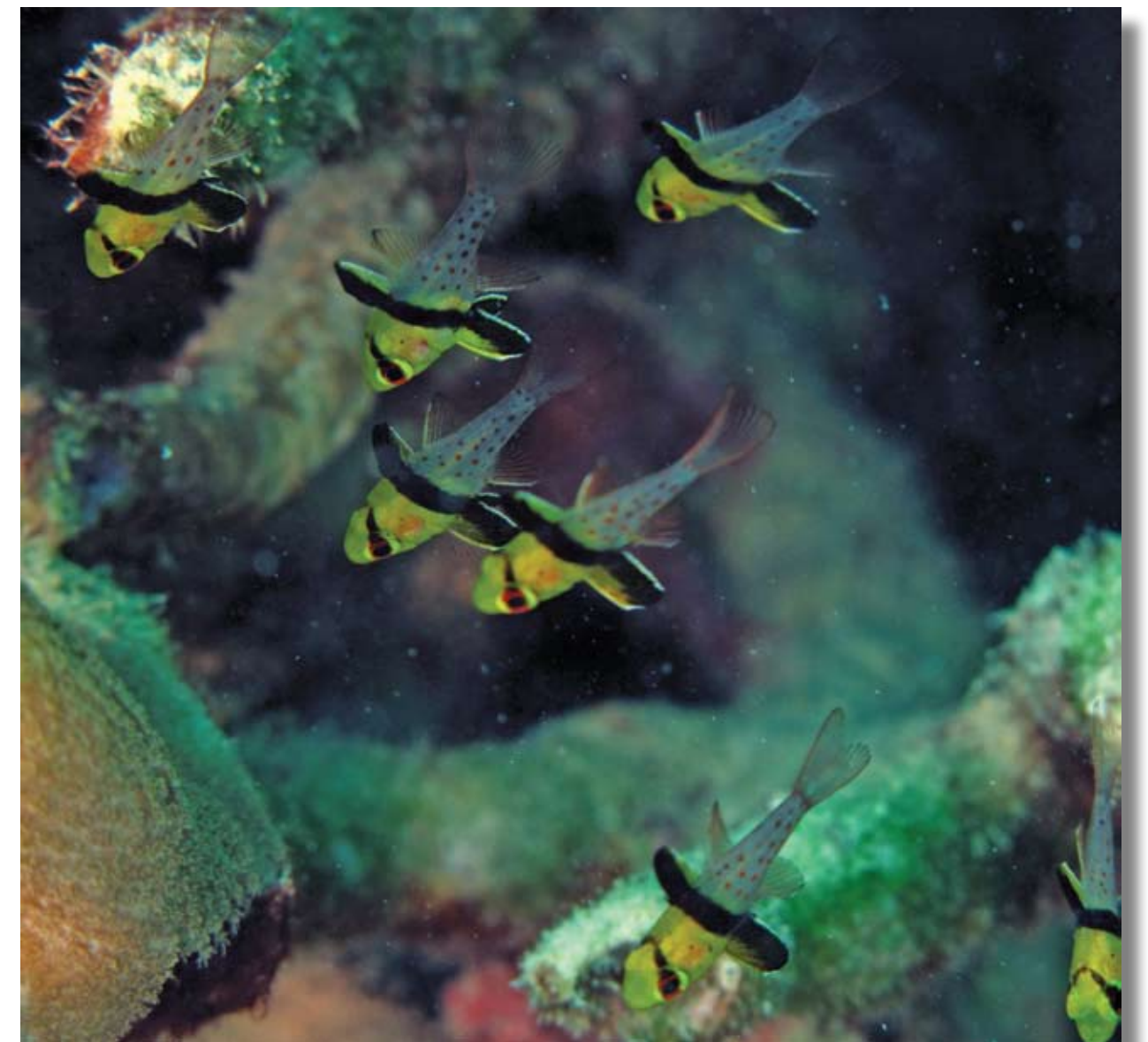
Section 6: Monitoring and Evaluation

For ease-of-reference, 'Monitoring and Evaluation Indicators' are shown in tabular form alongside the relevant NPOA Activities for each Goal and Target (see Section 3). The monitoring and evaluation (M&E) process related to these indicators will inform reporting on CTI-NPOA implementation in the years ahead.

The indicators are intended to be practical, measurable and informative. As such, they will assist relevant agencies to undertake a systematic review at each reporting stage during NPOA implementation. The M&E review process will purposefully be flexible to allow for future adaptation of indicators or inclusion of new indicators as necessary.

The M&E process will be underpinned by regular review and guidance by the Malaysian NCC. The process will be informed by nationally published data such as, the Department of Fisheries (DoF) 'Annual Fisheries Statistics'; the Ministry of Natural Resources and Environment (MNRE) 'Annual Water Quality Monitoring Reports'; etc. Such data will be supplemented by independent reports from local academic and research institutions. Should the data used for measuring performance need to be enhanced, measures will be undertaken by relevant government agencies under the guidance of the Malaysian NCC.

CTI Project Implementation will be jointly monitored by MOSTI along with relevant functional agencies National Coordination Committee (NCC).



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ANNEX A

Guiding Principles



Annex A: Malaysian Coral Triangle Initiative National Plan of Action Guiding Principles

Principle	Description	Concepts supported by the Principle	Participation in Treaties, Signing of Declarations, Legislation or Policy that signify Malaysia's acceptance of the Principle	Consistent with CTI RPOA Principle
1. Equitable Benefit	The developmental and environmental needs of present and future generations will be met equitably, and poverty reduction will be supported. ¹	Cost sharing Compensation Inter & Intra-generational equity Public access Public health	Agenda 21 – public participation (para 17.5[f]) Convention on Biological Diversity – access to and sharing of genetic resources and technology (Preamble) Langkawi Declaration – (para 7) National Policy on Biodiversity – (Principles) Rio Declaration – public health (Principle 1); inter & intra-generational (Principle 3); poverty eradication (Principle 5); special priority for developing countries (Principle 6); compensation for environmental damage (Principle 13) World Heritage Convention – (Article 4) UNFCCC - Flexibility mechanisms i.e. emissions trading, Joint Implementation, and the Clean Development Mechanism (CDM) Millennium Development Goals – All Goals	Principle #1: CTI should support people-centred biodiversity conservation, sustainable development, poverty reduction, and equitable benefit sharing. Principle #4: CTI should use existing and future forums to promote implementation. Principle #5: CTI should be aligned with international and regional commitments. Principle #8: CTI should be inclusive and engage multiple stakeholders.
2. Ecosystem Approach	Management regimes that transcend political boundaries will be used to conserve ecosystems and natural habitats, and for the maintenance and recovery of viable populations of species in their natural surroundings. Appropriate scientific methodologies focused on levels of biological organisation, which encompass the essential structure, processes, functions and interactions among organisms and their environment will be used. ²	Adaptive Management Interrelationship Integration In-situ conservation (biotic and abiotic) Habitat Protection and Restoration Marine Scientific Research	Agenda 21 – commit to integrated management (Chap 17 Program A, para 17.5[a]); take into account relationships among species (para 17.46); habitat conservation and restoration (para 17.6[h]); preserve “rare and fragile ecosystems as well as habitats and other ecologically sensitive areas” (para 17.74[e-f]) APEC – Resolutions on oceans & environment 1996; Declaration at Seoul 2002 calls for “ecosystem based management” at domestic and regional level; APEC Bali Plan of Action for Oceans & Coasts 2005 Convention on Biological Diversity – need in-situ conservation of ecosystems and	Principle #2: CTI should be based on solid science. Principle #4: CTI should use existing and future forums to promote implementation. Principle #5: CTI should be aligned with international and regional commitments. Principle #6: CTI should recognize the transboundary nature of some important marine natural resources. Principle #7: CTI should emphasize priority geographies.

¹ Rio Declaration Principle 3

² Convention on Biological Diversity 1992, see also the CBD COP Decision VI/6 (Malawi Principles)

Principle	Description	Concepts supported by the Principle	Participation in Treaties, Signing of Declarations, Legislation or Policy that signify Malaysia's acceptance of the Principle	Consistent with CTI RPOA Principle
			habitats (Preamble); role for ex-situ conservation (Preamble); conserve and restore ecosystems and natural habitats to preserve biodiversity; eradicate alien species that threaten ecosystems (Art 8); see also 'Jakarta Mandate' in total, and ('Preamble' COP Decision VI/12) Indian Ocean Tuna Commission – Resolutions of COP 2002 regarding predation of long-line caught fish and by-catch Jakarta Mandate, Convention on Biological Diversity – (COP Decision IV/5 Annex B para 1-3) MARPOL 73/78 – special areas (leading to IMO 'Particularly Sensitive Sea Areas') (Annex I, 1[10]; II, 1[7] & V, 1[3]). National Oceanographic Directorate – (R&D Priority Areas) National Policy on Biodiversity – “It is in maintaining this complexity in ecosystems that there is environmental stability and consequently ecological services of value to human society assured (sic)” (Objectives, pp. 9,19-20) PEMSEA – emphasis on transboundary nature of environmental problems Ramsar – designate wetlands for conservation (Article 2) UN Convention on Law of the Sea – Preamble “the problems of ocean space are closely related and need to be considered as a whole”; interdependence of fish stocks (Art 61[3]); effects of fishing on non-target species (Art 61[4]); in EEZ and High Seas (Art 119[1][a]&[b]); to protect and preserve rare or fragile ecosystems (Art194[5]).	Principle #9: CTI should recognize the uniqueness, fragility and vulnerability of island ecosystems.

Principle	Description	Concepts supported by the Principle	Participation in Treaties, Signing of Declarations, Legislation or Policy that signify Malaysia's acceptance of the Principle	Consistent with CTI RPOA Principle
			<p>UN Fish Stocks Agreement – conservation and management measures for species of same ecosystem (Art 5[d] & [e]).</p> <p>Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) – An international agreement between governments to ensure that international trade in specimens of wild animals and plants does not threaten their survival.</p> <p>UNFCCC – Recognises ecosystem-based approach to climate change adaptation measures.</p>	
3. Conservation of Biological Diversity	Measures will be undertaken to conserve and, where appropriate, restore biological diversity and the productivity of marine species and habitats, with particular recognition of the uniqueness, fragility and vulnerability of island ecosystems. ³	<p>Bio-safety</p> <p>Biotic and abiotic conservation</p> <p>Indicators</p> <p>In-situ / Ex-situ conservation</p> <p>Inventories of endangered species / critical habitats</p> <p>Marine Scientific Research</p> <p>Public Health and Welfare</p> <p>Marine Protected Areas</p> <p>Surveys of marine biodiversity</p>	<p>Agenda 21 – maintain biological diversity and productivity of marine species and habitats (para 17.7); (Chap 17 Program B); protect and restore endangered species (para 17.74 [e-f])</p> <p>Convention on Biological Diversity – “the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.” (Article 1 ‘Objectives’); conserve (Preamble); develop strategies & plans (Article 6); identify & monitor, identify harmful activities (Article 7); establish protected areas (Article 8); manage risk from living modified organisms (Article 8); ex-situ conservation (Article 9); incentives (Article 11); marine scientific research (Article 12)</p> <p>Kuala Lumpur Declaration (CBD COP VII) – “Commit our Governments to the establishment of networks of protected areas</p>	<p>Principle #1: CTI should support people-centred biodiversity conservation, sustainable development, poverty reduction, and equitable benefit sharing.</p> <p>Principle #2: CTI should be based on solid science.</p> <p>Principle #3: CTI should be centred on quantitative goals and timetables adopted by governments at the highest political levels.</p> <p>Principle #4: CTI should use existing and future forums to promote implementation.</p> <p>Principle #5: CTI should be aligned with international and regional commitments.</p> <p>Principle #6: CTI should recognize the transboundary nature of some important marine natural resources.</p> <p>Principle #7: CTI should emphasize priority geographies.</p> <p>Principle #8: CTI should be inclusive and engage</p>

³ Derived from *Agenda 21*, Chapter 21, paragraph 17.7, and *Convention on Biological Diversity* 1992, Article 1

Principle	Description	Concepts supported by the Principle	Participation in Treaties, Signing of Declarations, Legislation or Policy that signify Malaysia's acceptance of the Principle	Consistent with CTI RPOA Principle
			<p>both marine and terrestrial and to the development of indicators and incentives to meet the 2010 target to reduce biodiversity loss.”</p> <p>Langkawi Declaration – (para 8)</p> <p>National Policy on Biodiversity – (Complete document)</p> <p>UN Convention on Law of the Sea – “conservation of living resources” (Art. 61)</p> <p>Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) – An international agreement between governments to ensure that international trade in specimens of wild animals and plants does not threaten their survival.</p> <p>UNFCCC (Bali COP 13) - Conservation and sustainable use of biological diversity to contribute to adaptation measures.</p> <p>Millennium Development Goals - (Goal 7, Target 9 – Integrate the principles of sustainable development into country policies and programmes; reverse loss of environmental resources)</p> <p>Convention on Biological Diversity - The Subsidiary Body on Scientific, Technical and Technological Advice ‘Island Biodiversity – Proposed Elements for a Programme of Work’, Para 8. However, in no other place is biodiversity per se so fragile. The vulnerabilities of small islands require not only special but urgent attention from their inhabitants and the world community. Species that have evolved on islands have done so free from competition with large numbers of other species and are, therefore, susceptible to invasions by alien species. Populations of island fauna and flora tend to be naturally</p>	<p>multiple stakeholders.</p> <p>Principle #9: CTI should recognize the uniqueness, fragility and vulnerability of island ecosystems.</p>

Principle	Description	Concepts supported by the Principle	Participation in Treaties, Signing of Declarations, Legislation or Policy that signify Malaysia's acceptance of the Principle	Consistent with CTI RPOA Principle
			<p>small, and species often become concentrated in special small areas, where they are subject to various natural and anthropogenic pressures that endanger their survival. They have the highest proportion of recorded species extinctions and continue to be significantly threatened by invasive alien species, climate change and variability, natural and environmental disasters, land degradation and land based sources of marine pollution. Para 9. Islands, in particular small island developing States, constitute a special case for both the environment and development. As articulated in chapter 17 of Agenda 21 and emphasized in the Barbados Programme of Action, as well as in the Plan of Implementation of the World Summit on Sustainable Development, small island developing States rely significantly on the conservation and sustainable use of island biodiversity for their sustainable development and experience even more specific challenges and vulnerabilities. These arise from the interplay of such socio-economic and environmental factors as small populations and economies, weak institutional capacity in both the public and the private sector, remoteness from international markets, susceptibility to natural disasters and climate change (including, in particular, sea-level rise), fragility of land and marine ecosystems (particularly affected by tourism development and unsustainable agriculture and forestry), high cost of transportation, limited diversification in production and exports, dependence on international markets, export concentration, and income volatility and vulnerability to exogenous economic shocks...</p>	

Principle	Description	Concepts supported by the Principle	Participation in Treaties, Signing of Declarations, Legislation or Policy that signify Malaysia's acceptance of the Principle	Consistent with CTI RPOA Principle
4. Beneficiary pays / Polluter pays	<p>Internalisation of resource use and environmental costs will be promoted, taking into account the approach that:</p> <p>a. the polluter should, in principle, bear the cost of pollution, and</p> <p>b. the beneficiary should pay for the use of natural resources, with due regard to the public interest. ⁴</p>	<p>Compensation</p> <p>Environmental impact assessment</p> <p>Incentives</p>	<p>Agenda 21 – economic incentives and polluter pays (para 17.22[d])</p> <p>Convention on Biological Diversity – EIA (Article 14)</p> <p>Rio Declaration – polluter pays (Principle 16); environmental impact assessment (Principle 17)</p> <p>UN Convention on Law of the Sea – compensation for damage caused by pollution (Article 235 [2&3])</p> <p>Merchant Shipping (Oil Pollution) Act 1994 (Act 515)</p> <p>The International Oil Pollution Compensation Fund (1992) - provide compensation for oil pollution damage resulting from spills of persistent oil from tankers.</p> <p>UNFCCC – The UNFCCC upholds the polluter pays principle. The party responsible for producing pollution is responsible for paying for the damage done to the natural environment.</p> <p>MARPOL (Annex 1) - Annex 1, describes in detail the premises and capacity required for waste recovery facilities. Although largely a preventive instrument, each member State must penalise violations committed by vessels sailing under its flag, or by vessels within its jurisdiction.</p>	<p>Principle #1: CTI should support people-centred biodiversity conservation, sustainable development, poverty reduction, and equitable benefit sharing.</p> <p>Principle #4: CTI should use existing and future forums to promote implementation.</p> <p>Principle #5: CTI should be aligned with international and regional commitments.</p>
5. International Cooperation and Coordination	<p>Marine issues can transcend national boundaries and interests, necessitating co-ordinated regional and/or global effort. Where appropriate, Malaysia will support such international effort.⁵ Goals and activities will be supportive of international and regional commitments already made under relevant legal instruments</p>	<p>Assistance to Developing States</p> <p>Collaborative Research</p> <p>Co-ordination for Enclosed and Semi-enclosed Seas</p> <p>Duty to Consult</p>	<p>Agenda 21 – international and regional cooperation and coordination (para's 17.10 & 17.11); international rules for land-based sources of marine pollution (para 17.25 [a-f]); promotion of IMO (para 17.31); strengthen international & regional cooperation (Chap 17 Program F)</p> <p>Convention on Biological Diversity – (Preamble); cooperation (Article 5); exchange EIA information (Article 14[c, d & e]); exchange</p>	<p>Principle #3: CTI should be centred on quantitative goals and timetables adopted by governments at the highest political levels.</p> <p>Principle #4: CTI should use existing and future forums to promote implementation.</p> <p>Principle #5: CTI should be aligned with international and regional commitments.</p>

⁴ Derived from *Rio Declaration* Principle 16
⁵ Langkawi Declaration on the Environment, Commonwealth Heads of Government, Para 4.

Principle	Description	Concepts supported by the Principle	Participation in Treaties, Signing of Declarations, Legislation or Policy that signify Malaysia's acceptance of the Principle	Consistent with CTI RPOA Principle
	<p>and multilateral processes. These efforts will be without prejudice to the sovereign rights, sovereignty, and jurisdiction of Malaysia in officially promulgated 'Malaysian Territorial Waters'.</p> <p>Wherever possible, measures will be taken to ensure that activities within Malaysia's jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.⁶</p> <p>Wherever practicable, relevant existing forums will be used to implement actions under CTI.</p>	<p>Environmental Co-operation as a contribution to Peace</p> <p>Information Exchange</p>	<p>information (Article 17); technical and scientific cooperation (Article 18)</p> <p>Langkawi Declaration – (para's 4 & 8)</p> <p>Jakarta Mandate (CBD COP II/10) – (para 4)</p> <p>National Policy on Biodiversity – (Principles, pp. 16, 22-23)</p> <p>Ramsar – duty to consult for transboundary wetlands (Article 5)</p> <p>Rio Declaration – State responsibilities (Principle 7); cooperation, trade and respect for jurisdiction (Principle 12); avoid export of environmental damage (Principle 14); duty to notify of transboundary environmental damage (Principles 18 & 19); peaceful conflict resolution (Principle 26)</p> <p>UN Convention on Law of the Sea – Cooperation and coordination for enclosed and semi-enclosed seas (Article 123); International co-operation (Articles 64[1], 65, 69[3.d], 70[4], 94[7], 100, 108[1&2], 109[1], 117, 118, 129, 143[3], 150, 151[1.a], 160[2.j], 226, 235, 242, 244, 268[2], 270, 303[1] et al)</p> <p>World Heritage Convention – (Article 6)</p> <p>Transnational Regulations under the Environmental Quality Act and the Customs Regulations- cooperation on minimizing and import and export of pollutants</p> <p>Malaysian-Thailand Joint Development Authority Act, 1990 (ACT 440)c.i.f. 23 January 1991 - PU(B) 36/91- To give effect to an Agreement on the establishment and operation of the Malaysia-Thailand Joint Authority and to make provisions connected therewith.</p>	<p>Principle #6: CTI should recognize the transboundary nature of some important marine natural resources.</p> <p>Principle #7: CTI should emphasize priority geographies.</p> <p>Principle #8: CTI should be inclusive and engage multiple stakeholders.</p> <p>Principle #9: CTI should recognize the uniqueness, fragility and vulnerability of island ecosystems.</p>

⁶ Extract from the *Convention on Biological Diversity* 1992, Article 3; and *Rio Declaration* Principle 2.

Principle	Description	Concepts supported by the Principle	Participation in Treaties, Signing of Declarations, Legislation or Policy that signify Malaysia's acceptance of the Principle	Consistent with CTI RPOA Principle
			Putrajaya Declaration of Regional Cooperation for the Sustainable Development of the Seas of East Asia	
6. Integrated Approach	<p>In order to achieve sustainable development, environmental protection shall constitute part of the development process and cannot be considered in isolation from it.⁷</p> <p>Where appropriate, institutional, administrative and legislative arrangements will be established and/or strengthened for the development of:</p> <ol style="list-style-type: none"> integrated management of coastal and marine ecosystems; and plans and strategies for coastal and marine areas, along with their integration within national development plans.⁸ 	<p>Integrated consideration of environment and development</p> <p>Integrated approach by different levels of Government</p> <p>Spatial integration</p> <p>Intersectoral integration</p> <p>Inter-disciplinary integration</p>	<p>Agenda 21 – (Chapter 17 Program Area A); integration (para 15.5[b])</p> <p>Convention on Biological Diversity – conservation and sustainable use of biological diversity integrated into sectoral and cross-sectoral plans, programs and policies (Articles 6 & 10); government and private-sector (Article 10[e]); ('Preamble' COP Decision VI/12)</p> <p>Jakarta Mandate (CBD COP II/10) – most suitable framework for addressing human impacts on marine and coastal biodiversity (para 2); institutions, admin, legislation for integrated plans and strategies (para 3)</p> <p>Kuala Lumpur Declaration (CBD COP VII) – issues interlinked; "Commit our Governments to integrate biodiversity conservation and sustainable use of its components into socio-economic development"</p> <p>Langkawi Declaration – environment and economy (para 8)</p> <p>Rio Declaration – integral and interdependent nature of Earth (Preamble); environment a part of sustainable development (Principle 4)</p> <p>Port Authorities Act, 1963 (Act 488) (Revised 1992) which provides for the establishment of port authorities, and for the functions of such authorities and the respect Acts of the Port Authorities of the various Malaysian Ports. The Port Authorities assume a regulatory function on the licensed private port operators and can ensure an integrated approach towards port development and to ensure the adequate provision of port</p>	<p>Principle #1: CTI should support people-centred biodiversity conservation, sustainable development, poverty reduction, and equitable benefit sharing.</p> <p>Principle #3: CTI should be centred on quantitative goals and timetables adopted by governments at the highest political levels.</p> <p>Principle #4: CTI should use existing and future forums to promote implementation.</p> <p>Principle #5: CTI should be aligned with international and regional commitments.</p> <p>Principle #8: CTI should be inclusive and engage multiple stakeholders.</p>

⁷ *Rio Declaration* Principle 4

⁸ Derived from the *Jakarta Mandate* (CBD COP II/10), Para 3

Principle	Description	Concepts supported by the Principle	Participation in Treaties, Signing of Declarations, Legislation or Policy that signify Malaysia's acceptance of the Principle	Consistent with CTI RPOA Principle
			services. Millennium Development Goals – Goal 7, Target 9 Putrajaya Declaration of Regional Cooperation for the Sustainable Development of the Seas of East Asia	
7. Informed Decision-making	Decisions concerning marine and coastal management, and environmental protection will be based upon best available science. Continuous effort will be made to improve Malaysia's capacity to collect, analyse, assess and apply information for sustainable use of marine resources and conservation of biological diversity. ⁹ Concrete, quantitative goals will be established that are measurable and linked to specific and realistic timetables for achievement. Specific milestones will be adopted to define progress toward achieving these goals.	Marine scientific Research Environmental impact assessment Resource valuation Stakeholder consultation & participation Indicators	Agenda 21 – identify coastal uses and interactions (para 17.5[b]); resource valuation (para 17.5[e]); EIA (para 17.22[b]); State of marine environment reporting (para 17.35[b]); international info exchange (para 17.35[b]); up to date data on resource use and management (para 17.86); ocean role in climate change (para 17.96) promote marine scientific research (para 17.99) Convention on Biological Diversity – lack of information and knowledge, need for science, technical and institutional capacity (Preamble); genetic research (Article 16) Langkawi Declaration – (para 7) National Policy on Biodiversity – (Objectives, pp. 12-13) Rio Declaration – improve scientific understanding & technology transfer (Principle 9); environmental impact assessment (Principle 17) World Heritage Convention – Article 5	Principle #2: CTI should be based on solid science. Principle #3: CTI should be centred on quantitative goals and timetables adopted by governments at the highest political levels. Principle #4: CTI should use existing and future forums to promote implementation. Principle #5: CTI should be aligned with international and regional commitments. Principle #6: CTI should recognize the transboundary nature of some important marine natural resources. Principle #7: CTI should emphasize priority geographies. Principle #8: CTI should be inclusive and engage multiple stakeholders.
8. Right to Develop	Malaysia has the sovereign right to exploit its own resources pursuant to its own environmental policies. ¹⁰	Food security Poverty eradication Return on Investment Technology Transfer	Agenda 21 – (Chap 17, Program D) Convention on Biological Diversity – biological resources, poverty eradication, return on investment (Preamble); sovereign right to exploit own resources (Article 3) Langkawi Declaration – (para's 5 & 8)	Principle #1: CTI should support people-centred biodiversity conservation, sustainable development, poverty reduction, and equitable benefit sharing. CTI goals and actions should address ... poverty reduction (e.g. food security, income, and sustainable livelihoods for coastal communities)...

⁹ Adapted from *Agenda 21*, Para 17.8.¹⁰ Extract from the *Convention on Biological Diversity* 1992, Article 3; and *Rio Declaration* Principle 2.

Principle	Description	Concepts supported by the Principle	Participation in Treaties, Signing of Declarations, Legislation or Policy that signify Malaysia's acceptance of the Principle	Consistent with CTI RPOA Principle
			National Policy on Biodiversity – (pp. 7-8, 22) Rio Declaration – development and sovereignty (Principles 1,2 & 3); eradication of poverty (Principle 5); technology transfer (Principle 9); trade policy (Principle 12) UN Convention on Law of the Sea – Sovereign right of States to exploit their natural resources (Art 193) Fisheries Act, 1985 (Act 317) Regulation of the conservation, management and development of maritime and estuarine fishing and fisheries, in Malaysian fisheries waters, and to turtles and riverine fishing in Malaysia. Petroleum Development Act, 1974 (Act 144). Exclusive Economic Zone Act, 1984 (Act 311) regulation of activities in the economic zone and on the continental shelf pursuant to the sovereign rights to explore and exploit the resources of the EEZ. Continental Shelf Act, 1966 (Act 83) governing matters relating to the continental shelf of Malaysia and the exploration of its natural resources excluding petroleum.	
9. Respect for Culture and Indigenous Heritage	Indigenous people and their communities and other local communities have a vital role in marine and coastal management and development because of their knowledge and traditional practices. The identity, culture and interests of indigenous people will be respected and they will be afforded opportunity for effective participation in the achievement of	Role of women and youth	Agenda 21 – indigenous and local involvement in management (para 17.74[b]) Convention on Biological Diversity – (Preamble); (Article 8); (Article 10[c]) Kuala Lumpur Declaration (CBD COP VII) – "Reaffirming the significant role of indigenous and local communities in the conservation and sustainable use of biological resources."	Principle #1: CTI should support people-centred biodiversity conservation, sustainable development, poverty reduction, and equitable benefit sharing. Principle #4: CTI should use existing and future forums to promote implementation. Principle #5: CTI should be aligned with international and regional commitments.

Principle	Description	Concepts supported by the Principle	Participation in Treaties, Signing of Declarations, Legislation or Policy that signify Malaysia's acceptance of the Principle	Consistent with CTI RPOA Principle
	sustainable marine and coastal development. ¹¹		<p>National Policy on Biodiversity – (p. 12)</p> <p>Rio Declaration – (Principle 22)</p> <p>United Nations Declaration on the Rights of Indigenous Peoples - "Indigenous peoples and individuals are free and equal to all other peoples and individuals and have the right to be free from any kind of discrimination, in the exercise of their rights, in particular that based on their indigenous origin or identity. Indigenous peoples have the right to self-determination. By that right they can freely determine their political status and pursue their economic, social and cultural development."¹²</p> <p>UNFCCC – 'Indigenous Peoples and climate change' as a permanent item in the agenda of the COP/MOP, and of the Subsidiary Bodies meetings with specific reference to issues including disparities and vulnerability of impact, mitigation, adaptation, poverty, social and cultural impact, and other climate change related issues.</p>	Principle #8: CTI should be inclusive and engage multiple stakeholders.
10. Public Participation	Marine and coastal issues are best handled with participation of all concerned citizens, at the relevant level. Each individual shall have appropriate access to information concerning the marine and coastal environment that is held by public authorities and the opportunity to participate in decision-making processes. Public awareness and participation will be encouraged by making information widely available. ¹³	<p>Awareness and Education</p> <p>Communication</p> <p>Integration</p> <p>Public / private partnerships</p> <p>Public participation</p> <p>Transparency</p>	<p>Agenda 21: Section III (strengthen role of major groups including local authorities)</p> <p>Convention on Biological Diversity – public education and awareness (Article 13)</p> <p>Kuala Lumpur Declaration (CBD COP VII) – "Create and strengthen partnerships at all levels with public and private partners to promote protected areas, equitable sharing of benefits, capacity building, the transfer of environmentally sound technology and the provision of adequate new and additional financial resources."</p> <p>National Policy on Biodiversity – (Principles)</p> <p>Rio Declaration – public</p>	<p>Principle #3: CTI should be centred on quantitative goals and timetables adopted by governments at the highest political levels.</p> <p>Principle #4: CTI should use existing and future forums to promote implementation.</p> <p>Principle #5: CTI should be aligned with international and regional commitments.</p> <p>Principle #8: CTI should be inclusive and engage multiple stakeholders.</p>

¹¹ Derived from *Rio Declaration* Principle 22¹² Declaration on the Rights of Indigenous People, FAQ, http://www.un.org/esa/socdev/unpfii/documents/faq_drips_en.pdf (Accessed 29th July 2009).¹³ Derived from *Rio Declaration* Principle 10

Principle	Description	Concepts supported by the Principle	Participation in Treaties, Signing of Declarations, Legislation or Policy that signify Malaysia's acceptance of the Principle	Consistent with CTI RPOA Principle
			<p>participation (Principle 10); vital role of women (Principle 20); youth (Principle 21)</p> <p>Environmental Quality Act, 1974 (Act 127).</p> <p>Millennium Development Goals – Goal 8</p>	
11. Precautionary Approach	Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. ¹⁴	<p>Best available science</p> <p>Preventative management</p> <p>Safeguard the environment</p>	<p>Agenda 21 – preventative and precautionary approach (para 17.5[d], Chap 17 Programs A B)</p> <p>Convention on Biological Diversity – (Preamble)</p> <p>Jakarta Mandate, Convention on Biological Diversity – (COP Decision II/10 Annex II para 3[a]; Decision IV/5 Annex B para 4)</p> <p>Rio Declaration – (Principle 15)</p> <p>Environmental Quality Act, 1974 (Act 127)</p> <p>UNFCCC – Advocates commitment to the precautionary approach.</p>	Principle #2: CTI should be based on solid science. "In the absence of conclusive scientific information, the precautionary principle/approach will apply."
12. Sustainable Development	Marine and coastal resources will be used to meet present needs without compromising the ability of future generations to meet their own needs.	<p>Inter-generational equity</p> <p>Sustainable use</p>	<p>Agenda 21 – commit to sustainable development (Chap 17 Program A, 17.5, Program D)</p> <p>Convention on Biological Diversity – "use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining its potential to meet the needs and aspirations of present and future generations." (CBD Article 2); (see also Preamble)</p> <p>Indian Ocean Tuna Commission – sustainable development of relevant fish stocks (Art V)</p> <p>Langkawi Declaration – (para's 5, 6 & 8)</p> <p>National Oceanographic</p>	Principle #1: CTI should support people-centred biodiversity conservation, sustainable development, poverty reduction, and equitable benefit sharing. CTI goals and actions should address both poverty reduction (e.g. food security, income, and sustainable livelihoods for coastal communities) and biodiversity conservation (e.g. conservation and sustainable use of species, habitats, and ecosystems).

¹⁴ *Rio Declaration*, Principle 15

Principle	Description	Concepts supported by the Principle	Participation in Treaties, Signing of Declarations, Legislation or Policy that signify Malaysia's acceptance of the Principle	Consistent with CTI RPOA Principle
			<p>Directorate – (Mission)</p> <p>Port Authorities Act, 1963 (Act 488) (Revised 1992) which provides for the establishment of port authorities, and for the functions of such authorities and the respect Acts of the Port Authorities of the various Malaysian Ports. The Port Authorities assume a regulatory function on the licensed private port operators and can ensure a sustainable approach towards port development and to ensure the adequate provision of port services.</p>	

Glossary of Terms

Adaptive Management

The ecosystem approach adopted by the CBD recognises the importance of an adaptive management approach. Decision V/6 describes this as “a learning process, which helps to adapt methodologies and practices to the ways in which these systems are being managed and monitored”. Adaptive management acknowledges a continuous process of action based on doing, learning, sharing and improving, while sustainability is not absolute: the responses of ecosystems, agencies, and people depend on changing circumstances, whether these are the climate, the population pressure or economics factors.¹⁵

Biological diversity

Means the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.¹⁶

Cost sharing

Society pays for those benefits, generated by individual activities that do not translate into private benefit, and may finance activities that go beyond what is considered a reasonable individual level of duty of care. Industry pays for those aspects which are part of its duty of care for the resources it uses.

Ecosystem

A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.¹⁷

Indicators

The primary purpose of indicators is to inform society and decision makers on the status and recent trends in marine and coastal management, including biological diversity, sustainability of uses, socio-economic pressures and opportunities, and the institutional issues involved.¹⁸

In-situ Conservation

The conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.¹⁹

Marine Protected Areas

Any area of the intertidal or sub-tidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment.²⁰

Marine Scientific Research

The ecosystem approach also stresses the need to conserve ecosystem structure and functioning, to manage ecosystems within the limits of their functioning and to carry out management at appropriate spatial and temporal scales. All these aspects of the ecosystem approach require scientific information. That information must be provided to the decision-makers in a form they can use.²¹

Return on Investment

Substantial investments are required to conserve biological diversity and there is the expectation of a broad range of environmental, economic and social benefits from these investments.²²

¹⁵ Quotation from 'Integrated Marine and Coastal Area Management (IMCAM) approaches for implementing the Convention on Biological Diversity'. Montreal, Canada: Secretariat of the Convention on Biological Diversity. CBD Technical Series No.14. January 2004. p. 9.

¹⁶ *Convention on Biological Diversity 1992*, Article 2

¹⁷ *Convention on Biological Diversity 1992*, Article 2

¹⁸ Quotation from *CBD Technical Series* No. 14. p. 15

¹⁹ *Convention on Biological Diversity 1992*, Article 2

²⁰ World Conservation Union (IUCN) definition as cited in *CBD Technical Series* No. 14. p. 12.

²¹ Quotation from *CBD Technical Series* No. 14. p. 10

²² *Convention on Biological Diversity 1992*, Preamble

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