



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



Report of the  
**SAP Process Development Workshop**  
15 - 17 February 2012 • Phuket Thailand

**Bay of Bengal Large Marine Ecosystem Project**



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**ABBREVIATIONS**

|              |  |
|--------------|--|
| AECEN        | Asian Environmental Compliance and Enforcement Network         |
| ADCP         | Asian Disaster Preparedness Center                             |
| APFIC        | Asia-Pacific Fishery Commission                                |
| ASEAN        | Association of Southeast Asian Nations                         |
| BOBLME       | Bay Of Bengal Large Marine Ecosystem                           |
| BOBP-IGO     | Bay Of Bengal Programme Inter-Governmental Organisation        |
| CBD          | Convention on Biodiversity                                     |
| CCRF         | FAO Code of Conduct for Responsible Fisheries                  |
| COBSEA       | Coordinating Body on the Seas of East Asia                     |
| EA           | Ecosystem Approach   |
| EAA          | Ecosystem Approach to Aquaculture                              |
| EAF          | Ecosystem Approach to Fisheries                                |
| EASP         | UNEP East Asian Seas Programme                                 |
| EBM          | Ecosystem Based Management                                     |
| EEZ          | Economic Exclusive Zone  |
| FAO          | Food and Agriculture Organization of the United Nations        |
| FAO RAP      | FAO Regional Office for Asia and Pacific                       |
| GCRMN        | Global Coral Reef Monitoring Network                           |
| GEF          | Global Environment Facility                                    |
| GETF         | Global Environment and Technology Foundation                   |
| GOOS         | Global Ocean Observation System                                |
| GPA          | UNEP Global Programme of Action                                |
| ICSF         | International Collective in Support of Fishworkers             |
| INCOIS       | Indian National Centre for Ocean Information Services (INCOIS) |
| IOGOOS       | Indian Ocean Global Ocean Observing System                     |
| IOSEA-Turtle | Indian Ocean South East Asia Turtle Memorandum                 |
| IOTC         | Indian Ocean Tuna Commission                                   |
| IUCN         | International Union for Conservation of Nature                 |
| IUU fishing  | Illegal, Unreported and Unregulated fishing                    |
| IW-LEARN     | International Waters Learning Exchange and Resource Network    |
| MCS          | Monitor, Control and Surveillance                              |
| MDG          | Millennium Development Goals                                   |
| MFAR         | Ministry of Fisheries and Aquatic Resources                    |
| MFF          | Mangroves For the Future                                       |
| MPA          | Marine Protected Area  |
| NACA         | Network of Aquaculture Centres in Asia-Pacific                 |
| SACEP        | South Asia Cooperative Environment Programme                   |
| SASP         | South Asian Seas Programme                                     |
| SEAFDEC      | Southeast Asian Fisheries Development Center                   |
| SIFFS        | South Indian Federation of Fishermen Societies                 |
| SEA-RLC      | Southeast Asia Regional Learning Centre                        |
| SSF          | Small-Scale Fisheries  |
| SAP          | Strategic Action programme                                     |
| TDA          | Transboundary Diagnostic Analysis                              |
| WorldFish    | WorldFish Centre   |
| UNEP         | United Nations Environment Programme                           |
| UNDP         | United Nations Development Programme                           |

**EXECUTIVE SUMMARY**

BOBLME Project National Coordinators and independent Strategic Action Programme (SAP) Experts met in Phuket, Thailand on 15-17 February 2012 to:

- develop high level objectives for the draft SAP
- develop a draft SAP document framework
- develop a draft SAP completion plan

The meeting comprised a series of presentations on SAP processes and development; breakout groups to derive regional environmental objectives and ecosystem quality objectives; and plenary discussions.

The meeting made the following recommendations:

1. on a Regional Environmental Objective for the BOBLME SAP *A healthy ecosystem and sustainable use of marine living resources for the benefit of the countries of the Bay of Bengal Large Marine Ecosystem*
2. on Ecosystem Quality Objectives for the BOBLME SAP
  - Theme 1. Overexploitation of marine living resources: *Fisheries and other marine living resources are restored and managed sustainably.*
  - Theme 2. Degradation of critical habitats: *Degraded, vulnerable and critical marine habitats are restored, conserved and maintained.*
  - Theme 3. Pollution and water quality: *Coastal and marine pollution and water quality are controlled to meet agreed standards for human and ecosystem health.*
3. that the draft objectives for SAP issues developed during the meeting should serve to guide regional technical discussions on SAP actions.
4. that the draft SAP should comprise the (SAP) framework elements listed in the report annex.
5. that the PSC should consider adopting a SAP Completion Process which is based on the draft plan given in the report annex.

## 1. BACKGROUND

1. One of the two major outputs of the BOBLME Project is to produce an agreed Transboundary Diagnostic Analysis (TDA) that identifies and prioritises the major transboundary environmental concerns in the Bay of Bengal. This is a prerequisite to the other major output expected from the Project, the Strategic Action Programme (SAP) that will address and remediate them.
2. The process for finalising the TDA and initiating the SAP is as follows:
  - i. Updating the TDA (2010) - completed
  - ii. Developing a roadmap for national TDA consultations (2010) - completed
  - iii. Undertaking national consultations (2011) - completed
  - iv. Synthesising the recommendations from the national consultations - completed
  - v. National Coordinators and National TDA managers meet to consider the results of the TDA consultations and confirm the document (13-14 February 2012) - completed
  - vi. National Coordinators and SAP experts (using the confirmed TDA) will meet to draft a SAP framework and a work plan for SAP completion (15-17 February 2012) - this meeting
  - vii. In March 2012, the Project Steering committee will meet to consider adopting the TDA and the SAP framework and completion plan.
3. BOBLME Project National Coordinators and independent SAP Experts met in Phuket, Thailand on 15-17 February 2012 to undertake step 2vi above, and specifically:
  - develop high level objectives for the draft SAP
  - develop a draft SAP framework
  - develop a draft SAP completion plan
6. The meeting was chaired by the BOBLME Project's Regional Coordinator Dr Chris O'Brien.
7. The agenda for the meeting (Doc-01) is attached as Appendix I.
8. The list of participants is given in Appendix II.
9. The list of documents is given in Appendix III.

## 2. OVERVIEW OF THE TDA-SAP PROCESS

10. Dr Rudolf Hermes, the BOBLME Project Chief Technical Adviser gave a presentation describing the BOBLME TDA-SAP, including the elements of a SAP process (Doc-02).
11. Dr Derek Staples gave a presentation on the frameworks used in SAPs from other LME projects that had already been finalised, and identified the most common elements in the form of a generic framework from which the meeting could develop a draft framework for the BOBLME SAP (Doc-03).
12. SAP Experts, Ms Lucy Scott and Dr David Laroche gave presentations on their experiences and observations on SAP development (Doc-04 and Doc-05, respectively).

## 3. OVERVIEW OF THE CONFIRMED TDA

13. Dr Derek Staples, for the TDA synthesis team, gave a presentation on the TDA development, consultation and synthesis process, which culminated in the confirmation of the TDA by National Coordinators and TDA managers in a meeting that preceded the SAP development meeting (Doc-06).

## 4. TURNING TDA ISSUES INTO SAP OBJECTIVES

### 4.1 Regional Environmental Objective

14. Dr Derek Staples gave a presentation on turning TDA issues into SAP objectives (Doc-07). And participants were provided with a template documents to assist them in the following break out activities (Doc-08).
15. The meeting work-shopped the wording for a Regional Environmental Objective for the BOBLME SAP that would represent a high level, long term goal for the BOBLME. The meeting started with the BOBLME Project's current Global Environment Objective: *A healthy ecosystem and sustainability of living resources for the benefit of the coastal populations of the Bay of Bengal Large Marine Ecosystem (BOBLME)*; and derived the following objective:

Regional environmental Objective for the BOBLME Strategic Action Programme;

**A healthy ecosystem and sustainable use of marine living resources for the benefit of the countries of the Bay of Bengal Large Marine Ecosystem**

### 4.2 Ecosystem Quality Objectives (EcoQO's)

16. The SAP is required to include Ecological Quality Objectives (EcoQOs) for each of the major themes identified in the TDA. Within the concept of a "healthy and sustainable marine ecosystem" for present and future generations, the EcoQOs are intended to provide a set of clear environmental indicators stating aspirations for a healthy Bay of Bengal as part of the ecosystem approach.
17. A series of break out activities were undertaken to develop agreed EcoQO's for each of the BOBLME themes which would represent the long term goals for an acceptable future state of the environment. The meeting derived the following EcoQO's:

Ecosystem Quality Objectives for the BOBLME Strategic Action Programme;

Theme 1. Overexploitation of marine living resources

**Fisheries and other marine living resources are restored and managed sustainably.**

Theme 2. Degradation of critical habitats

**Degraded, vulnerable and critical marine habitats are restored, conserved and maintained.**

Theme 3. Pollution and water quality

**Coastal and marine pollution and water quality are controlled to meet agreed standards for human and ecosystem health.**

### 4.3 Issues, objectives, targets and indicators

18. Further breakout activities were undertaken to develop draft objectives for each EcoQO/issue. This exercise served to inform the National Coordinators about the nature and extent of the work to be undertaken by regional technical groups on Fisheries Pollution and Habitats as part of the SAP process in 2012. In addition to the draft objectives, the meeting also produced examples of targets, indicators and actions (Appendix IV) to assist the forthcoming regional technical discussions.

## 5. THE SAP DEVELOPMENT PROCESS

### 5.1 The SAP process

19. The BOBLME CTA gave a presentation on the elements of a SAP process and the steps that would be required to finalise it (Doc-02).

20. Project Management Experts, Dr Yugraj Yadava and Mr Hla Win gave presentations on their experiences working in the Bay of Bengal region and highlighted various challenges the RCU might face in developing the SAP (Doc-09 and Doc-10, respectively).
21. The leader of the BOBLME Mid Term Evaluation described a range of findings and insights from the recent evaluation that might need to be considered in the development of the SAP development and completion plan (Doc-11).
22. The meeting discussed the characteristics of the SAP development process, highlighting the importance of aspects such as advocacy and developing partnerships; and cross cutting features such as capacity building, enforcement, education- communication, inclusion of youth. The meeting also discussed the roles of various personnel involved in the process, risks and challenges.
23. From these discussions, a draft SAP completion process was produced (Appendix V).

## **5.2 The SAP (document) framework**

24. Dr Jayampathy Samarakoon, the BOBLME SAP writer, outlined a draft framework for the SAP document that was derived from the generic SAP framework in section 2 and meeting deliberations. The meeting reviewed the draft framework, made some changes and agreed on a final draft that would be presented to the PSC for its consideration (Appendix VI).

## **6. RECOMMENDATIONS TO THE PROJECT STEERING COMMITTEE**

25. Recalling the guidance and outcomes of successive national TDA consultations and TDA confirmation process as a foundation for the SAP.
26. In consideration of the information presented, workshop exercises and intensive deliberations during the SAP Process Development meeting, the participants made the following recommendations:
27. **That the above Regional Environmental Objective for BOBLME and Ecosystem Quality Objectives (EcoQOs) (refer section 4) be used in the SAP .**
28. **That the draft objectives generated during the meeting serve to guide regional technical discussions on SAP actions (Appendix IV).**
29. **That the PSC adopts a SAP completion Process which is based on the draft plan given in Appendix V.**
30. **That the draft SAP should comprise the (SAP) framework elements listed in Appendix VI, as guidance.**

## **7. ADOPTION OF THE REPORT**

31. The above recommendations were adopted on the final day of the meeting, and other report contents were agreed to by email.

## Appendix I Agenda



Bay of Bengal Large Marine Ecosystem Project

**DRAFT AGENDA**  
PREPARED BY THE RCU

### BOBLME SAP development meeting

15-17 February 2012, Phuket, Thailand,  
Starting 9 am

The BOBLME Project is expected to produce two major outputs. The first is an agreed Transboundary Diagnostic Analysis (TDA) that identifies and prioritises the major transboundary environmental and fisheries concerns in the Bay of Bengal. This is a prerequisite to the second major output, the Strategic Action Programme (SAP) that will address and remediate the concerns.

The process for finalising the TDA and initiating the SAP consists of 7 steps - see over page. This meeting concerns step number 6: National Coordinators and SAP experts (using the confirmed TDA) meet to draft a SAP framework and a work plan for SAP completion.

#### DRAFT Agenda

##### DAY ONE:

1. Welcome, workshop purpose and introductions
2. Overview of the TDA-SAP process, including:
  - (i) the elements of a SAP
  - (ii) SAP experiences - other SAPs, input from SAP experts
3. Overview of the confirmed TDA
4. Turning TDA issues into SAP objectives, actions and targets (breakout groups)
  - (i) ECOQO's
  - (ii) issues / objectives / targets / information needs
  - (iii) (acting as the regional technical working party on fisheries) actions for fisheries issues

##### DAY TWO:

4. (continue) turning TDA issues into SAP objectives, actions and targets [**output = SAP framework with objectives**]
5. SAP Development process- actions, timelines and monitoring progress [**output = SAP development plan**]
  - (i) recalling the elements of a SAP process
  - (ii) the findings of the Mid Term Evaluation relating to SAP development and their implications for the SAP
  - (iii) SAP development process

##### DAY THREE:

6. Drafting of recommendations to the Project Steering Committee [**output = Recommendations to the PSC on a draft SAP framework; and a process for SAP completion**].

## Appendix II Participants



Photograph courtesy of Yugraj Yadava

|  |   |
|--|---|
| <p><b>BANGLADESH</b></p> <p><i>National Coordinator</i><br/>           Dr Yahia Mahmud<br/>           Chief Scientific Officer (Director)<br/>           Bangladesh Fisheries Research Institute (BFRI)<br/> <a href="mailto:yahiamahmud@yahoo.com">yahiamahmud@yahoo.com</a></p>        | <p><b>INDIA</b></p> <p><i>National Coordinator</i><br/> <i>Alternative for Dr Vijayakumaran Kandachamy</i><br/>           Mr B Vishnu Bhat<br/>           Fisheries Development Commissioner<br/>           Ministry of Agriculture Government of India<br/>           Department of Animal Husbandry Dairying &amp; Fisheries Room<br/> <a href="mailto:bhatbvishnu@gmail.com">bhatbvishnu@gmail.com</a></p> |
| <p><b>INDONESIA</b></p> <p><i>National Coordinator Unable to attend</i></p>  | <p><b>MALAYSIA</b></p> <p><i>National Coordinator</i><br/>           Mr Ismail Bin Ishak<br/>           Research Collaboration Coordinator, International Affairs<br/>           Fisheries Research Institute Department of Fisheries<br/> <a href="mailto:ismail4852@gmail.com">ismail4852@gmail.com</a></p>   |
| <p><b>MALDIVES</b></p> <p><i>National Coordinator</i><br/>           Dr Mohamed Shiham Adam<br/>           Director General<br/>           Marine Research Centre<br/>           Ministry of Fisheries and Agriculture<br/> <a href="mailto:msadam@mrc.gov.mv">msadam@mrc.gov.mv</a></p> | <p><b>MYANMAR</b></p> <p><i>National Coordinator</i><br/>           U Mya Than Tun<br/>           Assistant Director<br/>           Ministry of Livestock and Fisheries<br/>           Department of Fisheries<br/> <a href="mailto:mttun@myanmar.com.mm">mttun@myanmar.com.mm</a><br/> <a href="mailto:myathantundof@gmail.com">myathantundof@gmail.com</a></p>  |

| SRI LANKA  | THAILAND   |
|--|--|
| <p><b>National Coordinator</b><br/>           Dr S S K Haputhantri<br/>           Research Officer/ Marine Biological Resources Division,<br/>           NPC/BOBLME<br/>           National Aquatic Resources Research and Development<br/>           Agency (NARA)<br/> <a href="mailto:sisirahaputhantri@yahoo.com">sisirahaputhantri@yahoo.com</a></p>  | <p><b>National Coordinator</b><br/>           Ms Prulai Nootmorn<br/>           Director<br/>           Marine Fisheries Technological Research and Development<br/>           Institute<br/>           Marine Fisheries Research and Development Bureau<br/>           Department of Fisheries<br/> <a href="mailto:Nootmorn@Yahoo.Com">Nootmorn@Yahoo.Com</a></p>  |
| Expert Advisers  |  |
| <p><b>Mr Arne Andreasson</b><br/>           BOBLME Mid Term Evaluation Team Leader<br/> <a href="mailto:arne.c.i.andreasson@gmail.com">arne.c.i.andreasson@gmail.com</a></p> <p><b>Dr David LaRoche</b><br/>           Consultant<br/> <a href="mailto:dal1727@gaw.com">dal1727@gaw.com</a><br/> <a href="mailto:dal1727@yahoo.com">dal1727@yahoo.com</a></p> <p><b>Ms Lucy Scott</b><br/>           Data and Science Coordinator<br/>           Agulhas and Somali Current LME Project<br/>           ASCLME House 18 Somerset Street<br/> <a href="mailto:lucy.scott@asclme.org">lucy.scott@asclme.org</a></p>   | <p><b>Mr Hla Win</b><br/>           National Champion (BOBLME Project)<br/>           DOF (DDG-Rtd)<br/> <a href="mailto:hlawin.dofmm@gmail.com">hlawin.dofmm@gmail.com</a></p> <p><b>Dr Yugraj Singh Yadava</b><br/>           Director<br/>           BOBP-IGO<br/> <a href="mailto:yugraj.yadava@bobpigo.org">yugraj.yadava@bobpigo.org</a></p> <p><b>Dr Simon Funge-Smith</b><br/>           Senior Fishery Officer<br/>           FAO-RAP<br/> <a href="mailto:simon.fungesmith@fao.org">simon.fungesmith@fao.org</a></p> |
| RCU  |  |
| <p><b>Bay of Bengal Large Marine Ecosystem Project (BOBLME)</b><br/>           77 Moo 7, Sakdidej Rd. Makham Bay Amphur Muang<br/>           Phuket 83000<br/>           Thailand<br/>           Phone: +6676391861<br/>           Fax: +6676391864</p> <p><b>Dr Chris O'Brien</b><br/>           Regional Coordinator<br/> <a href="mailto:chris.obrien@boblme.org">chris.obrien@boblme.org</a></p> <p><b>Dr Rudolf Hermes</b><br/>           Chief Technical Advisor<br/> <a href="mailto:rudolf.hermes@boblme.org">rudolf.hermes@boblme.org</a></p> <p><b>Mr Nishan Deepal Sugathadasa</b><br/>           Technical Officer<br/> <a href="mailto:nishan.sugathadasa@boblme.org">nishan.sugathadasa@boblme.org</a></p> | <p><b>Dr Jayampathy Indrasiri Samarakoon</b><br/>           BOBLME SAP Writer<br/>           Business Phone: +94112739249<br/>           Mobile Phone: +94776975816<br/>           Fax: +9411268 2470<br/> <a href="mailto:jayampathysamarakoon@gmail.com">jayampathysamarakoon@gmail.com</a></p> <p><b>Dr Derek J Staples</b><br/>           TDA-SAP Consultant<br/>           Australia<br/> <a href="mailto:derekstap@gmail.com">derekstap@gmail.com</a></p>  |

### Appendix III List of documents

| Reference                     | Title  |
|-------------------------------|--|
| BOBLME-2012-SAPprocess_Doc-01 | Agenda   |
| BOBLME-2012-SAPprocess_Doc-02 | Overview of Strategic Action Programmes. Rudolf Hermes (ppt)   |
| BOBLME-2012-SAPprocess_Doc-03 | SAP Experience. Derek Staples (ppt)  |
| BOBLME-2012-SAPprocess_Doc-04 | The Agulas and Somali Current Large Marine Ecosystem Project. Lucy Scott (ppt)   |
| BOBLME-2012-SAPprocess_Doc-05 | GEF Strategic Action Programs: Historical and Current Perspectives. David LaRoche (ppt)                                  |
| BOBLME-2012-SAPprocess_Doc-06 | Overview of the TDA development process. Derek Staples (ppt)   |
| BOBLME-2012-SAPprocess_Doc-07 | Turning a TDA into a SAP. Derek Staples (ppt)  |
| BOBLME-2012-SAPprocess_Doc-08 | BOBLME SAP- setting objectives, indicators and actions - a template for breakout groups                                  |
| BOBLME-2012-SAPprocess_Doc-09 | The BOBLME SAP Development meeting - challenges and suggestions. Yugraj Yadava (ppt)                                     |
| BOBLME-2012-SAPprocess_Doc-10 | Myanmar perspectives. Hla Win (ppt)  |
| BOBLME-2012-SAPprocess_Doc-11 | BOBLME mid term evaluation findings and recommendations (as they might relate to SAP development). Arne Andreasson (ppt) |

## Appendix IV draft SAP guideline objectives, targets, indicators and actions

Three Themes (Overexploitation of marine living resources, degradation of critical habitats and pollution and water quality) and their related issues (14 in total) were derived from the BOBLME TDA. Ecological Quality Objectives (EcoQOs) were derived in this meeting.

For the theme *Overexploitation of marine living resources*, draft objectives, targets, indicators, information needs and actions were derived to guide subsequent regional technical meetings (see below).

For the themes *Degradation of critical habitats, and pollution and water quality*, draft objectives, targets, indicators and information needs were derived to guide subsequent regional technical meetings. (see below)

The (two) breakout groups at this meeting used the following template below to assist deliberations.

The information contained in the tables are meant to serve as a guide to three regional technical working group meetings (one each for fisheries experts, habitats experts and pollution experts) to be held later in 2012.

### Setting of objectives, indicators and actions (one for each issue)

|  |  |
|--|--|
| THEME: e.g. Overexploitation of marine living resources  |  |
| Agreed EcoQO: e.g. Fisheries and other marine living resources have been restored and are managed sustainably. |  |
|  |  |
| ISSUE 1: Decline in overall availability of fish resources   |  |
| PART A   |  |
| Objective, target and indicators   |  |
| Objective  | <i>What are you trying to achieve to address this issue?</i>                   |
| Target   | <i>What is the target and by when?</i>   |
| Indicator  | <i>What measure would you use to judge performance</i>                         |
| Information needs  | <i>What information is required to check the indicator against the target?</i> |

|   |  |
|---|--|
| PART B  |  |
| Actions   |  |
| Institutional arrangements  |  |
| - Current   | <i>What are the main institutional arrangements in place for addressing this issue?</i>      |
| - Future  | <i>What new institutional arrangements will be needed?</i>                                   |
| Legal and policy reforms  |  |
| - Current   | <i>What are the main policies that affect this issue are currently in place?</i>             |
| - Future  | <i>What policy reforms will be needed in the future and what legal support is required?</i>  |
| Management measure  |  |
| - Current   | <i>What management actions are currently used?</i>   |
| - Future  | <i>What needs to be in place in the future?</i>  |
| Enforcement and compliance  |  |
| - Current   | <i>What arrangements are currently used to ensure compliance with rules and regulations?</i> |
| - Future  | <i>What extra enforcement and compliance arrangements will need to be introduced ?</i>       |
| Awareness and communication   |  |
| <i>Who will be the main target(s) for improved communications and awareness building?</i> |  |
| Human capacity development  |  |
| <i>What capacity building is required and who will be the main target audience?</i>       |  |
| Responsible agency  |  |
| <i>Nominate what agency is responsible for monitoring and reporting on the issue?</i>     |  |
| Other   |  |

|  |   |
|--|---|
| <b>THEME: Overexploitation of marine living resources</b>  |   |
| <b>Agreed EcoQO: Fisheries and other living marine resources are restored and managed sustainably,</b> |   |
| <b>ISSUE 1: Decline in overall availability of fish resources</b>                                      |   |
| <b>PART A</b>  |   |
| <b>Objective, target and indicators</b>  |   |
| <b>Objective</b>   | Restore depleted fish stocks or overfished resources<br>Rebuild overexploited transboundary fisheries   |
| <b>Target</b>  | Reduce fishing effort and fishing capacity to match MSY<br><br>Noting each fishery will have different targets:<br><ul style="list-style-type: none"> <li>· Biomass of small pelagic species increased by x% by 2025</li> <li>· Fishing effort reduced by x % by 2020</li> </ul> Reduce the use of destructive fishing methods by x% by 20xx                            |
| <b>Indicator</b>   | Total catch is less than MSY<br>CPUE<br>Fishing effort<br>Fleet capacity<br><br>Fish landings<br>Number of boats<br>Number of fishers   |
| <b>Information needs</b>   | Catch statistics; fleet statistics/effort - proxies<br>Stock assessments of indicator stocks<br>Size-length measures<br><br>Fisheries statistics (LF, catch stats etc)<br>stock assessment<br>(MCS) enforcement records, boat register  |
| <b>PART B</b>  |   |
| <b>Actions</b>   |   |
| <b>Institutional arrangements</b>  |   |
| - Current  | National fisheries and agencies<br>BOBPIGO western BOB (science/advice , no management advice)<br>SEAFDEC eastern BOB (science/advice , no management advice)<br>BOBLME fisheries working groups<br>[SACEP/SCZMC – move to biodiversity/resources/reefs?]<br><br>BOBP-IGO, SEAFDEC, IOTC, NACA, BIMSTEC, ASEAN, IOMAC, APFIC, SAARC, IUCN<br>National research agencies |

|                                 |  |
|---------------------------------|--|
| - Future                        | Practical arrangements that address resources shared by 2-3 countries<br>Sub-regional working groups providing management advice<br>Strengthening of SEAFDEC & BOBPIGO to coordinate members science programmes, convene management advisory committees and provide management advice<br>Longer term a regional coordinating arrangement that focuses on non tuna species<br><br>Regional body that can serve as an umbrella on fisheries management of TB species in the 2. BOB<br>BOBP-IGO (hilsa)<br>BOBP-IGO-SEAFDEC (Indian mackerel)<br>National research agencies |
| <b>Legal and policy reforms</b> |  |
| - Current                       | National fishery laws (may need updating) and related acts.<br>No existing harmonized system to share information regionally<br>Few countries have limits on capacity or entry of vessels<br>Vessel licensing/registration is starting, but incomplete and not linked to a capacity limit.<br>Some zoning exists, but it may not be strongly enforced<br>Transboundary & domestic IUU fishing is poorly regulated (partly due to limited MCS systems)<br><br>National fisheries instruments<br>international and soft instruments CCRF                                   |
| - Future                        | Fishing effort management<br>Capacity management<br>Development of fishery management plans (or fishery improvement plan) for key/ important/commercial resources or fishing areas/zones.<br>Reorient/develop fishery science/fishery information collection to support development of management plans<br><br>Incorporate TB management of Marine living resources into national tools<br>Possible other from Policy review   |
| <b>Management measure</b>       |  |
| - Current                       | National rules and regulations exist but not uniformly implemented<br>Many of the regulations are targeted at conflict reduction, spatial exclusions, banning of controversial or destructive fishing methods<br>Gear measures may be in place, but there is poor compliance<br>Scientific data collection programmes exist in most countries but not targetted to management (or is not shared for management of straddling stocks)<br>Vessel licensing and registers may not be coordinated across the competent agencies.   |

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| - Future                           | <p>Fishing effort management<br/>Capacity management<br/>Development of fishery management plans (or fishery improvement plan) for key/ important/commercial resources or fishing areas/zones.<br/>Reorient/develop fishery science/fishery information collection to support development of management plans</p> <p>Budget for management<br/>Bilateral agreements<br/>Monitoring<br/>Gear regulations (selectivity)<br/>Effort management (closed seasons - space and time)<br/>Harmonised measures<br/>Co management (community involvement)<br/>Fisheries statistics - collection and management</p> |
| <b>Enforcement and compliance</b>  |  |
| - Current                          | <p>Portside monitoring/inspections<br/>Some fishery patrols/navy (but limited coverage)<br/>Some community level MCS (but patchy, may not result in legal action)<br/>VMS being introduced but limited coverage/pilot level</p>  |
| - Future                           | <p>Increased VMS coverage<br/>Co-management approaches to increase engagement with fishers to improve compliance/understanding as well as encourage community level MCS – legal structure support this</p> <p>Officers need to be mobile<br/>bilateral agreements<br/>monitoring control and surveillance<br/>Dedicated MCS staff</p>  |
| <b>Awareness and communication</b> | <p>Large scale fishers, Small-scale fishers, Local government<br/>Ministerial/government, Conservation/environment lobby</p> <p>Tailored information to secondary/tertiary education<br/>Business sector<br/>Dedicated community -based units<br/>target community, govt<br/>translations</p>  |
| <b>Human Capacity development</b>  | <p>National Fisheries Departments (coordination and collection from national fishery associations, provincial fisheries managers etc. )<br/>Sub-regional or regional bodies with coordinating function 2. officers role in MCS needs to be clarified and officers trained and resourced</p> <p>Stock assessment<br/>data collection and management training<br/>EAF/CCRF training</p>  |

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| <b>Responsible agency</b> | National Fisheries Departments (coordination and collection from national fishery associations, provincial fisheries managers etc. )<br>Sub-regional or regional bodies with coordinating function |
| <b>Other</b>              |  |

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| <b>THEME: Overexploitation of marine living resources</b>  |  |
| <b>Agreed EcoQO: Fisheries and other living marine resources are restored and managed sustainably,</b> |  |
| <b>ISSUE 2: Changes in species composition</b>   |  |
| <b>PART A</b>  |  |
| <b>Objective, target and indicators</b>  |  |
| <b>Objective</b>   | Increase the proportion of higher valued and longer-lived species in catches<br>Restore and maintained species balance   |
| <b>Target</b>  | (Short Term)% composition of key (indicator) species increases over (current) baseline<br>(Longer term) % composition of key (indicator) species matches composition of 20 years ago)<br><br>Noting each fishery will have different targets: <ul style="list-style-type: none"> <li>· Biomass of indicator species increased by x% by 2025</li> <li>· Fishing effort reduced by x % by 2020</li> <li>· use of destructive fishing methods reduced by x% by 20xx</li> <li>· bycatch of top predators reduced by x% by 20xx</li> </ul> Trophic index is increased |
| <b>Indicator</b>   | % of large demersal and pelagic species increases<br>% of low value/trash catch decreases<br>Trophic index of catch increases<br>Biomass of indicator species<br>Landings of indicators species<br><br>Number of boats targeting indicator species<br>Number of fishers<br>Improved MCS tools<br>Trophic index   |
| <b>Information needs</b>   | Catch statistics<br>Catch/size composition<br>Trophic index<br>CPUE of indicator speices<br><br>Fisheries statistics (LF, catch stats etc)<br>Stock assessment<br>(MCS) enforcement records, boat register   |

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| <b>PART B</b>                     |   |
| <b>Actions</b>                    |   |
| <b>Institutional arrangements</b> |   |
| - Current                         | National fisheries and agencies<br>BOBPIGO western BOB (science/advice , no management advice)<br>SEAFDEC eastern BOB (science/advice , no management advice)<br>BOBLME fisheries working groups<br>[SACEP/SCZMC – move to biodiversity/resources/reefs?]<br>BOBP-IGO, SEAFDEC, IOTC, NACA, BIMSTEC, ASEAN, IOMAC, APFIC, SAARC, IUCN<br>National research agencies   |
| - Future                          | Practical arrangements that address resources shared by 2-3 countries<br>Sub-regional working groups providing management advice<br>Strengthening of SEAFDEC & BOBPIGO to coordinate members science programmes, convene management advisory committees and provide management advice<br>Longer term a regional coordinating arrangement that focuses on non tuna species<br><br>Regional body that can serve as an umbrella on fisheries management of TB species in the BOB<br>BOBP-IGO (hilsa)<br>BOBP-IGO-SEAFDEC (Indian mackerel)<br>national research agencies |
| <b>Legal and policy reforms</b>   |   |
| - Current                         | National fishery laws (may need updating) and related acts.<br>Zoning measures (seasonal/spatial) exist, but it may not be strongly enforced<br>Gear measures (e.g. mesh sizes)<br>No policy on bycatch<br>High on shore demand (fishmeal/aquaculture) for small/low value trash fish/bycatch<br>High import tariffs fishmeal - drives local fishmeal price<br>Surimi/ food technology increase drives demand for surimi species<br><br>National fisheries instruments<br>international and soft instruments CCRF   |

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| - Future                          | <p>Develop a fishery information/science programme for key transboundary stocks/fisheries</p> <p>Zoning systems developed &amp; enforced</p> <p>Gear measures enforced</p> <p>Remove incentives for targeting low value species (removal of fuel subsidies/remove import tariffs on fishmeal/remove minimum floor prices)</p> <p>Create Incentives to conserve or improve quality/value of catch</p> <p>Policy on "capacity cap" developed for identified segments of the fishery (e.g. vessels over xx GT, or limits on gear types).</p> <p>Incorporate TB management of Marine living resources into national tools</p> <p>Possible other from Policy review</p>  |
| <b>Management measure</b>         |   |
| - Current                         | <p>National rules and regulations exist but not uniformly implemented</p> <p>Many of the regulations are targeted at conflict reduction, spatial exclusions, banning of controversial or destructive fishing methods</p> <p>Gear measures may be in place, but there is poor compliance</p> <p>Scientific data collection programmes exist in most countries but not targetted to management (or is not shared for management of straddling stocks)</p>   |
| - Future                          | <p>Development of fishery management plans (or fishery improvement plan) for key/ important/commercial resources or fishing areas/zones.</p> <p>Reorient/develop fishery science/fishery information collection to support development of management plans</p> <p>Clearer strategy/policy in aquaculture development and related demand for feeds</p> <p>Identify offshore reduction fisheries (e.g. oil sardine) and manage/set limits</p> <p>Budget for management</p> <p>Bilateral agreements</p> <p>Monitoring</p> <p>Gear regulations (selectivity)</p> <p>effort management (closed seasons - space and time)</p> <p>harmonised measures</p> <p>Co management (community involvement)</p> <p>fisheries statistics - collection and management</p> |
| <b>Enforcement and compliance</b> |   |
| - Current                         | <p>Portside monitoring/inspections</p> <p>Some community level MCS (but patchy, may not result in legal action)</p>   |

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| - Future                           | <p>Mesh size, spatial and temporal measures compliance.</p> <p>Catch composition monitoring</p> <p>Regional/bilateral observer programme ( for vessels operating in each other's EEZ).</p> <p>Reporting requirement for bycatch/low value species</p> <p>Minimum requirements for bycatch levels</p> <p>Officers need to be mobile</p> <p>bilateral agreements</p> <p>monitoring control and surveillance</p> <p>Dedicated MCS staff</p>  |
| <b>Awareness and communication</b> | <p>Mesh size, spatial and temporal measures compliance.</p> <p>Catch composition monitoring</p> <p>Regional/bilateral observer programme ( for vessels operating in each other's EEZ).</p> <p>Reporting requirement for bycatch/low value species</p> <p>Minimum requirements for bycatch levels</p> <p>Dedicated community -based units</p> <p>target community, govt</p> <p>translations</p> <p>educational documents relating to species composition - identification, management objectives</p> |
| <b>Human capacity development</b>  | <p>Principal limitation is lack of "fishery management training" using modern EAF approaches.</p> <p>Co-management skills and training needed at local level</p> <p>Species identification</p> <p>How to set bycatch limits?</p> <p>Officers role in MCS needs to be clarified and officers trained and resourced</p> <p>stock assessment</p> <p>data collection and management training</p> <p>EAF/CCRF training</p>   |
| <b>Responsible agency</b>          | <p>National Fisheries Departments (coordination and collection from national fishery associations, provincial fisheries managers etc.)</p> <p>Sub-regional or regional bodies with coordinating function</p>  |
| <b>Other</b>                       |   |

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| <b>THEME: Overexploitation of marine living resources</b>  |   |
| <b>Agreed EcoQO: Fisheries and other living marine resources are restored and managed sustainably,</b> |   |
| <b>ISSUE 3: High proportion of juvenile fish</b>   |   |
| <b>PART A</b>  |   |
| <b>Objective, target and indicators</b>  |   |
| <b>Objective</b>   | Reduce proportion of catch of juvenile fish of economically important species in identified problem fisheries (or gear types?)<br><br>Reduce the proportion of juvenile fish  |
| <b>Target</b>  | (Short Term)% juvenile economic important species in catch reduces over (current) baseline<br><br>Noting each fishery will have different targets: <ul style="list-style-type: none"> <li>Percentage of juveniles of economically important species reduced by x% by 2025</li> <li>Value of catch increased by x% by 20xx</li> <li>Fishing effort reduced by x % by 2020</li> <li>use of destructive fishing methods reduced by x% by 20xx</li> </ul> |
| <b>Indicator</b>   | % of juvenile economically important species in catches<br><br>Juvenile species value of catch<br>Number of boats(gear) targeting juvenile species<br>Number of fishers   |
| <b>Information needs</b>   | Catch statistics<br>Catch/size composition<br><br>Fisheries statistics (LF, catch stats etc)<br>stock assessment (MCS), boat register   |

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| <b>PART B</b>                     |   |
| <b>Actions</b>                    |   |
| <b>Institutional arrangements</b> |   |
| - Current                         | 1.National fisheries and agencies<br>BOBPIGO western BOB (science/advice , no management advice)<br>SEAFDEC eastern BOB (science/advice , no management advice)<br>BOBLME fisheries working groups<br>[SACEP/SCZMC – move to biodiversity/resources/reefs?]BOBP-IGO<br><br>BOBP-IGO, SEAFDEC, IOTC, NACA, BIMSTEC, ASEAN, IOMAC, APFIC, SAARC, IUCN<br>National research agencies   |
| - Future                          | Practical arrangements that address resources shared by 2-3 countries<br>Sub-regional working groups providing management advice<br>Strengthening of SEAFDEC & BOBPIGO to coordinate members science programmes, convene management advisory committees and provide management advice<br>Longer term a regional coordinating arrangement that focuses on non tuna species<br><br>Regional body that can serve as an umbrella on fisheries management of TB species in the BOB<br>BOBP-IGO (hilsa)<br>BOBP-IGO-SEAFDEC (Indian mackerel)<br>national research agencies |
| <b>Legal and policy reforms</b>   |   |
| - Current                         | National fishery laws (may need updating) and related acts.<br>Zoning measures (seasonal/spatial) exist, but it may not be strongly enforced<br>Gear measures (e.g. mesh sizes)<br>No policy on bycatch<br>High on shore demand (fishmeal/aquaculture) for small/low value trash fish/bycatch<br>High import tariffs fishmeal - drives local fishmeal price<br>Surimi/ food technology increase drives demand for surimi species<br><br>National fisheries instruments<br>international and soft instruments CCRF   |

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| - Future                          | <p>Develop a fishery information/science programme for key transboundary stocks/fisheries<br/>                     Zoning systems developed &amp; enforced<br/>                     Gear (mesh size) measures enforced<br/>                     Light attraction techniques "managed"/regulated<br/>                     Limits on juveniles in catch.<br/>                     Remove incentives for targeting low value species (removal of fuel subsidies/remove import tariffs on fishmeal/remove minimum floor prices)<br/>                     Create Incentives to conserve or improve quality/value of catch<br/>                     Policy on "capacity cap" developed for identified segments of the fishery (e.g. vessels over xx GT, or limits on gear types)</p> <p>Incorporate TB management of Marine living resources into national tools<br/>                     Possible other from Policy review</p>               |
| <b>Management measure</b>         |   |
| - Current                         | <p>National rules and regulations exist but not uniformly implemented<br/>                     Many of the regulations are targeted at conflict reduction, spatial exclusions, banning of controversial or destructive fishing methods<br/>                     Gear measures may be in place, but there is poor compliance<br/>                     Scientific data collection programmes exist in most countries but not targetted to management (or is not shared for management of straddling stocks)</p>   |
| - Future                          | <p>1Development of fishery management plans (or fishery improvement plan) for key/ important/commercial resources or fishing areas/zones.<br/>                     Reorient/develop fishery science/fishery information collection to support development of management plans<br/>                     Clearer strategy/policy in aquaculture development and related demand for feeds<br/>                     Market based awareness/regulation on minimum sizes for commercial species</p> <p>Budget for management<br/>                     bilateral agreements<br/>                     monitoring<br/>                     gear regulations (selectivity)<br/>                     effort management (closed seasons - space and time)<br/>                     harmonised measures<br/>                     Co management (community involvement)<br/>                     fisheries statistics - collection and management</p> |
| <b>Enforcement and compliance</b> |   |
| - Current                         | <p>Portside monitoring/inspections<br/>                     Some community level MCS (but patchy, may not result in legal action)</p>   |

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| - Future                           | <p>Mesh size, spatial and temporal measures compliance.<br/>                     Catch composition monitoring<br/>                     Regional/bilateral observer programme (for vessels operating in each other's EEZ.<br/>                     Reporting requirement for bycatch/low value species<br/>                     Minimum requirements for bycatch levels</p> <p>Officers need to be mobile<br/>                     bilateral agreements<br/>                     monitoring control and surveillance<br/>                     Dedicated MCS staff</p>  |
| <b>Awareness and communication</b> | <p>Large scale fishers<br/>                     Small-scale fishers<br/>                     Local government<br/>                     Ministerial/government<br/>                     Conservation/environment lobby<br/>                     Fish meal producers<br/>                     Aquaculture feeds producers<br/>                     Business sector</p> <p>Dedicated community -based units<br/>                     target community, govt<br/>                     translations<br/>                     educational documents relating to species composition - identification, management objectives</p> |
| <b>Human capacity development</b>  | <p>What capacity building is required and who will be the main target audience?<br/>                     officers role in MCS needs to be clarified and officers trained and resourced<br/>                     stock assessment</p> <p>Data collection and management training<br/>                     EAF/CCRF training</p>  |
| <b>Responsible agency</b>          | <p>National Fisheries Departments (coordination and collection from national fishery associations, provincial fisheries managers etc.)<br/>                     Sub-regional or regional bodies with coordinating function</p>  |
| <b>Other</b>                       |   |

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| <b>THEME: Overexploitation of marine living resources</b>  |   |
| <b>Agreed EcoQO: Fisheries and other living marine resources are restored and managed sustainably,</b> |   |
| <b>ISSUE 4: Changes in biodiversity, including vulnerable and endangered species</b>                   |   |
| <b>PART A</b>  |   |
| <b>Objective, target and indicators</b>  |   |
| <b>Objective</b>   | Reduced effects of fishing on marine biodiversity , including vulnerable and endangered species.<br><br>Restore biodiversity including those of vulnerable and endangered species   |
| <b>Target</b>  | % catch of key vulnerable species reduced<br>% reduction in destructive fishing practices in identified critical habitats<br><br>XX vulnerable areas protected<br>restore biodiversity including those of vulnerable and endangered species   |
| <b>Indicator</b>   | Composition and % vulnerable species caught<br>Amount / type of destructive fishing practices carried out in critical habitats<br>% area protected<br><br>Biodiversity index<br>population estimates for vulnerable and endangered species  |
| <b>Information needs</b>   | Size / species composition, information about the critical habitats (GIS information).<br>Information about the gear use.<br>Information on discards from the fishermen.<br><br>Biodiversity statistics   |
| <b>PART B</b>  |   |
| <b>Actions</b>   |   |
| <b>Institutional arrangements</b>  |   |
| - Current  | 1. National environment agencies<br>National fisheries and agencies<br>SACEP/SCZMC – move to biodiversity/resources/reefs<br>CMS (dugongs, cetaceans, etc.) IOSEA (turtle memorandum<br>IUCN (?) & NPOA shark<br>CITES<br>Global coral reef monitoring network, ICRI, ICRAN, CORDIO.<br>BOBPIGO western BOB (science/advice , no management advice)<br>SEAFDEC eastern BOB (science/advice , no management advice)<br>BOBLME fisheries working groups |

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|                                 | BOBP-IGO, SEAFDEC, IOTC, NACA, BIMSTEC, ASEAN, IOMAC, APFIC, SAARC, IUCN<br>National research agencies  |
| - Future                        | Practical arrangements that address resources shared by 2-3 countries<br>Sub-regional working groups<br>Strengthening of SEAFDEC & BOBPIGO to coordinate members science programmes, convene management advisory committees and provide management advice on fishery related impacts on biodiversity of endangered/vulnerable species.<br>Longer term a regional coordinating arrangement that focuses on endangered or vulnerable species.<br><br>Regional body that can serve as an umbrella on fisheries management of TB species in the BOB<br>BOBP-IGO (hilsa)<br>BOBP-IGO-SEAFDEC (Indian mackerel)<br>national research agencies |
| <b>Legal and policy reforms</b> |   |
| - Current                       | National signatories of IOSEA, CMS (turtle/dugong)<br>National fishery/environmental laws (may need updating) and related acts.<br>Zoning measures (seasonal/spatial) exist, but it may not be strongly enforced<br>Gear measures (e.g. mesh sizes)<br>No policy on bycatch<br>No policy on shark<br>Ballast water management (?) (signatories to IMO convention)<br>Enforcement of CITES regulations<br><br>National fisheries instruments<br>National environmental instruments<br>international and soft instruments CCRF<br>CBD   |
| - Future                        | Develop a fishery information/science programme for key endangered or vulnerable species<br>Spatial /temporal protection measures /zoning systems developed & enforced for specific habitats<br>Develop NPOA shark<br>National regulations on protected species harmonized with CITES concerns/IUCN redlists etc.<br><br>Incorporate TB management of Marine living resources into national tools<br>Possible other from Policy review  |

| Management measure         |  |
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| - Current                  | <p>National rules and regulations exist but not uniformly implemented<br/>                     Environmental measures for conservation may not be harmonized or integrated to fishery management measures<br/>                     Scientific data collection programmes exist in most countries but not targeted to management for management of straddling stocks<br/>                     CITES transboundary regulations<br/>                     Some national measures for protection/conservation<br/>                     Some MPA/Protected areas established<br/>                     Enhancement activities using aquaculture produced seed (e.g. sea cucumbers, sea horse, clown fish, giant clam etc.)<br/>                     1. What management actions are currently used?</p>  |
| - Future                   | <p>Conservation plans endangered/vulnerable resources/areas<br/>                     Reorient/develop fishery science/fishery information collection to support development of management plans<br/>                     Disincentive/awareness raising on trade in CITES/protected species - non consumption /sale (corals/seashells)<br/>                     Market based awareness/regulation on minimum sizes for commercial species<br/>                     Tourism/MPA measures also restrict sale /consumption of protected species.<br/>                     MPA measures relating to fisheries strengthened (Environment/fishery Agency coordination)</p> <p>Budget for management<br/>                     bilateral agreements<br/>                     monitoring<br/>                     gear regulations (selectivity)<br/>                     effort management (closed seasons - space and time)<br/>                     harmonised measures<br/>                     Co management (community involvement)<br/>                     fisheries statistics - collection and management</p> |
| Enforcement and compliance |  |
| - Current                  | <p>Border controls/inspections (CITES)<br/>                     Conservation measures enforced in country</p>  |
| - Future                   | <p>Strengthen regulations on management of MPAs<br/>                     Harmonized list of protected/conserved species<br/>                     Promote management effectiveness tracking tools for MPAs.</p> <p>Officers need to be mobile<br/>                     bilateral agreements<br/>                     monitoring control and surveillance<br/>                     Dedicated MCS staff</p>   |

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| <b>Awareness and communication</b> | <p>Tourism education, Large scale fishers/Small-scale fishers, Local government Ministerial/government<br/>                     Conservation/environment lobby, Tourism sector<br/>                     Business sector Dedicated community -based units</p> <p>Target community, govt translations<br/>                     educational documents relating to species composition - identification, management objectives</p>  |
| <b>Human capacity development</b>  | <p>Principal limitation is lack of "fishery management training" using modern EAF approaches including vulnerable/endangered specie issues<br/>                     Co-management skills and training needed at local level<br/>                     Species identification<br/>                     Communication of vulnerable/endangered species conservation needs – including interaction with fishery activities</p> <p>Officers role in MCS needs to be clarified and officers trained and resourced<br/>                     stock assessment<br/>                     data collection and management training<br/>                     EAF/CCRF training</p> |
| <b>Responsible agency</b>          | <p>National Environmental Departments<br/>                     Wildlife conservation Departments<br/>                     National Parks/MPA<br/>                     National Fisheries Departments (related to fishing effects)</p> <p>Sub-regional or regional bodies with coordinating function for endangered/vulnerable species</p>   |
| <b>Other</b>                       |   |

| THEME: Degradation of critical habitats  |  |
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| Agreed EcoQO: Degraded, vulnerable and critical marine habitats are restored, conserved and maintained |  |
| ISSUE 1: Loss and degradation of mangrove habitat  |  |
| PART A   |  |
| Objective, target and indicators   |  |
| Objective  | Protect existing mangrove habitat and increase mangrove coverage and quality<br><br>Restore and improve the extent and biodiversity of mangrove habitats |
| Target   | xx% of lost area restored by year xxxx<br><br>Noting each country will have different targets:<br>· CBD target increase by x% by 20xx.                   |
| Indicator  | Mangrove coverage, Diversity index<br><br>(CBD) coverage of mangrove; mangrove biodiversity index; associated species                                    |
| Information needs  | GIS map of mangrove coverage<br>Species/diversity index<br><br>Biodiversity of mangroves and associated species statistics<br>mangrove stats             |

| THEME: Degradation of critical habitats  |   |
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| Agreed EcoQO: Degraded, vulnerable and critical marine habitats are restored, conserved and maintained |   |
| ISSUE 2: Degradation of coral reefs  |   |
| PART A   |   |
| Objective, target and indicators   |   |
| Objective  | Monitor & protect existing coral reef habitats and prevent destructive activities<br>Restore coral reef area and biodiversity   |
| Target   | Xx coral reef areas protected<br>Coral health indicators improved over baseline<br>Climate change related impacts/effects monitored<br>Destructive activities on coral reefs stopped/banned<br><br>Noting each country will have different targets:<br>· restore x% of degraded coral reefs 20xx. |
| Indicator  | Coral reefs protected<br>Coral cover & health   |

|                   |  |
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|                   | Diversity index<br><br>Area of restored coral reef biodiversity index<br>associated species index  |
| Information needs | Coral cover, visual census of fish<br>GIS mapping of protected areas<br>Species/diversity index<br>Existence of banned activity list/legislation<br><br>Biodiversity statistics<br>coral stats<br>associated species surveys |

| THEME: Degradation of critical habitats  |   |
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| Agreed EcoQO: Degraded, vulnerable and critical marine habitats are restored, conserved and maintained |   |
| ISSUE 3: Loss and damage to seagrass   |   |
| PART A   |   |
| Objective, target and indicators   |   |
| Objective  | Monitor & protect existing seagrass habitat's and prevent destructive activities<br><br>Restore seagrass area   |
| Target   | Xx seagrass areas protected<br>seagrass health indicators improved over baseline<br>Climate change related impacts/effects monitored<br>Destructive activities on seagrass beds stopped/banned<br><br>Noting each country will have different targets:<br>· restore x% of degraded seagrass 20xx. |
| Indicator  | Seagrass areas protected<br>seagrass cover & condition<br>Diversity index<br><br>Area of restored associated species index<br>rate of production  |

|                          |   |
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| <b>Information needs</b> | Seagrass cover,<br>GIS mapping of protected areas<br>Species/diversity index<br>Existence of banned activity list/legislation<br><br>Seagrass stats<br>associated species surveys |
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| THEME: Pollution (& water quality)  |  |
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| Agreed EcoQO: Coastal and marine pollution and water quality are controlled to meet agreed standards for human and ecosystem health |  |
| ISSUE 1: Sewage borne pathogens and organic load  |  |
| PART A  |  |
| Objective, target and indicators  |  |
| Objective   | Reduced sewage loadings from coastal urban and industrial sources,<br>Reduce sewage borne pathogens and organic load.  |
| Target  | E coli loading in coastal waters reduced to xxx<br>TN/TP/COD loadings reduced<br>Local eutrophication reduced<br><br>Noting each country will have different targets: <ul style="list-style-type: none"> <li>reduction in the pathogen load by x% of by 20xx.</li> <li>reduction in the organic load by x% of by 20xx</li> </ul> |
| Indicator   | E coli loading in coastal waters<br>TN/TP/COD loadings<br>Eutrophication<br>Local Fish kills/HABS<br><br>Coliforms (pathogens)<br>BOD (organic load)<br>incidence of water-borne disease<br>Eutrophication levels  |
| Information needs   | Coastal WQ monitoring<br>HAB monitoring<br><br>Water quality monitoring<br>health records  |

| THEME: Pollution (& water quality)  |  |
|---|--|
| Agreed EcoQO: Coastal and marine pollution and water quality are controlled to meet agreed standards for human and ecosystem health |  |
| ISSUE 2: Solid waste/marine litter  |  |
| PART A  |  |
| Objective, target and indicators  |  |
| Objective   | Reduction of solid waste & marine litter<br>Reduce solid waste and marine litter.  |
| Target  | Comprehensive solid waste management plans in xx percent of coastal communities/cities/towns<br>Reduction of litter/solid waste from tourism/shipping<br>Reduction of fisheries generated litter/discarded gears<br><br>Noting each country will have different targets: <ul style="list-style-type: none"> <li>solid waste in the coastal environment reduced by x% of by 20xx.</li> <li>marine litter in the coastal and inshore environment reduced by x% of by 20xx. IMO?</li> </ul> |
| Indicator   | Beach/coastal water litter surveys<br>Litter in trawls<br>Urban/rural solid waste management plans<br>Micro-particulate/plastic components in food chain   |
| Information needs   | Beach surveys<br>Fishers surveys<br>Assessments of tissue samples for plastics/gut contents  |
|   |  |

| THEME: Pollution (& water quality)  |  |
|---|--|
| Agreed EcoQO: Coastal and marine pollution and water quality are controlled to meet agreed standards for human and ecosystem health |  |
| ISSUE 3: Increasing nutrient inputs   |  |
| PART A  |  |
| Objective, target and indicators  |  |
| Objective   | Reduction of nutrient loads in coastal waters<br>Reduce nutrient inputs.   |
| Target  | Reduced dissolved nutrient (N&P) loadings from agricultural (riverine) runoff on coastal waters by xx percent<br>Reduced dissolved nutrient (N&P) loadings from aquaculture discharges on coastal waters by xx percent<br>Reduced nutrients loadings from industrial sources (to be identified)<br>Harmful algal bloom incidents reduced. Number/per year or area affected.<br>Water quality related fish kills reduced<br>Hypoxic areas reduced<br><br>Noting each country will have different targets: <ul style="list-style-type: none"> <li>· nutrient inputs from point sources in the coastal environment reduced by x% of by 20xx.</li> <li>· nutrient inputs from non- point sources in the coastal environment reduced by x% of by 20xx.</li> </ul> |
| Indicator   | TN<br>TP<br>COD<br>Water quality measurements<br>No fish kills<br>Hypoxic area monitoring.<br><br>Eutrophication levels (Chl, BOD)<br>Secchi depth   |
| Information needs   | Measures of the above.<br>HAB monitoring<br>Satellite WQ imagery<br><br>Stats on point and non-point sources of pollution<br>water quality surveys<br>categorisation of the nutrients  |

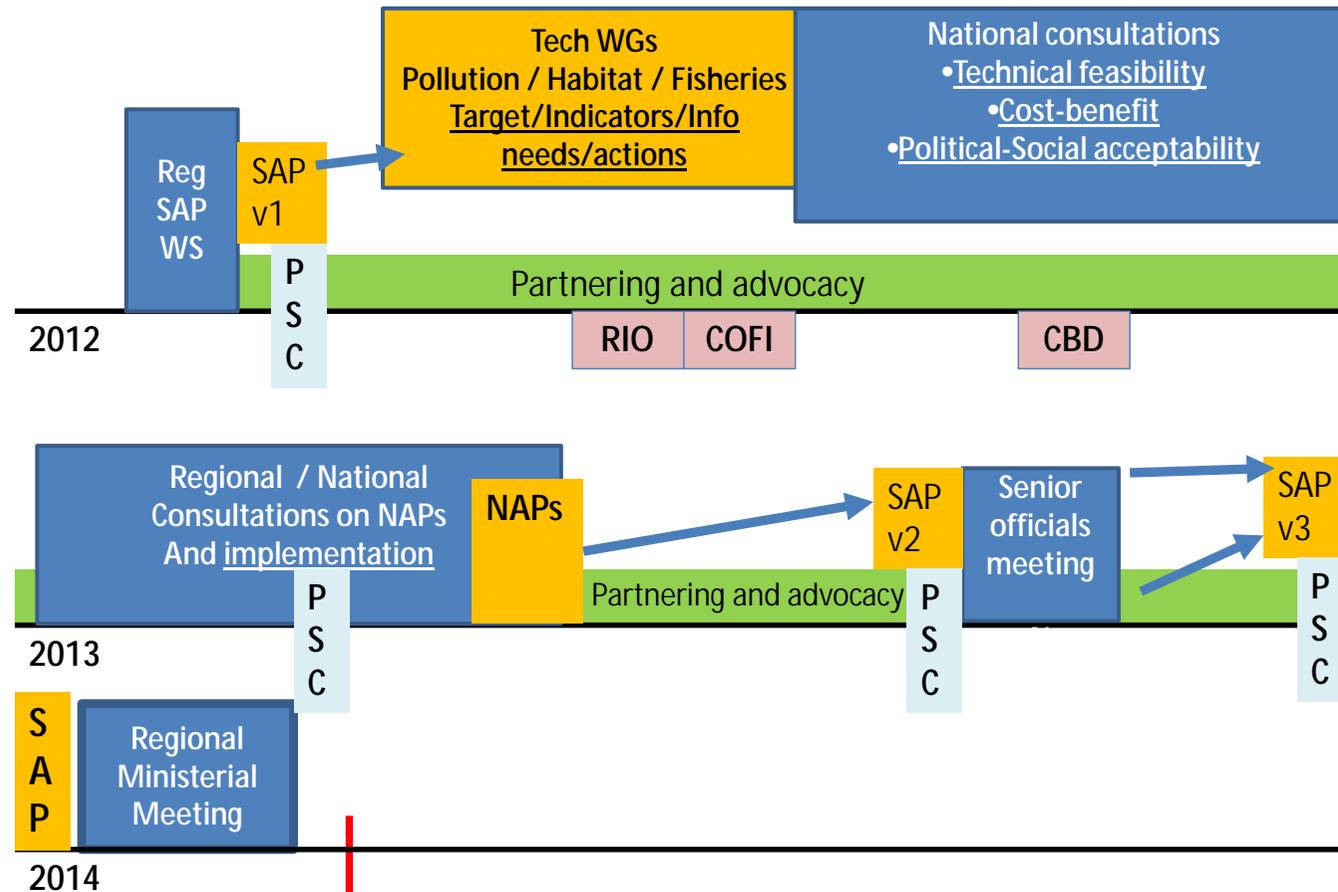
| THEME: Pollution (& water quality)  |  |
|---|--|
| Agreed EcoQO: Coastal and marine pollution and water quality are controlled to meet agreed standards for human and ecosystem health |  |
| ISSUE 4: Oil pollution  |  |
| PART A  |  |
| Objective, target and indicators  |  |
| Objective   | Reduction of incidents of oil spillage/discharge. And adequate response capacity to oil spillage events<br><br>Reduce oil pollution.   |
| Target  | Oil spill contingency plans in place in xx countries/regions<br>Regulations on shipping/oil exploration industry related oil discharges enforced<br>Capacity to respond to oil spill exists<br><br>Noting each country will have different targets: <ul style="list-style-type: none"> <li>· OAG in the coastal environment reduced by x% of by 20xx.</li> <li>· Reduction in the numbers of tarballs by x% by 20xx</li> <li>· MARPOL targets</li> </ul> |
| Indicator   | Tarballs<br>Beach tar<br>Oils slick/Oilspills monitoring<br>Existence of National/regional plans<br><br>Tarballs; pollution; dissolved oils in water   |
| Information needs   | Monitoring<br><br>Survey of point sources; water quality surveys; log of pollution events  |

| THEME: Pollution (& water quality)  |  |
|---|--|
| Agreed EcoQO: Coastal and marine pollution and water quality are controlled to meet agreed standards for human and ecosystem health |  |
| ISSUE 5: Persistent organic pollutants (POPs) and persistent toxic substances (PTSs)  |  |
| PART A  |  |
| Objective, target and indicators  |  |
| <b>Objective</b>  | Reduction of POP/PTS in marine life<br>Compliance with international norms on movement and management of POP/PTS in the maritime zone<br><br>Reducing POPs and PTSs.   |
| <b>Target</b>   | Reduce concentrations in indicator species by xx percent over baseline<br>Development of national plans/legislation for management/control of POPs and identified PTS<br>Compliance/sign up/ratification to international treaty/conventions on movement/management of POP/PTS (including specific hazards)<br>Bay-wide information sharing on POP/PTS hazards<br><br>Noting each country will have different targets:<br>Stockholm / other (Basel) convention |
| <b>Indicator</b>  | Existence of national plan<br>Concentration of POP/PTS in indicator species<br><br>Stockholm / other (Basel) convention requirements.  |
| <b>Information needs</b>  | Programme for monitoring POPs/PTS in indicator species/environment<br>National plan/legislation<br><br>Stockholm /other(Basel) convention needs.   |

| THEME: Pollution (& water quality)  |  |
|---|--|
| Agreed EcoQO: Coastal and marine pollution and water quality are controlled to meet agreed standards for human and ecosystem health |  |
| ISSUE 6: Sedimentation  |  |
| PART A  |  |
| Objective, target and indicators  |  |
| <b>Objective</b>  | Reduction of impact of sediments on coastal environment (particularly those most sensitive to high or toxic sediments)<br><br>Reduce sedimentation load into coastal habitats.   |
| <b>Target</b>   | Effluent and effluent management from coastal land-based aquaculture meet national standards<br>Coral reef/seagrass/mangrove habitats are unaffected by coastal sediment loadings<br>Sediment management measures in place for industrial activities impacting receiving waters<br>EIA regulations developed/strengthened<br><br>Noting each country will have different targets: <ul style="list-style-type: none"> <li>· sedimentation inputs from point sources in the coastal environment reduced by x% of by 20xx.</li> <li>· Sediment inputs from non- point sources in the coastal environment reduced by x% of by 20xx.</li> </ul> |
| <b>Indicator</b>  | WQ monitoring of coastal aquaculture<br>Reef/seagrass monitoring<br>Existence of national standards for aquaculture effluents and effluent management<br>Legislation for industrial activities that produce high sediment loads to coastal waters (e.g. mining, dredging, reclamation)<br><br>Secchi depth; particulate matter; TDS; BOD/COD   |
| <b>Information needs</b>  | Monitoring programmes for coastal aquaculture, coastal industry<br><br>Stats on point and non-point sources of pollution<br>water quality surveys  |

|  |  |
|--|--|
| <b>THEME: Pollution (&amp; water quality)</b>  |  |
| <b>Agreed EcoQO: Coastal and marine pollution and water quality are controlled to meet agreed standards for human and ecosystem health</b> |  |
| <b>ISSUE 7: Heavy metals</b>   |  |
| <b>PART A</b>  |  |
| <b>Objective, target and indicators</b>  |  |
| <b>Objective</b>   | Reduction of impact of heavy metals on coastal environment /ecosystems<br><br>Reducing heavy metals in coastal ecosystems and key marine species.  |
| <b>Target</b>  | Concentration of key heavy metals in indicator species is reduced.<br>Management measures in place for heavy metal discharge from industrial activities (including offshore oil /gas production) that impact receiving waters<br>EIA regulations developed/strengthened<br><br>Noting each country will have different targets:<br>- levels of metals in aquatic ecosystems reduced. |
| <b>Indicator</b>   | WQ monitoring of indicator species (benthic, pelagic, nearshore offshore)<br>Existence of national standards for industrial effluents and effluent management<br>Legislation for industrial activities that produce high heavy metal to coastal waters (e.g. mining, dredging, oil exploration etc.)<br><br>Target species (fish and benthos)<br>water quality                       |
| <b>Information needs</b>   | Monitoring programmes for maritime and coastal industries and construction.<br>WQ monitoring programme<br>HM monitoring programme in marine environment<br><br>Identify target species for monitoring<br>bioaccumulation rates.  |
|  |  |

### Appendix V Draft SAP completion process



Reg SAP WS (Regional SAP process Development workshop - this meeting); PSC (Project Steering Committee); RIO (RIO+20 meeting); COFI (FAO Committee on Fisheries) CBD (Biodiversity convention - conference of the parties).

**Characteristics of the SAP completion process - a working document for discussions :**

1. SAP focus on regional, transboundary issues
2. Countries will have different National Action Plans that contribute to the objectives to address issues under each EcoQO. Actions will be selected by each country on the basis of technical feasibility, cost-benefit (including environmental cost) and political-social acceptability
3. **Advocacy messages will tailored for target audiences**
  - regional activities versus bilateral
  - advantages of action versus no action
  - international obligations (eg. CDB)
  - Government targeted advocacy
  - Advocacy at international events
  - Tailor, where possible, actions to meet "summit/CBD" objectives
  - TDA to initiate advocacy
4. **Project partnering**
  - SEAFDEC / BOBP-IGO (Fisheries)
  - UNEP-GPA / World Bank (Pollution)
  - IUCN / MFF / UNEP (Habitat)
5. **Cross cutting features**

|                            |
|----------------------------|
| Capacity building          |
| Education - communications |
| Youth                      |
| Enforcement                |

**Players**

| WHO  | ROLE   |
|--|--|
| PSC  | Guidance, high level and persistent advocacy   |
| NC's   | Managing the process in-country  |
| IMC  | Important - talk to PSC  |
| Permanent Secretaries / Advisers   | Establish a line of communication and feed with high quality materials   |
| Ministers  | One meeting, facilitated by FAO-ADG  |
| Regional Bodies<br>ASEAN, SEAFDEC, BOBP-IGO, IOTC, BIMSTEC, SAARC, IOTC, IUCN etc  | BOBLME in "other matters" of the meeting agenda's<br>Cost-benefit analysis / Environmental valuation<br>Political-social feasibility |
| Project partners / donors<br>FAO, BOBP-IGO, SEAFDEC, IUCN, UNEP-GPA, Worldbank, GEF, NORAD, SIDA                         | Collaborative actions  |
| Regional expert bodies as specialist assistance MIMA, BCAS, University, IUCN, WorldFish, BOBP-IGO, UNEP, GPA, SAARC CZMC | Technical Feasibility<br>Cost-benefit analysis / Environmental valuation<br>Political-social feasibility                             |
| Major Events<br>• RIO+20 / COFI / CBD / others   | Promotional papers   |
| GEF Focal Points   | Establish a line of communication and feed with high quality materials<br>Expect advocacy  |
| FAO-Reps   | Establish a line of communication and feed with high quality materials<br>Expect advocacy  |
| FAO-ADG  | Establish a line of communication and feed with high quality materials<br>Expect advocacy<br>Facilitate Minister meeting             |

**Risks**

|                            |   |   |
|----------------------------|---|---|
| Individuals move           | L | three PSC members will move in the next 15 months (India, Bangladesh and Sri Lanka) |
| Countries withdraw support | ? | could the SAP involve fewer than 8 countries  |
|                            |   |   |

**Challenges**

Due to budget allocation to SAP development, other BOBLME activities (other than SAP development) are reduced

Elections affect ministerial action  
 India - May 2014 (and govt processes are disrupted from 6 months before), Bangladesh - Nov/Dec 2013. Maldives - Aug 2013, but likely to be earlier than this. Malaysia - 2012.

## Appendix VI Draft SAP document framework

### Revised DRAFT FRAMEWORK FOR THE BOBLME STRATEGIC ACTION PROGRAMME (SAP)

#### Policy Brief / Executive Summary? (5 pages)

##### Questions:

- Why must the SAP be implemented? What are the consequences if not implemented? What is the vision? What are the objectives, actions and their policy implications? What are the policy reforms required? What are the costs? How will costs be shared among partner including funding agencies and countries? What is the significance of the BOBLME in the short term (2-5 years) and the long term – 30 years.

#### **PREFACE** – the political narrative - customised if necessary for each country (to be digested in 30 seconds)

Rapid changes in the coastal areas of the BOBLME are creating both challenges and opportunities for the people. The transboundary diagnostic analysis (TDA) confirmed by the technical experts reveals how the BOBLME countries and their coastal population have arrived at the crossroads of the present and the future. Having understood how we got there it is possible to set priorities for addressing the prevailing challenges and benefitting from the opportunities provided by the wide range of available people and resources. Since the uncertainties associated with the complex BOBLME are numerous, this Strategic Action Programme (SAP) provides both a vision and a strategy. The Need for an Ecosystem-based Policy.

#### 1. INTRODUCTION

##### The BOBLME Region – The People, Resources and Opportunities

- The BOBLME Vision
- Enough fish for future generations. ; Healthy coastal and near-shore marine habitats; Reduced pollution from agriculture, industry and large coastal cities; Coastal communities resilient to the impacts of climate change; Stakeholders working together for the common good.
- Existing partnerships that are already working toward expectations in the SAP

##### Uniqueness

- Geological, geomorphological, oceanographic, maritime trade, culture, art, architecture that bind; Prevailing and anticipated economic growth trends to 2025; The significance of the BOB sea in national and regional interests; plate tectonics and uncertainties
- Demography – the youth dividend; health (food security) and education status of coastal fishing communities – disparity with national averages?; cross-cutting developmental issues related to BOBLME themes

##### Existing working partnerships

- Existing major regional partnerships to build on

#### 2. STATE OF THE BOBLME AND CHALLENGES

- Background (from the executive summary in the TDA); Diagnosis and analysis of causes that must be addressed in order to make a difference; Confirmed TDA – the foundation of the SAP

#### 3. ACTION PROGRAMME – THE RATIONALE FOR REGIONAL COOPERATION

- Governance; cross-cutting nature, communication and awareness; pace of development change in the BOBLME region, ecosystem complexity, unanticipated consequences of rapid development which ignored ecosystem complexity, costs of reversing impacts / nested sub-systems / irreversibility of sub-system decline.
- Action Programme: Overexploitation of marine living resources; Action Programme – Critical Habitats; Action Programme - Pollution (Water Quality)

#### 4. BENEFITS AND COSTS

- NAP – its pivotal role

**5. SAP IMPLEMENTATION**

- Bilateral partnerships – the manner in which they integrate with EAF;
- Sub-regional partnerships and their contribution
- Funding mechanisms for LME-wide partnerships – exposure, vulnerability and risk mapping – climate change adaptation (best done regionally) to link with the hazard monitoring system already in operation.
- Monitoring & Evaluation

**6. RISKS AND RISK MITIGATION**

- Balance between long-term and short-term priorities. What are the short-term priorities that can increase political acceptability by merging with (i) ongoing regional projects; (ii) strengthening agency mandates which require capacity development; Communication and awareness with stakeholders; Advocacy

*Appendices:*

- Details of action plans
- Success stories of partnerships and programmes that have worked in providing environmental benefits



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](http://www.boblme.org)



Sida



Norad

