



*Eight countries, connected by one ecosystem,
working together to secure its future.*



Report of the
Technical Workshop
on Developing an Action Plan
on the Degradation of Critical Habitats

4 -5 June, 2012 • Phuket, Thailand

Bay of Bengal Large Marine Ecosystem Project



The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of Food and Agriculture Organization of the United Nations concerning the legal and development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The BOBLME Project encourages the use of this report for study, research, news reporting, criticism or review. Selected passages, tables or diagrams may be reproduced for such purposes provided acknowledgment of the source is included. Major extracts or the entire document may not be reproduced by any process without the written permission of the BOBLME Project Regional Coordinator.

For bibliographic purposes, please reference this publication as:

BOBLME (2012) Report of the Technical Workshop on Developing an Action Plan on the Degradation of Critical Habitats, 4 -5 June 2012, Phuket, Thailand BOBLME-2012-Project-09

TABLE OF CONTENTS

1. BACKGROUND	1
2. INTRODUCTION TO THE STRATEGIC ACTION PROGRAMME AND TRANSBOUNDARY WATERS ASSESSMENT PROGRAMME	2
3. WORKING GROUP TASKS AND OUTPUTS	2
4. CLOSING REMARKS.....	3
APPENDIX I AGENDA.....	4
APPENDIX II LIST OF PARTICIPANTS.....	5
APPENDIX III CONSOLIDATED LIST OF ACTIONS?	8

1. BACKGROUND

A Strategic Action Programme (SAP) that addresses and remediates the major transboundary environmental concerns and issues in the Bay of Bengal is one of the two major outputs of the BOBLME Project. The concerns and issues addressed in the SAP have been identified and prioritized in the BOBLME Transboundary Diagnostic Analysis (TDA) that included an extensive consultative process involving all of the BOBLME countries. The concerns were grouped under three themes – (i) Overexploitation of marine living resources, (ii) Degradation of critical habitats, and (iii) Pollution and water quality and 14 issues related to these themes identified.

On the 15-17 February 2012, the BOBLME National Coordinators and SAP experts met in Phuket to draft a SAP framework that incorporated an outline of an action plan and also developed a work plan for SAP completion. The meeting also developed Ecological Quality Objectives (EcoQOs) for each theme to guide the formulation of the action plan through subsequent regional technical workshops and developed example objectives, targets, indicators, information needs and actions within the three priority themes.

A regional technical workshop was held in Phuket, Thailand, from 3-4 June 2012, to further develop the action plan for the theme “Degradation of critical habitats”. Its objective was to derive objectives, targets, indicators (including information needs) and actions, to address the three issues under this particular theme:

1. Loss and degradation of mangrove habitats
2. Degradation of coral reefs
3. Loss and damage to sea grass habitats

Critical coastal and marine habitats provide a wide range of ecosystem services of benefit to humans (e.g. food security, livelihoods, coastal protection). In addition, mangroves and seagrass habitats play an important role in carbon sequestration and therefore contribute to mitigating rising levels of atmospheric CO₂ and associated impacts of global climate change. While these habitats may exist as individual ecological systems, they often occur adjacent to each other in a continuum of mangrove forests/sea grass beds/coral reefs, forming an integrated ecological complex with important and intricate functional linkages between them. These ecological complexes, where they exist, should be maintained as an integrated ecosystem (i.e. without loss or fragmentation of any of the component habitats in the system).

A number of proximate causes that have resulted in the current degraded state of the critical habitats have included:

- Conversion of mangroves for agriculture, aquaculture, and salt production;
- Expanding coastal development for industry, human settlement and tourism, including reclamation;
- Lack of clear land tenure;
- Unsustainable logging of mangroves;
- Increasing pollution, eutrophication and sedimentation;
- Destructive fishing practices (poisons, explosives, trawling and push-netting);
- Coastal modification, including coral and sand mining, dredging and reclamation;
- Natural causes, especially coral bleaching.

These in turn are a result of:

- Food security needs of the coastal poor;

- Lack of national, provincial/state coastal development plans.
- Increasing trade (both domestic and export) for habitat-related products;
- Coastal development and industrialization;
- Ineffective marine protected areas and lack of enforcement;
- Intensive upstream agriculture practices;
- Upstream development that affects water flow;
- Increasing tourism;
- Climate change.

In formulating objectives, targets, indicators (and information needs for these) and actions, these proximate and root causes were considered.

The outputs of this workshop will form the basis for national consultations, the results of which will be included in the National Action Programmes (NAPs), as well as in the SAP.

The workshop was facilitated by the BOBLME Project's Chief Technical Advisor (CTA), Dr. Rudolf Hermes.

The agenda for the meeting is given as Appendix I.

The list of participants is given as Appendix II.

2. INTRODUCTION TO THE STRATEGIC ACTION PROGRAMME AND TRANSBOUNDARY WATERS ASSESSMENT PROGRAMME

Following the opening of the workshop and welcome, Dr. Hermes gave a presentation introducing the SAP, including its content, process and timetable for completion.

Dr S. Heileman (consultant) gave a presentation on Indicators and the GEF Transboundary Waters Assessment Programme (TWAP). During the first phase of TWAP, an indicators based methodology was developed by an international group of experts for the assessment of LMEs. The BOBLME has decided to adapt this methodology (some of the indicators) for inclusion in the SAP.

3. WORKING GROUP TASKS AND OUTPUTS

Dr Hermes gave a presentation providing guidance to participants on the tasks to be undertaken during the workshop. Two break-out groups were formed, with each consisting of a mix of experts from all the countries represented at the workshop.

On Day 1, the groups were assigned the task to develop objectives targets, indicators, and information needs for each of the three issues under this theme, using Part A of the template provided to the groups. Dr Hermes was assisted by three resource persons, Dr Maeve Nightingale (IUCN), Dr Anjan Datta (UNEP GPA) and Dr S. Heileman. Each group gave a presentation on its respective outputs during plenary.

On Day 2, the same two groups re-convened to identify actions needed to address each of the three issues, using Part B of the template. As in Day 1, the groups presented their respective outputs, and compared them with a view to consolidating the two sets of outputs from both days into a single table for each issue.

On the final day of the workshop, the plenary compared the results of the two working groups and suggested ways that they could be consolidated. The consolidated and completed templates for each issue are given in Appendix III.

4. CLOSING REMARKS

Dr Hermes thanked participants and emphasized the importance of their involvement in the national SAP/NAP consultations in their respective countries. In his closing remarks, the DG of SACEP stated that SACEP could help implement some of the short and long term targets under the BOBLME SAP.

APPENDIX I AGENDA

1. Welcome and workshop purpose
2. Introduction to the SAP – content, process and timetable for completion
3. Setting objectives/targets/information needs based on TDA issues
 - Introduction and working group tasks
 - Working groups
 - Report back from working groups
4. Agreeing on actions for the SAP
 - Introduction and working group tasks
 - Working groups
 - Report back from working groups
5. Final document for the SAP
6. Closing

APPENDIX II LIST OF PARTICIPANTS



BANGLADESH	
<p>Mr Md Mustafizur Rahman Akhand Deputy Director (Monitoring and Enforcement) Department of Environment Ministry of Environment and Forests Bangladesh mrakhand001@yahoo.com; akhand@doe-bd.org Tel: +88029102893 Mob: +8801819411925</p>	
MALAYSIA	
<p>Mr Kamarruddin Bin Ibrahim Deputy DG Department of Marine Parks Malaysia kamarruddin@nre.gov.my Tel: +60388861753 Mob: +601922832 04</p>	<p>Mr Ab Rahim Gor Yaman Director of Planning & Management Division Department of Marine Park Malaysia Ministry of Natural Resources and Environment Malaysia abraham@nre.gov.my Tel: +60388861111 Mob: +601928685 95 Fax: +603888804 89</p>

<p>Dr Aileen Tan Shu Hwai Assoc. Professor Universtiti Sains Malaysia Malaysia aileen@usm.my Tel: +6046533508 Mob: +601243199 00 Fax: +0646533500</p>	
MALDIVES	
<p>Ms Mariyam Rifga Environment Analyst Environmental Protection Agency Maldives mariyam.rifga@epa.gov.mv Tel: +96033359 49 Mob: +96033359 53</p>	<p>Ms Aishath Farheth Ali Assistant Director Environmental Protection Agency Maldives farhath.ali@epa.gov.mv Tel: +9603335949 Mob: +9603335953</p>
SRI LANKA	
<p>Mr G. B. E. Tudor Silva Ministry of Environment Sri Lanka tudorsilva56@yahoo.com Tel: +94714408566</p>	<p>Mr Maduwe Guruge Manoj Prasanna Senior Program Assistant Biodiversity Secretariat Ministry of Environment Sri Lanka mprasanna74@yahoo.com Mob: +94714 408 593 Fax: +94114443943</p>
THAILAND	
<p>Dr Suree Satapoomin Phuket Marine Biological Centre Thailand suree.ss@gmail.com Tel: +6676391128 Mob: +66846913848 Fax: +6676391051</p>	<p>Ms Tipamat Upanoi Phuket Marine Biological Centre Thailand tipamatu@yahoo.com Tel: +6676391129 Mob: +66869523818 Fax: +6676391127</p>
SACEP	IUCN
<p>Mr Anura Jayatilake Director General South Asia Co-operative Environment Programme Sri Lanka sacep@eol.lk; dg_sacep@eol.lk; Tel: +94112589376 Mob: +94718038598</p>	<p>Dr Maeve Nightingale Head Coastal & Marine Programme IUCN Asia Regional Office Bangkok Thailand Maeve.Nightingale@IUCN.org Mob: +66818237021</p>

UNEP	
<p>Dr Anjan Datta Program Officer UNEP/GPA Coordination Office Kenya Anjan.datta@unep.org Tel: +254207625276 Mob: +254735585960</p>	
Facilitator	
<p>Dr Sherry Heileman Consultant UNESCO/IOC Transboundary Waters Assessment Programme France sh_heileman@yahoo.com Tel: +33140590834</p>	
RCU	
<p>Dr Rudolf Hermes Chief Technical Advisor Bay of Bengal Large Marine Ecosystem Project (BOBLME) Thailand rudolf.hermes@boblme.org Tel: +6676391861 Mob: +66844395209 Fax: +6676391 864</p>	

APPENDIX III CONSOLIDATED LIST OF ACTIONS

THEME: Degradation of critical habitats	
EcoQO: Degraded, vulnerable and critical marine habitats are restored, conserved and maintained	
ISSUE 1: Loss and degradation of mangrove habitat	
PART A	
Objective, targets, indicators and information needs	
Objective <i>What are you trying to achieve to address this issue?</i>	Protect, manage and restore mangrove habitats in order to increase mangrove coverage and improve biodiversity of mangrove habitats
Target <i>What is the target and by when?</i>	<p>Short term</p> <ul style="list-style-type: none"> • 5- 10% of lost mangrove area restored by the year 2020/2025, with no net loss in restored area; • 10-15% of total mangrove area under conservation management (protected and managed) by year 2025; • 5-10% original diversity of mangrove restored by year 2025; • Xx% reduction of destructive activities in mangrove habitats by year 2025. <p>Long term</p> <ul style="list-style-type: none"> • 20-25% of lost area restored by the year 2050; • 50% of total mangrove area under conservation management; • >10% original diversity of mangrove restored.
Indicator <i>What measure would you use to judge performance</i>	<ul style="list-style-type: none"> • Total area of live mangrove extent; • Profile of mangrove forests, including size of mangrove plant species; • Total area (or %) of mangrove under protected area management; • Ratio of Species diversity index from restored area to existing mangrove habitat; • Biodiversity indices of mangroves and associated species.
Information needs <i>What information is required to check the</i>	<ul style="list-style-type: none"> • GIS data and remote sensing on area of healthy and degraded mangroves; • Accurate information on extent, species composition and average girth (circumference) of healthy

<p><i>indicator against the target?</i></p>	<p>and degraded mangrove areas;</p> <ul style="list-style-type: none"> • Baseline information on mangrove and associated flora (area coverage by status and species distribution); • Baseline information on mangrove associated fauna (biodiversity index); • Change in area coverage by status over time and biodiversity of other flora and fauna; • Anthropogenic pressures (developments, settlements, encroachment, aquaculture, etc); • Fisheries statistics (catch from mangroves); • Environmental and ecological data; • Mangrove restoration guidelines; • Economic valuation of ecosystem services from mangroves; • Existing commitments and national targets and progress towards implementing the national targets; • Country Gap Analysis under Program of Work on Protected Area (CBD).
<p>PART B</p>	
<p>Actions</p>	
<p>Institutional arrangements <i>What new institutional arrangements will be needed?</i></p>	<ul style="list-style-type: none"> • Establishment of Integrated institutional framework/ coordination mechanism for marine and coastal management at the national and local levels; • Mandate an institution at the national level to lead the process of planning and management of coastal and marine environment with adequate resources; • Establish or strengthen a national advisory council or committee for ICZM, mangrove habitats; • Establish a Regional Advisory Council and/ or a Task Force or Sub-regional task force under SACEP/South Asian Seas Programme for implementation of regional activities; • Regional Centre for data management; • Establish Institutional mechanism at (sub) regional level for sharing data and information on the state of the coastal and marine resources and exchange of expertise to share management experiences; • Adopt and implement the strategic action programme for the environmental management for Bay of Bengal.
<p>Legal and policy reforms <i>What policy reforms will be needed in the future</i></p>	<ul style="list-style-type: none"> • Review of national legislation for gaps and formulate/strengthen policy and legislation for the protection and restoration of mangroves and other critical habitats and for ICZM;

<p><i>and what legal support is required?</i></p>	<ul style="list-style-type: none"> • Devolve decision making power at the appropriate lowest level (for enactment of laws ,imposition of taxes, entering into agreement with others for mobilization of resources, etc); • Establish stewardship arrangements within local communities for sustainable use of mangroves; • Improve implementation of governments’ global commitments e.g., Global Programme of Action, CBD, Ramsar and others; • Review national biodiversity strategies and action plans and strengthen implementation; • Regional MoU or declaration between the countries on collaboration for conservation of mangroves; • Regularize tenure and access to mangroves; • Ensure timely and effective dissemination of policies and regulations; • Develop national action plans and enact/ revise legislations to address land and sea based sources of marine pollution; • Harmonization of relevant coastal and marine environmental policies and legislations including EIA, SEA and SIA guideline on eco- tourism regional and national level; • Develop policies on good aquaculture practices; • Spatial planning/ zoning of marine and coastal resources.
<p>Management measures</p>	
<p>- Current <i>What management actions are currently used?</i></p>	<ul style="list-style-type: none"> • Designation and establishment of Protected Areas; • Demarcation of mangrove areas as buffers for protection and conservation; • Management of resources under sustainable utilization principle (Biosphere Reserve/Marine protected areas); • ICZM plans developed and implemented; • National level restoration/replanting programmes; • EIAs and IEEs for coastal developments; • Management of pollution of mangrove (coastal) areas; • Regulation of fishing in mangrove areas. <p><i>(Remark: Many of the above management actions are not at desired level or are inadequately implemented)</i></p>

<p>- Future <i>What needs to be in place in the future?</i></p>	<ul style="list-style-type: none"> • National and Regional assessment of management effectiveness; • Integrated economic and environmental modelling; • National Program of action on mangrove management to promote sustainable use of mangrove and associated fauna; • Strengthen stewardship arrangement within local communities for sustainable use of mangroves; • Empower local communities; • Increase restoration efforts/increase area under restoration of degraded mangrove area; • Minimize conversion of mangrove areas into aquaculture/other developments; • Management Strategy for aquaculture projects; • Development of guidelines for ports and harbour developments and operation; • Promote eco-tourism in mangrove areas.
<p>Enforcement and compliance</p>	
<p>- Current <i>What arrangements are currently used to ensure compliance with rules and regulations?</i></p>	<ul style="list-style-type: none"> • Community based or co- management of mangroves (e.g. Sri Lanka, Thailand) and community involvement in surveillance; • Forest rangers/wildlife officers/wardens/volunteers/aerial surveillance in place in some districts; • Penalties/fines for illegal activities.
<p>- Future <i>What extra enforcement and compliance arrangements will need to be introduced?</i></p>	<ul style="list-style-type: none"> • Strengthen the enforcement capacity, including increased financial support for enforcement and compliance; • Improve collaboration and coordination among enforcement agencies; • Promote Community stewardship arrangements and community- based or co- management of mangroves; • Strengthen existing mechanism and empower local communities and government agencies/officers; • Revise and increase penalties for infringement.
<p>Awareness and communication <i>Who will be the main target(s) for improved communications and awareness building?</i></p>	<p>Target groups:</p> <ul style="list-style-type: none"> • Policy level (Politicians and policy makers , Local government - multiple agencies); • Education authorities/Schools (Integrate into formal school curriculum and informal education);

	<ul style="list-style-type: none"> Local communities, including Local Women groups; NGOs; Media; Law enforcement agencies; Fishermen/fisher communities; Large/Small businesses/developers (aquaculture industry, hotels, etc.);
<p>Information strengthening <i>What actions are needed to strengthen information needed for the indicators?</i></p>	<ul style="list-style-type: none"> Compile the fragmented environmental and economic information/data/evidence to present the case for integrated coastal and marine resources management, including historical and baseline data and information at national and regional levels; Economic valuation of goods and services provided by mangroves; Promote research on mangrove livelihoods, traditional management; Review/Adopt/Develop standard monitoring guidelines at regional level; Usage of remote sensing and mapping tools for mangrove area; Establish M&E system for mangroves; Regional database for mangrove habitat with links to other existing databases; Strengthen existing Clearing House Mechanism under SACEP; Assessment of extent, distribution and status of mangrove habitats.
<p>Human capacity development <i>What capacity building is required and who will be the main target audience?</i></p>	<ul style="list-style-type: none"> Regional and National Marine Protected Area management training; Management of mangrove habitat for government officials, local communities, NGOs; Monitoring (remote sensing, mapping, etc.) for research and regulatory agencies; Mangrove restoration and nursery production for local communities/NGOs/etc.; Economic valuation and cost benefit analysis for researchers and government agencies;
<p>Responsible agency <i>Nominate what agency is responsible for monitoring and reporting on the issue?</i></p>	<ul style="list-style-type: none"> Ministries of Environment, Tourism, Finance and planning, Fisheries, Environment and Natural Resources; Local government institutions; Coast Conservation/coast guard; SACEP/MFF/ASEAN CME working group.
<p>Other</p>	<ul style="list-style-type: none"> Develop and implement Sustainable financing mechanism for the management of Coastal and Marine resources;

	<ul style="list-style-type: none">• Implement payment for ecosystem services and other market base economic instruments to raise funding;• Establishment of dedicated national level Trust Funds for sustainable management of mangroves as contribution to sustainable coastal and marine resources and, enable through legislation to generate revenue from various economic instruments;• Reduce perverse subsidies and promote incentives for sustainable use of mangroves.
--	---

ISSUE 2: Degradation of coral reefs	
PART A	
Objective, targets, indicators and information needs	
<p>Objective <i>What are you trying to achieve to address this issue?</i></p>	<ul style="list-style-type: none"> • Restore, protect and sustainably manage existing coral reef ecosystems, habitats and associated biodiversity, and prevent land and marine based sources of pollution and destructive activities.
<p>Target <i>What is the target and by when?</i></p>	<p>Short term</p> <ul style="list-style-type: none"> • By 2020, at least 5% of the existing area of coral reefs put under an appropriate form of sustainable management and protection; • Monitor the nutrient loading into the coastal waters including point sources; • Develop/ update and implement nutrient management plan/strategy incorporating total catchment management; • Reduce nutrients and sediment loading into coastal waters to improve water quality; • Reduce the rate of degradation in live coral cover from anthropogenic activities; • Increase or maintain abundance of keystone and indicator species contributing to reef health (e.g. herbivores); • Climate change related impacts/effects identified and understood; <p>Long term</p> <ul style="list-style-type: none"> • By 2050, at least 10% of the existing area of coral reefs put under an appropriate form of sustainable management and protection.
<p>Indicator <i>What measure would you use to judge performance?</i></p>	<ul style="list-style-type: none"> • Improved Coastal Water quality (water quality index); • Percentage or extent of live coral cover maintained; • Proportion of coastal areas with Ecosystem Approach to Fishery Management projects and programs; • Percentage / area of coral reefs under appropriate form of sustainable management, including percentage of coral reefs protected (MPAs); • Biodiversity indices of corals and associated species (keystone and indicator species); • Reefs at risk index; • Region wide early action for climate adaptation plan for the near shore, marine and coastal

	<p>environment developed and implemented;</p> <ul style="list-style-type: none"> • Number of policies, laws, agreements or regulations on climate change adaptation proposed, adopted and implemented; • Number of institutions designated to address climate change adaptations coordinated with national governmental support; • Value / funding /leveraged through Sustainable financing schemes/ mechanisms and private sector participation.
<p>Information needs <i>What information is required to check the indicators against the target?</i></p>	<ul style="list-style-type: none"> • Baseline information on coral reefs (current area coverage by status- total and live, and species distribution) - GIS data, remote sensing, visual surveys; • Change in area coverage by status over time; • Total area under effective management; • Environmental and ecological data including water quality status (index?) in coral reef areas; • Amount of funding for conservation of coral reef, mangrove and sea grass; • Sustainable financing mechanism/ models for reef management; • Baseline information on coral reef associated fauna (biodiversity index) including indicator species; • Fisheries statistics (catch from coral reefs); • Anthropogenic pressures (coastal developments, tourism activities, reef fishing etc.) for WRI database; • Carrying capacity (fisheries and tourism).
<p>PART B</p>	
<p>Actions</p>	
<p>Institutional arrangements <i>What new institutional arrangements will be needed?</i></p>	<ul style="list-style-type: none"> • Establish/strengthen Integrated institutional framework/ Coordination mechanism for marine and coastal management (including ICZM, IWCAM) and coral reefs at the national and local level; • Mandate an institution (with adequate resources) to lead the process of management of coastal and marine environment; • Institutional mechanism for sharing data and exchange of expertise in relation to coastal and marine habitats, including a regional centre for data management; • Adopt and Implement the Strategic action programme for the environment management for

	<p>Bay of Bengal ;</p> <ul style="list-style-type: none"> • Establish a Regional Advisory Council on coral reefs; • Strengthen South Asia coral reef task force under SACEP; • Establish linkages between ACB and SACEP; • Establish decentralized institutions (like CCC -Malaysia) on coral reefs.
<p>Legal and policy reforms <i>What policy reforms will be needed in the future and what legal support is required?</i></p>	<ul style="list-style-type: none"> • Review of national legislation for gaps and formulate/strengthen policy and legislation for managing and protecting coral reefs and other critical coastal and marine habitats and ICZM; • Devolve decision-making power at the appropriate lowest level(enactment of laws, imposition of taxes, entering into agreement with others for mobilization of resources, etc.); • Dissemination of policies and regulations; • Develop national action plans and enact/ revise legislations to address land and sea based sources of marine pollution; • Harmonization of relevant coastal and marine environmental policies and legislations including EIA , SEA and SIA guideline on eco- tourism at regional and national level; • Develop policies on good aquaculture practices; • Spatial planning/ zonation of marine and coastal resources; • Support development of national nutrient management plan; • Implement CBDs targets and strengthen PoWs, etc.; • Review the national biodiversity strategies and action plans and strengthen implementation; • Regional MoU or declaration between the countries on collaboration for conservation of coral reefs; • Establish stewardship arrangements within local communities for sustainable management of coral reefs; • Mainstream ICZM, IWCAM into developmental policies.
<p>Management measures</p>	
<p>- Current <i>What management actions are currently used?</i></p>	<ul style="list-style-type: none"> • Designation and establishment of Marine Protected Areas/ Marine National parks; • Promote establishment of conservation area for coastal and marine habitats (coral reef, mangrove) to meet the international obligation/Targets (Aichi Target); • Promote establishment of Particularly Sensitive Sea Areas for coral reef habitats;

	<ul style="list-style-type: none"> • Management of pollution of coral reef areas; • ICZM plans developed and implemented; • EIAs and IEEs for coastal developments; • Regulation of fishing in coral reef areas, including no-take zones; • Permit system for research on coral reefs; • Prohibition of collecting on reefs by tourists. <p><i>Remark: Many of the above management measures are not at desired levels or are inadequately implemented</i></p>
<p>- Future</p> <p><i>What needs to be in place in the future?</i></p>	<ul style="list-style-type: none"> • Development of common effluent treatment facilities to manage unregulated discharge of pollutants from aquaculture and agricultural runoff; • Develop/ update and implement nutrient management plan/strategy incorporating total catchment management; • Identify the point and non- point sources of all pollutants reaching the coastal and marine environment and impacting the coral reefs; • Spatial planning/zonation of marine and coastal resources; • Development and implementation of Marine Protected Area Management plans; • Development of guidelines for ports and harbour developments and operation; • Increase the number of MPAs and improve management of MPAs; • Establish network of MPAs that also include mangroves, seagrass and coral reef to maintain functional connectivity between them; • Prohibition of destructive fishing such as dynamites, cyanide fishing (better enforcement); • Strengthen stewardship arrangements within local communities for sustainable use of coral reefs; • Empower local communities; • Promote sustainable use of coral reef resources including fishing; • Identify and Implement best practices in eco-tourism; • Regulation of coral and sand mining; • Improve/strengthen/harmonize EIAs and IEEs processes.
<p>Enforcement and compliance</p>	

<p>- Current</p> <p><i>What arrangements are currently used to ensure compliance with rules and regulations?</i></p>	<ul style="list-style-type: none"> • Currently agencies are mandated but technical knowledge and skills to manage coral reefs habitat is limited; • Marine rangers/wildlife officers/wardens/volunteers/aerial surveillance in place in some districts; • Penalties/fines for illegal activities; • Community involvement in surveillance; • Monitoring of tourist numbers.
<p>- Future</p> <p><i>What extra enforcement and compliance arrangements will need to be introduced?</i></p>	<ul style="list-style-type: none"> • Training, awareness and getting the political commitment to implement the management plans; • Development of enforcement manuals; • Development of community rangers; • Improved collaboration and coordination among enforcement agencies; • Strengthen existing mechanism and empower local communities and government agencies/officers; • Revise and increase penalties for infringement; • Increase financial support for enforcement and compliance; • Bi-& multi-lateral joint surveillance and enforcement mechanism.
<p>Awareness and communication</p> <p><i>Who will be the main target(s) for improved communications and awareness building?</i></p>	<ul style="list-style-type: none"> • Develop and implement awareness programs for different target groups and stakeholders (refer to the mangroves above). • Local communities including Local Women groups; • NGOs; • Local government agencies; • Politicians and policy makers; • Education Authorities/students; • Large/Small businesses/developers (hotels, resorts, etc.); • Media; • Fishermen/fisher communities; • Tour guides and boat operators; • Tourists.

<p>Information strengthening <i>What actions are needed to strengthen information needed for the indicators?</i></p>	<ul style="list-style-type: none"> • Monitor the nutrient loading into the coastal waters including point sources; • Study the carrying capacity of the coral reef ecosystems; • Economic valuation on goods and service provided by coral reefs; • Research on the ability of coral reefs and associated species to adapt to climate change; • Compile historical and baseline data and information at national and regional level; • Promote research to fill information gaps such as economic valuation of coral reef habitat, connectivity between coral reef and adjacent habitat and climate change, etc.; • Use of visual surveys, remote sensing and mapping tools for coral reef area; • Establish M&E system for coral reef habitat including developing standard monitoring guidelines at regional level; • Regional database for coral reef habitat with links to other existing databases; • Strengthen existing CHM under SACEP; • Knowledge sharing with established global/regional initiatives such as ICRI, GCRMN, UNEP CRU, SARRC CZMC, WRI, etc.; • Assessment of extent, distribution and status of coral reef habitats.
<p>Human capacity development <i>What capacity building is required and who will be the main target audience?</i></p>	<ul style="list-style-type: none"> • Capacity building at regional level for MPA managers and rangers for the management of MPAs/ Coral reefs in general; • Management of coral reef habitat for government officials, local communities, NGOs; • Monitoring (remote sensing, mapping, visual surveys, etc.) for research and regulatory agencies and volunteers; • Economic valuation and cost benefit analysis for researchers and government agencies; • Training for divers, boat crew and tourists on green tourism; • Training of local communities for alternative livelihood, e.g. fishermen to become tour guides;
<p>Responsible agency <i>Nominate what agency is responsible for monitoring and reporting on the issue?</i></p>	<ul style="list-style-type: none"> • Ministries of Environment, Tourism, Finance and planning, Fisheries, Environment and Natural Resources; • Coast Conservation/coast guard; • SACEP/ASEAN CME working group; • Local government institutions;
<p>Other</p>	<ul style="list-style-type: none"> • Develop and implement sustainable financing mechanism for the management of coastal and

	<p>marine resources;</p> <ul style="list-style-type: none">• Implement payment for ecosystem services and other market base economic instruments to raise funding;• Establishment of dedicated national level Trust Funds for sustainable management of coral reefs as contribution to sustainable coastal and marine resources and, enable through legislation, the ability to generate revenue from various economic instruments;• Reduce perverse subsidies and promote incentives for sustainable use of coral reefs.
--	---

ISSUE 3: Loss and damage to seagrass	
PART A	
Objective, targets, indicators and information needs	
<p>Objective What are you trying to achieve to address this issue?</p>	<p>Protect and manage seagrass habitats and associated biodiversity (in order to increase/maintain their extent and biodiversity)</p>
<p>Target What is the target and by when?</p>	<p>Short term</p> <ul style="list-style-type: none"> · Area of seagrass protected and managed increased by xx% by 2025; · Increase or maintain abundance of indicator species contributing to seagrass health; · Improve water quality (sediments, nutrients); · Xx% reduction of destructive activities on seagrass habitats by year 2025; · By 2020, basic awareness on significance of sea grass areas mainstreamed into educational curriculum and Communication Education Public Awareness programs. <p>Long term</p> <ul style="list-style-type: none"> · By 2050, 15% of the sea grass area under protection/management.
<p>Indicator What measure would you use to judge performance?</p>	<ul style="list-style-type: none"> · Extent (area) of seagrass habitats; · Percentage of sea grass area under protection/management; · Biodiversity indices of seagrass and associated species (indicator species).
<p>Information needs What information is required to check indicator against the target?</p>	<ul style="list-style-type: none"> · Diversity of seagrass-dependent species; · Baseline information on seagrass habitats (area coverage by status, seasons and species distribution) - GIS data, remote sensing, visual surveys; · Baseline information on seagrass habitat associated fauna (biodiversity index); · Fisheries statistics (catch from seagrass habitat); · Change in area coverage by status over time; · Anthropogenic pressures (coastal developments, tourism activities, fishing etc.);

	<ul style="list-style-type: none"> • Environmental and ecological data; • Seagrass Watch, Seagrass Net, Seagrass Atlas.
PART B	
Actions	
<p>Institutional arrangements</p> <p>What new institutional arrangements will be needed?</p>	<ul style="list-style-type: none"> • Establishment of Integrated institutional framework/ Coordination mechanism for marine and coastal management at the national and local level; • Mandate an institution (with adequate resources) to lead the process of management of coastal and marine environment; • Institutional mechanism for sharing data and exchange of expertise in relation to coastal and marine habitats, including a regional centre for data management; • Adopt and Implement Strategic action plan for the environment management for Bay of Bengal; • Establish or strengthen a national advisory council / committee/ unit / focal point for seagrass habitats; • Establish a Regional Advisory Council on seagrass habitats; • Strengthen South Asia coral reef task force under SACEP to include seagrass habitat (and mangroves); • Establish linkages with Seagrass Watch, Seagrass Net, IOSEA turtle, International Dugong Initiative.
<p>Legal and policy reforms</p> <p>What policy reforms will be needed in the future and what legal support is required?</p>	<ul style="list-style-type: none"> • Review of national legislation for gaps and formulate/strengthen policy and legislation for managing and protecting seagrass habitats and other critical coastal and marine habitats and for ICZM; • Devolve decision making power at the appropriate lowest level (enactment of laws ,imposition of taxes, entering into agreement with others for mobilization of resources etc.); • Disseminations of policies and regulations; • Develop national action plans and enact/ revise legislations to address land and sea based sources of marine pollution; • Harmonization of relevant coastal and marine environmental policies and legislation including EIA , SEA and SIA guidelines on eco- tourism regional and national level; • Develop policies on good aquaculture practices;

	<ul style="list-style-type: none"> • Spatial planning/ zonation of marine and coastal resources; • Implement CBDs targets and strengthen PoWs, etc.; • Increase or incorporate the protection of seagrass in existing national legislation or amend to include seagrass; • Review national biodiversity strategies and action plans and strengthen implementation; • Establish stewardship arrangements within local communities for sustainable use of seagrass; • Mainstream ICZM, IWCAM into developmental policies; • Bi-lateral or sub-regional arrangements for collaboration on the protection of seagrass habitats.
Management measures	
<p>- Current</p> <p>What management actions are currently used?</p>	<ul style="list-style-type: none"> • Sea grass areas associated with MPA are managed under management plans; • Community based conservation of sea grass in certain areas; • Established Marine Protected Areas; • ICZM plans developed and implemented; • EIAs and IEEs for coastal developments; • Management of pollution of seagrass habitats; • Regulation of fishing in seagrass habitats; • Zoning (dugong feeding ground).
<p>- Future</p> <p>What needs to be in place in the future?</p>	<ul style="list-style-type: none"> • Future mapping of sea grass areas; • Develop a baseline for the existing sea grass areas with proper management strategies of such areas; • Spatial planning/ zonation of marine and coastal resources; • Development of guidelines for ports and harbour developments and operation; • Increase the number of MPAs and improve management of MPAs. • Establishing network of MPAs that also include mangroves, seagrass and coral reef to maintain functional connectivity between them; • Control discharge of sediments and pollution; • Strengthen stewardship arrangement within local communities for sustainable use of seagrass habitats and empower local communities; • Protection of seagrass fauna (dugong, turtles, rays, sea horses);

	<ul style="list-style-type: none"> • Promote sustainable use of sea grass resources including prohibition of destructive fishing gear such as beach seine and push nets (better enforcement) and reducing impacts from boating activity on sea grass habitats.
Enforcement and compliance	
<p>- Current</p> <p>What arrangements are currently used to ensure compliance with rules and regulations?</p>	<ul style="list-style-type: none"> • Currently no dedicated agencies mandated to manage seagrass habitat; • Technical knowledge and skills to manage sea grass habitat is limited; • Marine rangers surveillance in place for dugong feeding ground in Thailand; • Penalties/fines for illegal activities; • Community involvement in surveillance.
<p>- Future</p> <p>What extra enforcement and compliance arrangements will need to be introduced?</p>	<ul style="list-style-type: none"> • Establish Legal protection status of sea grass habitats followed by: <ul style="list-style-type: none"> ○ Improved collaboration and coordination among enforcement agencies ○ Strengthen existing mechanism and empower local communities and government agencies/officers ○ Revise and increase penalties for infringement ○ Increased financial support for enforcement and compliance ○ Bi-& multi-lateral joint surveillance and enforcement mechanism; • Specific laws and regulations to manage and protect sea grass habitats; • Strengthening and enforcement of regulation on point and non-point sources of all pollutants reaching the coastal and marine environment and impacting sea grass.
<p>Awareness and communication</p> <p>Who will be the main target(s) for improved communications and awareness building?</p>	<p>Basic awareness on the value and importance of sea grass to be communicated at every level (refer to mangroves above).</p> <ul style="list-style-type: none"> • Local communities; • National and Local government agencies; • Politicians and policy makers; • Education Authorities/school children; • Local Women groups; • NGOs; • Large/Small businesses/developers (hotels, resorts, etc.);

	<ul style="list-style-type: none"> • Media; • Fishermen/fisher communities; • Tour guides and boat operators, Marinas; • Tourists;
<p>Information strengthening What actions are needed to strengthen the information needed for the indicators?</p>	<ul style="list-style-type: none"> • Spatial planning/ zonation of sea grass habitat; • Baseline studies on the existing sea grass habitat and associated species (dugong); • Compile historical and baseline data and information at national and regional level; • Promote research to fill information gaps such as economic valuation of seagrass habitat, connectivity between seagrass and adjacent habitat, and climate change, etc.; • Develop or adopt standard monitoring guidelines at regional level; • Establish M&E system for seagrass habitat; • Regional database for seagrass habitat with links to other existing databases; • Knowledge sharing with established global/regional initiatives such as Seagrass Net, Seagrass Watch, etc.; • Assessment of extent, distribution and status of seagrass habitats including through use of visual surveys, remote sensing and mapping tools.
<p>Human capacity development What capacity building is required and who will be the main target audience?</p>	<ul style="list-style-type: none"> • Capacity building at regional and national level on sea grass habitats in general; • Management of seagrass habitat for government officials, local communities, NGOs; • Monitoring (remote sensing, mapping, visual surveys, etc.) for research and regulatory agencies and volunteers; • Economic valuation and cost benefit analysis for researchers and government agencies; • Training of local communities on sustainable use of seagrass habitats.
<p>Responsible agency Nominate what agency is responsible for monitoring and reporting on the issue?</p>	<ul style="list-style-type: none"> • Ministries of Environment, Tourism, Finance and planning, Fisheries, Environment and Natural Resources; • Local government institutions; • Coast Conservation/coast guard; • SACEP/ASEAN CME working group.

Other	<ul style="list-style-type: none">· Develop and implement Sustainable financing mechanism for the management of Coastal and Marine resources;· Implement payment for ecosystem services schemes to raise funding.;· Establishment of dedicated national level Trust Funds for protected area management, enable through legislation to generate revenue from various economic instruments;· Reduce perverse subsidies and promote incentives for sustainable use of sea grass habitats.
--------------	--



Bangladesh, India, Indonesia, Malaysia, Maldives, Myanmar, Sri Lanka and Thailand are working together through the Bay of Bengal Large Marine Ecosystem (BOBLME) Project and to lay the foundations for a coordinated programme of action designed to improve the lives of the coastal populations through improved regional management of the Bay of Bengal environment and its fisheries.

The Food and Agriculture Organization (FAO) is the implementing agency for the BOBLME Project.

The Project is funded principally by the Global Environment Facility (GEF), Norway, the Swedish International Development Cooperation Agency, the FAO, and the National Oceanic and Atmospheric Administration of the USA.

For more information, please visit www.boblme.org



Sida



Norad

