

Practitioner Guidelines for Preparation of Transboundary Diagnostic Analysis (TDA) and Strategic Action Programme (SAP) in East Asian Seas Region

by

Seng-Keh Teng
Consultant

May 2006



Southeast Asia Regional Learning Center (SEA-RLC)
Southeast Asia START Regional Center (SEA START RC)
Chulalongkorn University
Bangkok, Thailand

*The Southeast Asia Regional Learning Centre (SEA-RLC) is a **regional initiative** of the Global GEF International Waters project - 'Strengthening Global Capacity to Sustain Transboundary Waters: The International Waters Learning Exchange and Resource Network (IW:LEARN)', and is **hosted** by SEA START RC at Chulalongkorn University*

URL: <http://www.iwsea.org>



Table of Contents

	<i>Page</i>
Executive Summary	v-vi
Abbreviations and Acronyms	vii
1. Introduction	1
2. Nature and Objectives of TDA and SAP	3
3. Frameworks of TDA and SAP	5
3.1 TDA Framework	5
3.1.1 Regional Boundary and Geographic Scope	5
3.1.2 Analysis of the Socio-economic, Legal, Administrative, Political Context and Constraints	5
3.1.3 Assessment and Prioritization of Transboundary Problems	6
3.1.4 Identification and Quantification of Possible Causes	6
3.1.5 Discrimination among the National, Transboundary and Incremental Causes	6
3.1.6 Identification of Root Causes of the Perceived Transboundary Problems	6
3.2 SAP Framework	
3.2.1 Identification of Root Causes of the Priority Transboundary Problems from TDA	7
3.2.2 Establishment of Ecosystem Quality Objectives (EcoQOs) and Proposed Targets and Program Actions	7
3.2.3 Cost Benefit and Feasibility Analysis of Program Actions	7
3.2.4 Establishment of Incremental Partnerships	7
3.2.5 Financing of SAP	8
3.2.6 SAP Implementation Mechanisms	8
4. Guiding Principles for Preparing TDA and SAP	8
5. Process of Preparing the TDA	9
5.1 Preparation for Formulation of TDA	12
5.1.1 Appointments of Regional Coordinator and National Coordinators	12
5.1.2 Formation of a Regional TDA Task Team and Preparation of Plan of Action	12
5.1.3 Stakeholder Analysis and Creation of National TDA Task Team	12
5.1.4 Action Plan for Preparing the National TDA	12
5.1.5 Information and Data Collection and Analysis	13
5.2 Impact Assessment and Identification/Prioritization of Transboundary Problems	13
5.2.1 Impact Assessment	13
5.2.2 Identification/Prioritization of Transboundary Problems	17
5.3 Governance Analysis	19
5.3.1 Stakeholder Analysis	19
5.3.2 Institutional Analysis	20
5.3.3 Legal and Policy Analysis	21
5.4 Causal Chain Analysis	22
5.5 Preparation of TDA Reports	26
5.5.1 Preparation of National TDA Report	26
5.5.2 Preparation of Regional TDA Report	26

Table of Contents - continued

	<i>Page</i>
5.6 Review and Adoption of Regional TDA Report	26
5.6.1 Public Consultative Meeting to review Regional TDA Report	26
5.6.2 Revision and Finalization of Regional TDA Report	26
5.6.3 Presentation of Regional TDA Report for Review in Inter-governmental Meeting	26
5.6.4 Adoption of Regional TDA Report	26
5.7 Workshops and Meetings	27
5.7.1 Identification and Collation of Information	27
5.7.2 Impact Assessment and Identification/Prioritization of Transboundary Problems Workshop	27
5.7.3 Governance Analysis (GA) Workshop	27
5.7.4 Causal Chain Analysis (CCA) Workshop	27
5.7.5 Workshop for Formulation of Regional TDA	27
6. Process of Preparing SAP	27
6.1 Preparation for Formulation of SAP	28
6.1.1 Appointments of National and Regional Coordinators	28
6.1.2 Creation of Regional and National SAP Formulation Teams	28
6.1.3 Action Plan for Preparing SAP	28
6.2 Review of Priority Transboundary Issues, and Their Immediate and Root Causes	28
6.3 Formulation of Ecosystem Quality Objectives (EcoQOs), Indicators, Targets and Program Actions	29
6.4 Conduct of Feasibility Study for the Program Actions	31
6.5 Decision on Intent to Implement selected Feasible Options	31
6.6 Technical Consultation on the Contents of the Regional Strategic Action Programme	31
6.6.1 Setting of Short/Medium Term Actions (Operational Objectives)	31
6.6.2 Formulation of National/Regional Institutional Framework	32
6.6.3 Development of Comprehensive Monitoring/Evaluation Indicators	32
6.7 Establishment of Incremental Partnerships	32
6.8 Development of SAP Implementation and Financing Mechanisms	32
6.9 Assessment of Investment Needs associated with SAP Implementation	32
6.10 Finalization of SAP Report	32
6.11 Technical and Public Consultation of Regional SAP Report	33
6.12 Endorsement and Adoption of Regional SAP Report	33
6.12.1 National Endorsement	33
6.12.2 Development of GEF Interventions and Conduct Partnership Conference	34
6.12.3 Ministerial Conference to adopt Regional SAP Report	34
7. TDA and SAP Report Formats	34
7.1 Format for Regional and National TDA Reports	34
7.2 SAP Report Format	37

Table of Contents - continued

	<i>Page</i>
8. The East Asian Seas Region – Environmental and Socio-economic Information	40
8.1 Country Profiles and General Information	40
8.2 Completed and On-going Water-related GEF Projects	42
8.3 Other Donor-supported National and Regional Projects	44
9. Information Resources relating to TDA and SAP	46
9.1 East Asian Seas Region	46
9.1.1 Completed TDA and SAP	46
9.1.2 On-going TDA and SAP Projects	46
9.1.3 GIWA Regional Assessment Reports	47
9.2 TDA and SAP Reports in Other Regions	47
References	49
Table 1. Impacts of the priority GIWA Concerns/Issues for Yellow Sea Region	16
Table 2. Summary of transboundary implications of priority GIWA Concerns/Issues	18
Table 3. Summary of the causal chain analysis for the Yellow Sea Region	24-25
Figure 1. Complete process of developing and preparing the TDA and SAP	3
Figure 2. Process for preparation of the transboundary diagnostic analysis (TDA)	11
Figure 3. Procedures for conducting the causal chain analysis for an identified biological or environmental problem	23
Box 1. Environmental problems of transboundary nature for the management Of international waters	14
Box 2. Ecosystem quality objectives (EcoQOs) and their associated indicators, Targets and program actions for a prioritized environmental issue in Caspian Sea region	30
Appendix 1. Extract from the “Programme Study on International Waters 2005”	51-56
Appendix 2. Terms of reference for the TDA/SAP consultancy of the project [Southeast Asia Regional Learning Centre (SEA-RL)]	57-58

Executive Summary

The transboundary diagnostic analysis (TDA) provides scientific and technical analysis on status and impacts of the environment in given international waters and it is recommended for most of the projects in the Global Environment Facility (GEF)'s International Waters Operational Programme 8 (OP8) and 9 (OP9). On the other hand, the SAP is a negotiated policy document that establishes clear priorities for action and identifies policy, legal and institutional reforms as well as investments needed to address and resolve priority problems of the transboundary waters. The present practitioner guidelines for preparation of the TDA/SAP, which is meant primarily for application in the East Asian Seas region, was prepared taking into consideration of, (a) the conclusions and recommendations of the GEF International Waters Program Study conducted recently; (b) a detailed review of more than 18 TDA and 15 SAP reports from GEF; and (c) the 'Terms of Reference' provided by the Southeast Asia Regional Learning Center (SEA-RLC) of the Southeast Asia START Regional Center (SEA START RC) in Bangkok, Thailand.

The guidelines deal in details the approach in preparing the TDA and SAP after when the associated TDA or SAP project has been approved for implementation by GEF Implementing Agencies. However, the approaches provided in the guidelines could be adopted in preparing the project ideas or proposal to be submitted to GEF for funding consideration.

Frameworks and guiding principles that provide overall procedures and strategy on how to proceed with the preparation of TDA and SAP were detailed. It is important that in the process of preparing the TDA and SAP there should have, (a) full stakeholder participation; (b) joint fact-finding and transparency; (c) ecosystem approach; (d) adaptive management and accountability; (e) inter-sectoral policy development and step-wise consensus building; (f) risk management; (g) inclusion of partnerships and incremental costs; and (h) aligned actions and government commitment.

The processes of preparing the TDA and SAP were described. Preparation of the TDA involves a series of consultation and collaboration among the stakeholders and a team approach is generally adopted at all stages of the preparation process. The process may involve principally the preparation of national TDAs to provide consensus regarding national information and perspectives to be used in the subsequent preparation of a regional (multi-national) TDA. Detailed procedures include chronically the,

- a) appointments of Regional and National Coordinators as well as TDA Task Teams to lead and manage the TDA preparation;
- b) information and data collection and analysis to provide references for preparing the TDA;
- c) impact assessment to assess the relative importance of different impacts on the ecosystems within the region, and identification/prioritization of transboundary environmental problems;
- d) governance analysis which includes: stakeholder analysis to verify interests of groups and individuals and to assemble information on affected populations; institutional analysis to understand the formal and informal mechanisms of actual decision-making; and legal and policy analysis to provide the bases for recommending legal and policy reforms;

- e) causal chain analysis to identify the most important root causes of each of the priority environmental problems in order to target them by appropriate policy measures for remediation or mitigation; and
- f) collation of the TDA results into regional and national TDA reports for public consultation and adoption by countries of the region.

Formats for preparation of the national and regional TDA reports were proposed.

Similarly, procedures for the preparation of SAP also follow chronically the,

- (a) review of the priority transboundary issues, and their immediate and root causes from the associated regional TDA report to be used as reference material for establishing the vision statements for the priority environmental problems;
- (b) formulation of ecosystem quality objectives (EcoQOs), indicators and targets to define the strategic program actions for mitigating the environmental problems;
- (c) conduct of feasibility study for the program actions to identify the best options feasible for managing the environmental problems;
- (d) seeking of decision on intent to implement selected feasible options by the governments and private sectors;
- (e) technical consultations to set and agree on the short/medium term operational objectives, national/regional institutional framework and comprehensive monitoring/evaluation indicators for implementation of the SAP;
- (f) establishment of incremental partnerships for achieving maximum benefits in environmental management;
- (g) development of SAP implementation and financing mechanisms;
- (h) assessment of investment needs associated with the SAP implementation;
- (i) conduct of partnership conference to develop GEF interventions in managing the environment of the region;
- (j) collation of the SAP results into regional SAP report for public consultation as well as endorsement and adoption by countries of the region.

Formats for preparation of the SAP reports were provided.

As the present practitioner guidelines is primarily meant for application in the East Asian Seas region, environmental and socio-economic information related to the region as well as their sources (e.g., titles and Internet URLs) of retrieval were provided; the information should be useful to assist the practitioners from the East Asian Seas region in preparing the TDA and SAP. Completed TDA and SAP reports, and on-going projects for developing the TDA and SAP as well as GIWA regional assessment reports for the region, together with the sources for their retrieval were provided. TDA and SAP reports produced by GEF in other regions of the world were also listed in the present practitioner guidelines.

Abbreviations and Acronyms

CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COBSEA	Coordinating Body on Seas of East Asia
EC	European Commission
EcoQOs	Ecosystem Quality Objectives
EIA	Environmental Impact Assessment
EU	European Union
FAO	Food and Agricultural Organization of the United Nations
GEF	Global Environment Facility
GIWA	Global International Waters Assessment, UNEP
ICM	Integrated Coastal Management
IDRC	International Development Research Centre (Canada)
IMO	International Maritime Organization
IOC	Intergovernmental Oceanographic Commission
IW: LEARN	Strengthening Global Capacity to Sustain Transboundary Waters: The International Waters Learning Exchange and Resource Network
LME	Large Marine Ecosystems
MARPOL	International Convention for the Prevention of Pollution from Ships
M&E	Monitoring and Evaluation
NAP	National Action Program
NGO	Non-Governmental Organization
PDF	Project Development Facility
PEMSEA	GEF/UNDP/IMO Building Partnership for the Environmental Protection and Management of the East Asian Seas
SAP	Strategic Action Programme
SCS	Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand
TDA	Transboundary Diagnostic Analysis
TOR	Terms of Reference
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Education, Science & Culture Organization
UNIDO	United Nations Industrial Development Organization
UNOPS	United Nations Office for Project Services
URL	Uniform Resource Locator
WB	World Bank
WHO	World Health Organization
WSSD	World Summit on Sustainable Development
YSLME	Yellow Sea Large Marine Ecosystem Project

1. Introduction

The transboundary diagnostic analysis (TDA) provides scientific and technical analysis on status and impacts of the environment in given international waters¹ and it is recommended for most of the projects in the Global Environment Facility (GEF)'s International Waters Operational Programme 8 (OP8)² and 9 (OP9)³. The TDA is generally carried out in a cross sectoral manner, which focuses on transboundary problems without ignoring national concerns and priorities. A detailed 'governance analysis' which considers the local institutional, legal and policy environment is included to make the analysis more effective and sustainable (GEF-UNDP, 2005). Also, full stakeholder consultations with all stakeholders identified from the process of "stakeholder analysis" are normally conducted prior to and in the subsequent processes of preparing the TDA. As recommended by GEF, the TDA is prepared as an objective assessment document to be used as a diagnostic tool for measuring the effectiveness of implementing the strategic action programme (SAP).

On the other hand, the SAP is a negotiated policy document that establishes clear priorities for action and identifies policy, legal and institutional reforms as well as investments needed to address and resolve priority problems of the transboundary waters. Preparation of the SAP is a cooperative process that involves the participation of key stakeholders in the countries bordering the international waters (Mee, et al., 2005).

The experience or lessons learned from the many GEF projects designed to prepare the transboundary diagnostic analysis (TDA) and the strategic action programme (SAP) in various regions of the world have provided opportunities to develop more formal TDA and SAP guidelines to ensure their comprehensiveness and inter-regional comparability. Earlier GEF International Waters Programme studies (Brewers & Uitto, 2001; Juda, et al., 2002; Mee, et al., 2005) indicated that such comparable scientific and technical assessments are needed to:

- Identify, quantify, and set priorities for the environmental concerns that are transboundary in nature; and
- Identify immediate, intermediate and fundamental (root) causes of the priority environmental concerns and their associated practices, sources, locations and human activity sectors from which environmental degradation arises or is threatened.

The most recent GEF International Waters Program Study 2005 has made a thorough review on the results of the GEF's TDA and SAP projects, and derived on numerous conclusions and recommendations (Appendix 1) which are summarized as follows:

- Most TDAs do not discriminate clearly between transboundary and national issues.
- Most TDAs did not prioritize the major transboundary issues.

¹ "International waters" include: large marine ecosystems (LMEs), enclosed or semi-enclosed seas, estuaries, rivers, lakes, groundwater systems, and wetlands with transboundary drainage basins or common borders.

² "OP8" is the water-body based operational programme which focuses on remedial actions to seriously threatened and/or damaged water bodies and the most imminent transboundary threats to the ecosystems of these water bodies.

³ "OP9" is the integrated land and water multiple focal areas programme which focuses on preventive measures to address threats to particular geographical areas that typically involve sustainable integrated land and water resources management practices.

- In all cases (with the exception of the Bermejo River TDA), the system boundaries for each transboundary issue were not implicitly detailed in the TDA, although supporting text often described the geographical extent of the issues.
- For the majority of TDAs and SAPs, there was little evidence of stakeholder analysis or stakeholder participation or the stakeholders were consulted but their contribution was not recognized.
- A number of SAPs do not prioritize the proposed interventions and actions, provide alternatives or costings, or list anticipated outcomes (benefits). Because of the failure to clearly identify outcomes, it can sometimes be difficult to determine those proposed actions that are national (baseline) in scope and those that are transboundary (potentially incremental).
- Another major concern is that many of the proposed actions are detailed at the national level and not at the regional; these should be detailed in the regional SAP not the NAP (National Action Program).
- Monitoring and evaluation indicators were not presented in most SAPs; even with those that did have, a number of these simply listed generic indicators according to the proposed action and did not specify the types of indicators, e.g., the process, stress reduction or environmental status types of indicators.
- The TDA, where applied, is an effective tool, provided that it sets appropriate boundaries, identifies all relevant stakeholders, conducts studies by joint fact finding (without excluding any relevant regional expertise), includes an appropriate balance of disciplines, identifies the socioeconomic causes of the transboundary problems identified, evaluates the institutional capacity, and makes all the information available to the stakeholders in a concise and non-jargonistic manner. Also, stakeholder analysis and institutional mapping should be an integral component of all TDAs.
- The first step in SAP should be an agreement on regional objectives, defined in space and time. In some cases, these may constitute Ecosystem Quality Objectives (EcoQOs). In all cases, however, the EcoQOs should be congruent with the TDA and clearly understandable to all stakeholders involved. The establishment of such objectives, together with a statement of vision, has not occurred in many SAP projects, and their effective public diffusion is often ignored.
- In recommending actions within the SAP/NAP process, greater care should be taken to integrate social issues. Both the SAPs and the NAPs should identify baseline and incremental processes and costs. In designing an SAP, care must be taken to maintain political momentum. The Inter-ministerial Councils (IMCs) have not been developed in many SAP projects, but they are crucial at a national level to avoid capture of the project by a particular sector or to avoid difficult discussions that will be needed in order for the project to succeed.

This practitioner guidelines for preparation of the TDA/SAP, which is meant primarily for application in the East Asian Seas Region, was thus prepared taking into consideration of, (a) the conclusions and recommendations of the GEF International Waters Program Study mentioned above; (b) a detailed review of more than 18 TDA and 15 SAP reports from GEF as well as the project documents for the completed or on-going GEF's TDA and SAP projects; and (c) the 'Terms of Reference' provided by the Southeast Asia Regional Learning Center (SEA-RLC) of the Southeast Asia START Regional Center (SEA START RC) in Bangkok, Thailand (Appendix 2).

The complete process for developing and preparing TDA and SAP, including the project development and planning, is shown in Figure 1. The present practitioner

guidelines deals in details the approach in preparing the TDA and SAP after when the associated TDA or SAP project has been approved for implementation by GEF Implementing Agencies, i.e., the process appeared within the red frame of Figure 1. However, the approaches provided in the guidelines could be adopted in preparing the project ideas or proposal to be submitted to GEF for funding consideration. Details of the practitioner guidelines are described hereunder.

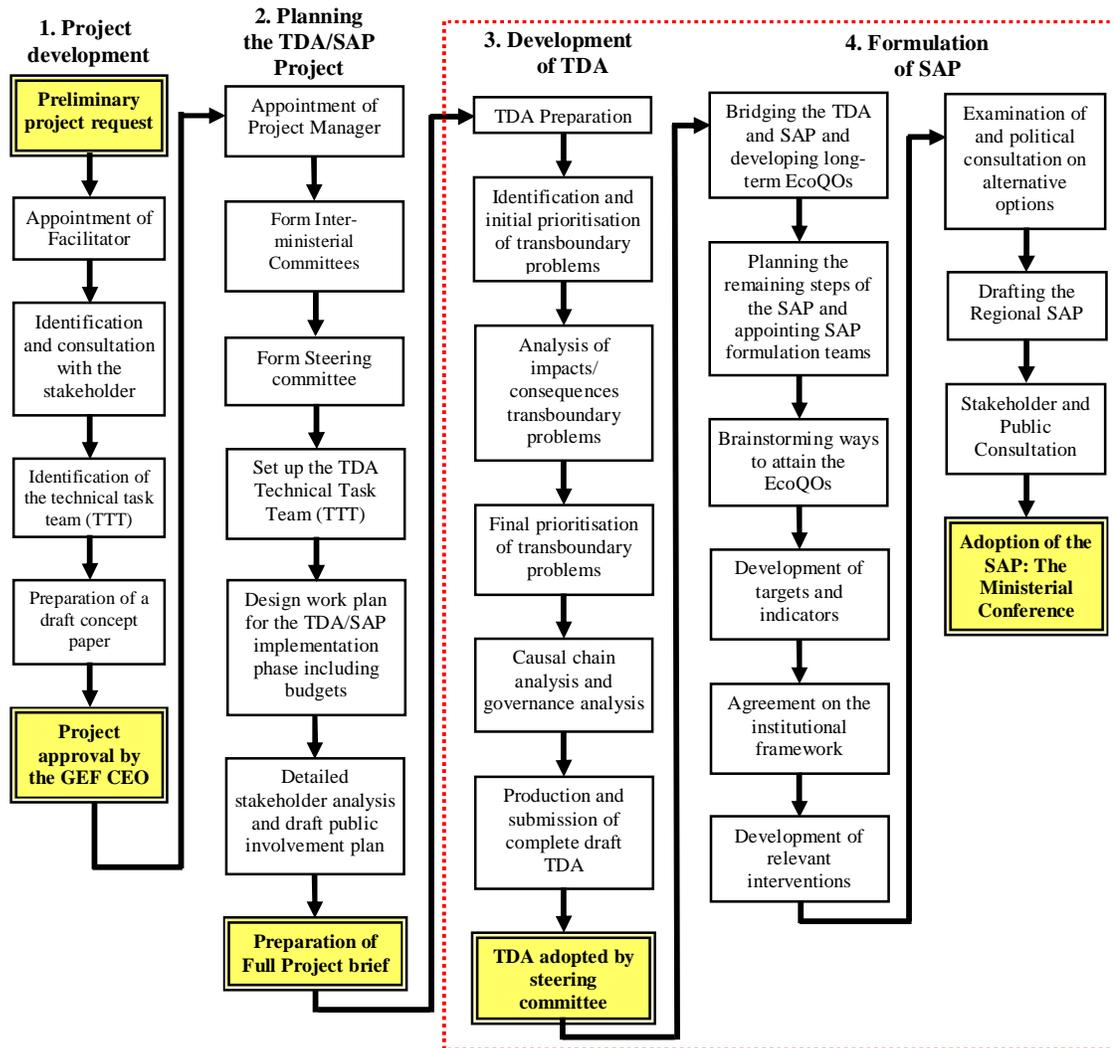


Figure 1. Complete process of developing and preparing the TDA and SAP (including project development and planning). The process appeared within the red frame in the figure indicates that of preparing the TDA and SAP of which the present practitioner guidelines refers (Source: Mee, Hudson and Bloxham, 2005)

2. Nature and Objectives of TDA and SAP

The main objective of TDA is to identify priority environmental issues that are transboundary in nature. Preparation of the TDA involves the assessment of both the environmental and socio-economic impacts of these transboundary issues on the basis of

comprehensive studies of the physical and geographical features, water uses, and the socio-economic and environmental situation as well as the identification of associated institutional, legal and policy issues which need to be addressed in the region under study. The TDA, therefore, has the main technical role to, (a) identify, quantify, and set priorities for environmental issues which are transboundary in nature, and (b) identify the immediate and root causes of these priority issues as well as the specific practices, sources, locations, and sectors of human activity from which environmental degradation arises or threatens to arise. The SAP, on the other hand, identifies the policy options and their associated governance mechanisms in addressing the priority transboundary issues as well as formulates the appropriate mechanisms to implement the priority interventions (TRANSEA-COAST, 2005). A TDA report provides factual basis for the formulation of an SAP and is part of a process of engaging the stakeholders through joint fact-finding exercises (e.g., impact assessment and causal chain analysis) leading to subsequent development of alternative solutions for the development of SAP. Stakeholder identification and consultation as well as studies of institutional capacity and governance are all essential components needed in the process of preparing the TDA.

On the other hand, SAP report is a negotiated policy document, endorsed at the highest levels of all relevant sectors. The document establishes clear priorities for action relating to reforms in policy, legal, institution or investments in order to resolve the priority problems identified in the TDA report (UNDP, 2003). The preparation of an SAP is a cooperative process among key stakeholders in the countries of the region. The SAP, therefore, should have: (a) a well-defined baseline which enables a clear distinction between actions with national benefits and those addressing transboundary concerns with global benefits; (b) the development of institutional mechanisms at the regional and national levels for implementation; and (c) the monitoring and evaluation (M&E) procedures to measure effectiveness on the outcomes of the implementation. The production of a TDA followed by an SAP is a requirement for most OP8 and OP9 projects proposed for financing in the GEF International Waters Focal Area (GEF-UNDP, 2005).

Numerous projects for preparing the TDAs and SAPs were implemented by GEF over the past two decades. A number of lessons were learned from practicing these GEF's TDA and SAP projects (Mee, et al 2005):

- a) A TDA should be periodically updated to reflect the changing regional situation.
- b) The TDA can only be an effective tool if it, (i) sets appropriate boundaries; (ii) identifies all relevant stakeholders; (iii) conducts studies by joint fact-finding (without excluding any relevant regional expertise); (iv) includes an appropriate balance of disciplines; (v) identifies the socioeconomic causes of the transboundary problems identified; (vi) evaluates the institutional capacity; and (vii) makes all the information available to the stakeholders in a concise and non-jargonistic manner.
- c) Stakeholder analysis and institutional mapping should be an integral component of all TDAs.
- d) The SAP should have an agreement on regional objectives, defined in space and time and congruent with its associated TDA as well as clearly understandable to all stakeholders involved.
- e) In recommending actions within the SAP process, greater care should be taken to integrate social issues which may result in tradeoffs among measures that would maximize economic yield, environmental benefits, and social benefits.

- f) The SAP should enable the achievement of the agreed regional objectives through specific national actions to identify, reinforce, or create suitable institutions necessary for effective regional coordination. The transboundary issues identified in the TDA should be addressed according to their agreed on priorities in the SAP.
- g) The SAP should, (i) identify baseline and incremental processes and costs; (ii) identify regional and national arrangements for monitoring the environmental status and trends, pressure relief, and the implementation of the action programs themselves; and (iii) incorporate a process for periodically revising the short-term goals and the overall region wide objectives, and each revision should be endorsed at a high level.
- h) In designing an SAP, care must be taken to maintain political momentum such as development of the Inter-ministerial Councils (IMCs) at a national level to avoid capture of the project by a particular sector or to avoid difficult discussions that will be needed in order for the project to succeed.

3. Frameworks of TDA and SAP

3.1 TDA Framework

3.1.1 Regional Boundary and Geographic Scope

A comprehensive TDA requires detailed definition of the region under study; the region may include the large marine ecosystem, the terrestrial ecosystem or the marine plus terrestrial ecosystems. A basic geographic description of the entire region is necessary for the conduct of the TDA, which may include description of the following:

- Boundary and general characteristics including covering area within the boundary;
- Bio-physical characteristics including:
 - ✓ Climate; and
 - ✓ Natural resources (e.g., water, minerals and energy resources; biodiversity, exotic and endangered species; critical habitats; forest and land resources; and aquatic living resources).
- Socio-economic characteristics including:
 - ✓ Population and people;
 - ✓ Main economic sectors (e.g., agriculture; forestry; fisheries and aquaculture; mineral extraction; energy production; transportation; and tourism, etc); and
 - ✓ Economic characteristics (e.g., status of economic growth; GDP and GNP; income and expenditure; etc).

3.1.2 Analysis of the Socio-economic, Legal, Administrative, Political Context and Constraints

The assessment of economic, legal, administrative and political context of the water-related environmental matters (governance analysis) together with the geographic characteristics will provide critical information for assessing and prioritizing the environmental problems or issues in the region under study. Such studies, collectively known as the “governance analysis”, should constitute an important process for preparation of the TDA.

3.1.3 Assessment and Prioritization of Transboundary Problems

In the processes of preparing the TDA, existing environmental problems or issues in the region under study have to be assessed and prioritized and their relative severity be evaluated. Consequently, impacts associated with the prioritized transboundary environmental issues are assessed and relevant impact statements formulated. These impact statements could be used later as guidelines for conducting the casual chain analysis (CCA) to identify the immediate and root causes as well as sector activities in association with the root causes of a particular prioritized transboundary environmental issue.

3.1.4 Identification and Quantification of Possible Causes

Once the transboundary environmental issues are assessed, prioritized and their relative severity evaluated as well as the impact statements of these issues formulated, the possible causes relative to the impact statements are identified and, as far as possible, quantified. While the causes may not be easily quantified, they should be qualitatively justified.

3.1.5 Discrimination among the National, Transboundary and Incremental Causes

When possible causes relative to the impact statements of the prioritized environmental issues have been identified, it becomes possible to assess and partition among causes of national origin and those of transboundary or incremental origin to determine the national and transboundary contributions for the region under study.

3.1.6 Identification of Root Causes of the perceived Priority Transboundary Problems

The perceived priority environmental problems or issues of transboundary nature are subject to the process of causal chain analysis (CCA) to determine their root causes, immediate and intermediate causes as well as sectoral activities associated with the root causes. Prioritization of the root causes are usually performed during the analysis. The conduct of CCA is one of the important processes in the formulation of a TDA and the information thus obtained are vital for formulating policy options of intervention to address the root causes of the priority environmental issues in the process of formulating the SAP for the region under study.

3.2 SAP Framework

According to the GEF, the SAP is an agreement among participating countries on actions needed: (a) to resolve priority threats to international waters; (b) to enhance the national benefit of each country in the region; and (c) to address transboundary issues. SAP also includes the establishment of institutional mechanisms at regional and national level for implementation of those actions mentioned above.

The GEF International Waters Operational Strategy (GEF, 2005) further states that: “The SAP should provide for a balanced program of preventive and remedial actions, support both investment and capacity-building activities, and identify key activities in the following areas:

- Priority preventive and remedial actions;
- Cross-cutting issues and linkages to other focal areas;
- Institutional strengthening and capacity-building needs;
- Stakeholder involvement and public awareness activities;
- Program monitoring and evaluation; and
- Institutional mechanisms for implementation.”

A comprehensive SAP has to, therefore, cover as far as possible the following framework contents:

3.2.1 Identification of Root Causes of the Priority Transboundary Problems from TDA

Root causes of priority transboundary issues as derived in the associated TDA of the region under study are reviewed. Results of the review shall be synthesized as reference for further analysis in the process of preparing the SAP, e.g., development of the EcoQOs.

3.2.2 Establishment of Ecosystem Objectives (EcoQOs) and Proposed Targets and Program Actions

The Ecosystem Quality Objectives (EcoQOs) are statements of the ‘vision’ of how the stakeholders would like to see the state of the system in the future, each of which mainly constitutes a broad policy-oriented statement. Usually specific, quantifiable and time-constrained targets are set for achieving the EcoQOs; each EcoQO may constitute one or more than one target. Each target generally has a timeline associated with it as well as specific interventions or program actions that permit realization of the target within the time frame designated. Targets or milestones for each EcoQO have to be established and their associated intervention actions or program actions identified in the process of preparing the SAP.

3.2.3 Cost Benefit and Feasibility Analysis of Program Actions

The cost benefit analysis and feasibility assessment for each intervention or program action could be conducted for either or a combination of the following:

- (a) Economic and ecological evaluation of the natural resources;
- (b) Analysis of costs of the actions to meet the targets for each EcoQO;
- (c) Analysis of the value saved by meeting the targets identified by specific actions of the project; and
- (d) Analysis of the benefits obtained after the GEF project is complete.

3.2.4 Establishment of Incremental Partnerships

The TDA/SAP process has to be designed to build partnerships in addressing the identified problems and assisting the governments in covering the costs of national (baseline) actions. The established partnerships provide a basis that allows the SAP to assign costs which would discriminate between baseline (national) and incremental (regional) costs. The establishment of partnerships among the stakeholders should, therefore, consider the existing and planned investments by the countries, donors and non-government organizations of the region under study as a baseline for assessing the

incremental cost of the SAP. Partnerships among the stakeholders should be available for achieving the maximum environmental benefits.

3.2.5 Financing of SAP

Investment needs and estimate of costs associated with the SAP implementation should be assessed and determined based on the existing financing arrangements. The needs of strengthening the financing arrangements and sources of financing the incremental costs have are also to be assessed.

3.2.6 SAP Implementation Mechanisms

Mechanisms for implementation of the SAP shall include assessment and establishment of: (a) legal and institutional arrangements; (b) stakeholder and public participation plan; (c) funding and investment arrangements; and (d) monitoring and evaluation approach.

4. Guiding Principles for Preparing TDA and SAP

The following provide key guiding principles for the preparation of TDA and SAP (UNDP, 2003):

- ***Full stakeholder participation:*** All stakeholders should be independently identified, fully involved and consulted with a shared vision in the process of preparing the TDA and SAP. Although some solutions to the environmental problems may not be acceptable to all parties, those that are eventually adopted should reflect a rigorous social assessment and be subjected to open stakeholder consultation.
- ***Joint fact-finding and transparency:*** TDA and SAP have to be conducted with the best available independent expertise sourced locally and regionally whenever possible. All stakeholders have to agree to freely share information and fully acknowledge for the utilization of the information during the fact-finding process including the definition of regional boundaries as well as the impact assessment, causal chain analysis and policy options analysis of the prioritized environmental issues.
- ***Ecosystem approach:*** The ecosystem approach could be adopted for preparing the TDA and SAP as it defines ecosystems within natural boundaries (e.g., catchments or LMEs) rather than political ones. The approach also has the following features that could be tapped in the process of preparing the TDA and SAP:
 - ✓ management objectives based on societal choice;
 - ✓ decentralized and multi-sectoral management practices;
 - ✓ appropriate temporal and spatial scale;
 - ✓ resilience in conservation of ecosystem functions;
 - ✓ appropriate balance between conservation and resource use;
 - ✓ management within system limits;
 - ✓ broad use of knowledge, scientific and traditional; and
 - ✓ incorporation of economic considerations (costs and benefits, removal of externalities, etc.).

- ***Adaptive management and accountability:*** The adaptive management process, as adopted by many GEF IW projects, includes the: (a) establishment of long-term Ecosystem Quality Objectives (EcoQOs) for identified key problems; (b) most practical and achievable short-term (project length) measures for making substantive progress towards resolving the problems; (c) setting up of time-limited operational objectives as project targets; (d) appropriate process, stress reduction and environmental and living resource status indicators to monitor progress and setting new operational objectives; (e) consultation with stakeholders on the proposals; (f) ensuring of appropriate institutional measures in place to oversee implementation of the agreed joint actions; and (g) conducting of a review to document progress toward the long-term EcoQOs in the light of any new scientific information and to agree on a new set of measures, operational objectives, etc. During the implementation of the SAP, agreed long-term EcoQOs are achieved in a series of pragmatic action-based steps and parties committing themselves to the implementation of SAP have to be fully accountable for their actions.
- ***Inter-sectoral policy development and step-wise consensus building:*** Development of policy may have to involve the direct participation of each of the key sectors having relevant interests. In the process of policy development, consensus building among the sectors may have to proceed step-by-step, i.e. there is no advancement to subsequent step of action until a clear consensus on decision making has been achieved.
- ***Aligned actions and government commitment:*** In the process of preparing the TDA and SAP, practical solutions to transboundary issues may require a series of concerted and aligned actions at regional, national and local levels. Endorsement and signature of the SAP and TDA shall constitute a binding agreement between governments that have to be taken seriously for policy development and implementation.
- ***Partnerships and incremental costs:*** The TDA/SAP process has to be designed to build partnerships in addressing the identified problems and assisting the governments in covering the costs of national (baseline) actions. The partnerships have to provide a basis that allows the SAP to assign costs which would discriminate between baseline (national) and incremental (regional) costs.
- ***Risk management:*** In case of all GEF projects, effective risk management prior to and throughout the TDA process is needed.

5. Process of Preparing the TDA

Preparation of a TDA involves a series of consultation and collaboration among the stakeholders and a team approach is generally adopted at all stages of the preparation process. Thus, the process may involve principally the preparation of national assessment known as national TDA which is a document that serves to provide consensus regarding national information and perspectives to be used in the subsequent preparation of a regional (multi-national) TDA. Generally, a national committee or task team will be formed in each participating country and headed by a coordinator; each committee will prepare a comprehensive, country-based analysis of water-related environmental problems and concerns. The first drafts of the national TDA reports of the participating countries in the region will be submitted and evaluated prior to a second meeting of national coordinators and invited experts from the region. During this second meeting, the

identified regional concerns and principal issues will become the focus for the regional TDA, which shall be discussed and agreed by the national coordinators and regional resource persons (Regional TDA Task Tam) to synthesize into a regional TDA. The regional TDA identifies the priorities among water-related problems and concerns, their possible causes and the extent to which the problems are transboundary in either origin or effect. Figure 2 presents diagrammatically the step-wise process for preparing the TDA and the details of which are elaborated in the following:

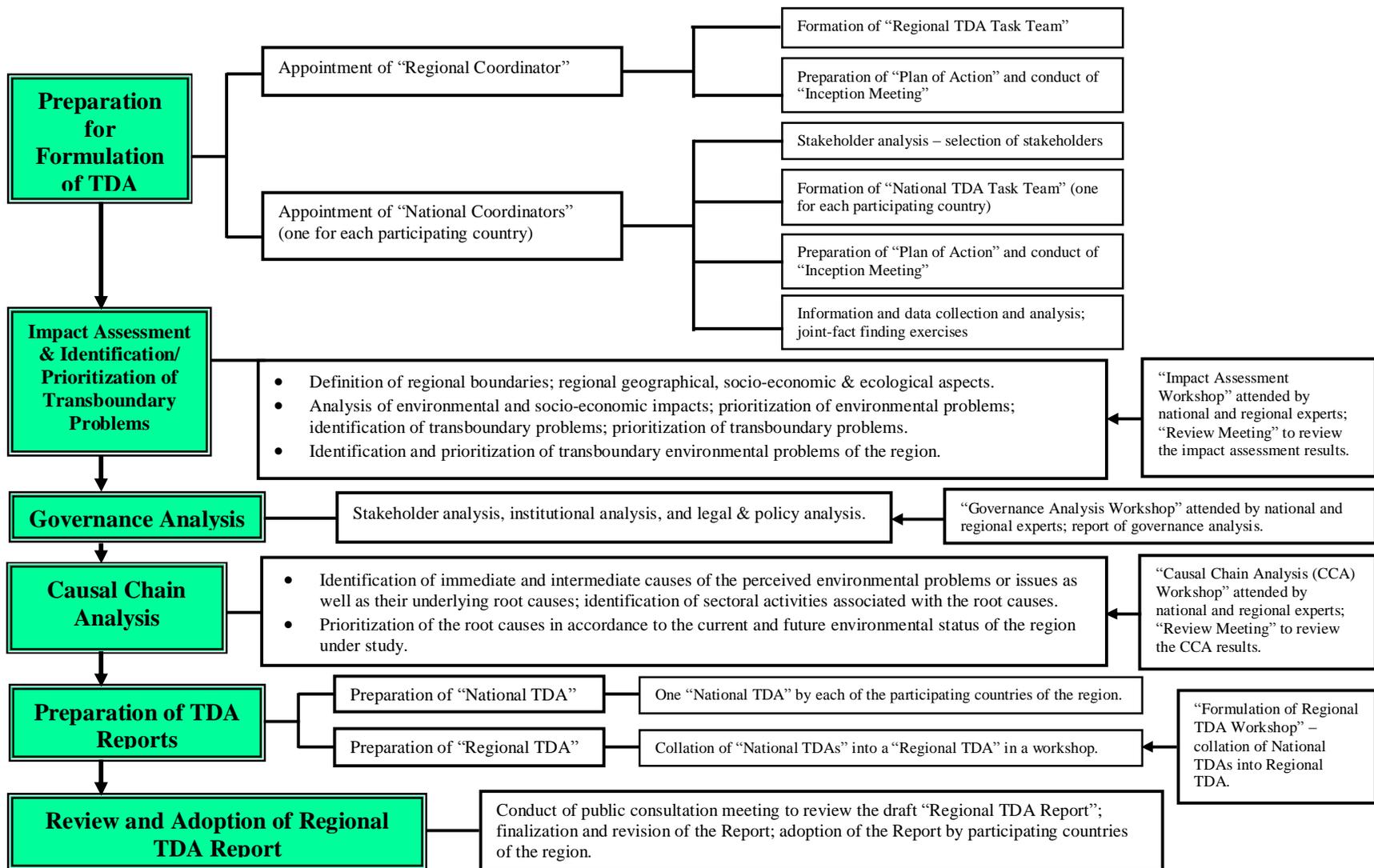


Figure 2. Process for preparation of the Transboundary Diagnostic Analysis (TDA)

5.1 Preparation for Formulation of TDA

Several tasks are required to prepare for the formulation of a transboundary diagnostic analysis (TDA). The process may include the following:

5.1.1 Appointments of Regional Coordinator and National Coordinators

A Regional Coordinator and National Coordinators (one in each participating country in the region) are appointed by the Project Steering Committee (PSC) that manages the TDA preparation project. The Regional Coordinator shall take the responsibilities for the overall direction in the process of preparing the TDA and he/she has to be given the authority to marshal resources and expertise for the conduct of a regional (multilateral) TDA for the region. The PSC shall also appoint the National Coordinators, one for each of the participating countries. Each National Coordinator will take the responsibilities for the overall direction in the process of preparing the TDA at national level and he/she will also serve as the primary national representative in preparing the regional TDA. The National Coordinator has to be given authority to marshal resources and expertise for the conduct of a national TDA.

5.1.2 Formation of Regional TDA Task Team and Preparation of Plan of Action

The Regional Coordinator shall take the initiative to prepare the “Terms of Reference” for creating a Regional TDA Task Team which may comprise national coordinators and other experts from the region as well as preparing the plan of action for the formulation of the TDA. An inception meeting of the Regional TDA Task Team shall be convened to finalize the plan and timetable for conducting the Regional TDA. The inception meeting is an important event which should result in ensuring each of the national TDA development efforts gets developed using common templates, approaches, definitions and data set as well as in developing means to overcome restrictions on the sharing of information across the participating countries in the region under study.

5.1.3 Stakeholder Analysis and Creation of National TDA Task Team

The National Coordinator shall conduct a stakeholder analysis (as part of the governance analysis; see section 5.3 below) to identify the federal, provincial and local organizations/agencies, private sectors, NGOs and individuals, by virtue of their interests in each of the subject areas to be studied. Relevant stakeholders shall be selected to participate in the conduct of the TDA. A National TDA Task Team comprising the National Coordinator, national and regional experts and representatives of the relevant stakeholders identified earlier will then be created.

5.1.4 Action Plan for Preparing the National TDA

The National Coordinator shall prepare an action plan detailing the strategies, timeframe and procedures for preparation of the National TDA incorporating the comments from the perspective stakeholders. The Regional Coordinator has to be consulted regarding the contents of the action plan.

5.1.5 Information and Data Collection and Analysis

Prior to developing the TDA, an information/data collection and analysis exercise should be initiated to ascertain their sources, availability and gaps in knowledge. The TDA generally utilizes information that is already available within the region, often relying on measurement data which have already been collected at national and regional levels. It is important that full recognition should be given to all sources of information employed (TRAN-SEA-COAST, 2005).

Relevant information/data could be collected, for example, from the following sources in the respective countries of the region under study:

- National and provincial government departments and agencies, such as:
 - ✓ Departments of the Environment, Health, and Employment as well as Environmental Protection Agencies responsible for environmental, human health and resource managements;
 - ✓ Departments of Trade or Economic Affairs responsible for monitoring and/or forecasting economic activities; and
 - ✓ Marine Department, Water Resource Management Agencies and Department of Fisheries as well as Forestry and Land Resource Departments responsible for water and natural resources management.
- International Organizations involved with environmental and resources management projects in the region, such as the UNDP, UNEP, UNIDO, FAO, GIWA, etc.
- Non-Governmental Organizations (NGO's) concerned with, for example, (a) general environmental preservation, protection of endangered species; (b) human health and welfare; and (c) security of freshwater supplies, poverty alleviation.
- Commercial Consultancies, Companies and Trade Bodies, including Trade Unions that have a commercial interest in the area under study (this information may not be freely available if it is considered commercially sensitive).
- Publications searchable from standard bibliographic database from academic or research institutions in the universities and governmental research institutes.

5.2 Impact Assessment and Identification/Prioritization of Transboundary Problems

5.2.1 Impact Assessment

Overall purpose of the impact assessment is to make an assessment of the relative importance of different impacts on the ecosystems within the region under study. The assessment starts by identifying the potential environmental problems or issues grouping under several major concerns; examples of such a grouping of environmental issues of transboundary nature are shown in Box 1.

Scope of the assessment may include:

- Assessment of environmental and socio-economic impacts under present conditions.
- Assessment of likely environmental and socio-economic impacts under future conditions.
- Assessment of overall impacts and priorities for further analysis (e.g., causal chain analysis).

Box 1. Environmental problems of transboundary nature for the management of international waters

Major Concern I: Freshwater Flow Modifications

- Excessive withdrawals of surface and/or groundwater for human uses
- Changes in freshwater availability
- Changes in flow regimes from structures

Major Concern II: Pollution

- Pollution of existing drinking water supplies
- Microbiological pollution
- Nutrient over-enrichment
- Hydrocarbon pollution
- Heavy metal pollution
- Radionuclide pollution
- Suspended solids/accelerated sedimentation
- Excessive salinity
- Thermal pollution

Major Concern III: Habitat and community modification

- Loss of ecosystems or ecotones
- Modification of ecosystems or ecotones
- Invasive Species

Major Concern IV: Exploitation of fisheries & other living resources

- Over-exploitation
- Excessive by-catch and discards
- Destructive fishing practices
- Decreased viability of stocks through contamination and disease
- Impact on biological and genetic diversity

Major Concern V: Fluctuating Climate

- Freshwater flow fluctuations such as drought and floods
- Fluctuating ocean circulation patterns
- Sea level change (including saltwater intrusion)

(Source: GIWA, 2001; TRANSEA-COAST, 2005)

5.2.1(a) Assessment of environmental and socio-economic impacts under present conditions

The environmental impact(s) associated with each identified issue under present conditions is to be scored on a four-point scale, where:

- 0 = no known impact
- 1 = slight impact
- 2 = moderate impact
- 3 = severe impact

The scoring for each issue is to be assessed by a team of multi-disciplinary experts from each participating country of the region in a workshop. A brief statement is also

provided to justify the score; the justification statement should be supported with sufficient information and data. All impacts are assumed to be negative unless prefaced by a positive sign (e.g. +1). Criteria for scoring the environmental impacts of each identified issue should be drawn before starting the scoring; examples for such scoring criteria can be found in Tables IIaI – IIaV in the methodology developed by GIWA (GIWA, 2001). All scores for all issues in each major concern are pooled and weighted to be taken as overall score for this particular concern.

Once the environmental impact for each issue has been obtained, its associated socio-economic impacts are likewise assessed by the same team of multidisciplinary experts. Three broad criteria are to be considered in assessing the socio-economic impacts:

- (a) The “size” of the population or economic and public sectors affected categorized as “very small”, “small”, “medium” and “large”;
- (b) The “degree of severity” of the economic, health or social and community impacts experienced categorized as “minimum”, “small”, “moderate”, “severe”;
- (c) The likely “duration” of the impacts categorized as “occasional”, “short term”, “continuous” and “long-term”.

Socio-economic impacts for each identified issue are thus assessed on a four-point scale similar to that used for assessing the environmental impact mentioned above. A brief statement is also provided to justify the score; the justification statement should be supported with sufficient information and data.

5.2.1(b) Assessment of likely environmental and socio-economic impacts under future conditions

The future levels of environmental and socio-economic impacts for each issue may differ from the current levels because of demographic, economic, technical and other changes over time. The assessment is to be undertaken as a team exercise, involves a two-stage approach such as: (a) construction of a ‘most likely’ scenario relating to demographic, economic, technical and other relevant changes, which may influence the aquatic environment within the region in future i.e., 10-20 years later; (b) assessment of the ‘most likely’ changes in environmental and socio-economic impacts likely to result, under this scenario within in similar future period.

5.2.1(c) Assessment of overall impacts and priorities for further analysis

The estimated degrees of severity of the environmental and socio-economic impacts as well as the transboundary nature for all issues are assessed and prioritized. Impact statements to justify the degree of severity and transboundary implications for each prioritized environmental issue are formulated. Such impact statements are used as guidance for further analysis such as the causal chain analysis. Examples of similar impact statements for an environmental issue can be found in the GIWA regional assessment report for Yellow Sea LME (see Table 1).

The procedures of conducting the impact assessments for transboundary environmental issues are provided by GIWA (2001) and TRAN-SEA-COAST (2005).

Table 1. Impacts of the priority GIWA Concerns/Issues for Yellow Sea Region (modified from: UNEP, 2005)

Priority Major Concerns	Priority Issues	Impacts (Environmental and Socio-economic)
I. Freshwater Shortage	1. Modification of stream flow	<ol style="list-style-type: none"> 1. Major river systems (e.g., Huai River and Yalu River) showed serious reduction in flow of more 20% over the past 30 years. 2. There was measurable reduction in water flow in major rivers on the Korean side of the region.
	2. Pollution of existing supplies	<ol style="list-style-type: none"> 1. More than 10% of the Huai River basin in the Chinese side of the sub-region was polluted causing habitat deterioration and unable to support living fish. 2. Fish kills in any rivers draining a basin of >25,000 km² were often reported in the Chinese side of the sub-region (e.g., Huai River which is the most serious). 3. Fish kills frequently occurred in rivers of the Korean side of the region during summer times.
III. Habitat and Community Modification	12. Loss of ecosystem	<ol style="list-style-type: none"> 1. More than 30% of the total areas of freshwater marshlands, lakes, rivers, lagoons and muddy foreshores and 10% of rice fields were lost over the past 30 years. 2. More than 40% of the total areas of sandy shores were lost over the past 30 years. 3. Significant losses of sea-grass beds (e.g., <i>Zostera marina</i>) occurred in the Korean side of the region.
	13. Modification of ecosystems	<ol style="list-style-type: none"> 1. Biodiversity and ecological functions of the neritic systems were seriously modified. 2. Volume and biodiversity of lakes and rivers have changed significantly. 3. Muddy shores greatly modified with increased number and species of opportunistic organisms. 4. Species population structure in estuaries significantly modified with increased dominance of red-tide organisms. 5. Obvious replacement of endemic with exotic species (e.g., the exotic salt hay, <i>Spartina marina</i>) and biodiversity modification through disease introduction (e.g., disease caused by <i>Perkinsus</i> sp., in clams).
IV. Unsustainable Exploitation of Fisheries & Other Living Resources	14. Overexploitation	<ol style="list-style-type: none"> 1. Fisheries resources were highly over-exploited exceeding their maximum sustainable yields (MSYs). 2. Employment rate had decreased by 30-50% due to over-fishing and environmental degradation with substantial impact on the social life of the local population. 3. Business opportunities in the seafood processing industries had decreased by around 10% due to decreasing catch per unit efforts (CPUEs) experienced by the fishing fleets.
	16. Destructive fishing practices	<ol style="list-style-type: none"> 1. Destruction of aquatic habitats and excessive catch of recruitment stocks had led to significant depletion of fish populations and decrease in biodiversity.

5.2.2 Identification/Prioritization of Transboundary Problems

Majority of the GEF-funded IW projects are primarily concerned with environmental problems of transboundary nature. An environmental problem which originates in, or is contributed by, one country can affect or impact one or more than one country in a region is a “transboundary environmental problem”. For instance, the chemicals associated with the eutrophication may be emitted by one country but the impact of eutrophication may be felt in several countries sharing the same water body in the region. The impact of a transboundary problem (e.g., eutrophication) can cause damage to the environment (e.g., mass mortality of fish due to algal blooms) and/or the human welfare (e.g., health problem). Examples of the transboundary problems that are commonly found in managing the international waters are shown in the above Box 1.

The first stage in the TDA process is to agree on a list of the transboundary problems. The experts should brainstorm the list of problems with particular regard to their transboundary status, and assign priorities (high-medium-low) from an environmental and social/economic standpoint and taking into consideration of the following in assessing the transboundary characteristics of the problem (TRANSEA-COAST, 2005):

- What is the transboundary relevance?
- What are the preliminary priorities?
- What is the geographical scope?
- What is the temporal scope?
- What are the impacts/consequences?

Once the transboundary problems in a region have been identified, they are subject to analysis and prioritization using a process known as “scaling-scoping-screening”. Analysis and prioritization of the transboundary problems could be conducted at the same time with the impact assessment workshop, making use of the results of the impact assessment. Table 2 shows the list of prioritized transboundary environmental problems and their associated transboundary elements for the Yellow Sea LME.

Table 2. Summary of Transboundary Implications of Priority GIWA Concerns/Issues (modified from: UNEP, 2005)

Priority GIWA Concern	Priority GIWA Issue	Trans-boundary Elements
I. Freshwater Shortage	1. Modification of stream flow	Modification of the stream flow in the major rivers of both the Chinese and Korean sides of the region has reduced the discharge of river water into the Yellow Sea. This has changed the environment and water quality of the Yellow Sea affecting the well-being of the marine living resources and coastal habitats in both the Chinese and Korean waters of the region. The trans-boundary implications are significant.
	2. Pollution of existing supplies	Pollution of existing river waters in both the Korean and Chinese sides of the region has brought pollutants across national boundaries with significant trans-boundary impacts.
	3. Change in the water table	Impacts of the issue are largely localized.
III. Habitat and Community Modification	12. Loss of ecosystems	Loss of ecosystems has depleted the living resources not only in the Chinese but also the Korean side of the region, particularly for the ecosystems which are the spawning or breeding grounds of the fish species. There are obvious trans-boundary implications for this issue.
	13. Modification of ecosystems	Modification of ecosystems, particularly when the spawning and breeding grounds or habitats of fish species are modified, has depleted the living resources not only in the Chinese but also the Korean side of the region.
IV. Unsustainable Exploitation of Fisheries & Other Living Resources	14. Over-exploitation	The major commercial species caught in the Yellow Sea are largely migratory species which are subject to seasonal migrations from one area of the sea to another. The catches in both the Chinese and Korean waters of the Yellow Sea would be seriously affected causing trans-boundary implications such as encroaching of fishing grounds across the national boundaries if over-harvesting of these migratory species occurred. Over-harvesting of fisheries resources has been found to be the serious issue in the sub-region. Cooperative efforts on regional or transnational basis are required to attain sustainable management of the fisheries and other living resources of the region.
	16. Destructive fishing practices	Destructive fishing practices have the trans-boundary implications in that the practices in either the Chinese or Korean waters can greatly impact on the viability of migratory species in the region. Destructive fishing practices are common in the region.
	18. Impact on biological & genetic diversity	Most of the fish species in the region are migratory species and there are evidences that changes of biological and genetic diversities of some of these species resulting from over-exploitation occurred, having trans-boundary impacts across the national borders of the region.

5.3 Governance Analysis

The governance analysis (GA) is a process employed to determine the political environment that can affect the management of environmental problems. Objectives of the governance analysis are to, (a) understand the underlying root causes of ecosystem problems; and (b) identify possible options for intervention in addressing the problems (GEF-UNDP, 2005a). An integrated governance analysis shall include the following three components:

- *Stakeholder Analysis* to verify interests of groups and individuals and to assemble information on affected populations;
- *Institutional Analysis* to understand the formal and informal mechanisms of actual decision-making; and
- *Legal and policy Analysis* to provide the bases for recommending legal and policy reforms.

The governance analysis is normally carried out by a group of independent experts, i.e. the GA Team with expertise in at least some of the relevant areas. The analysis takes place largely at the national level with appropriate mechanisms for a thorough analysis at the regional dimension.

5.3.1 Stakeholder Analysis

The stakeholder analysis is a process of building the relationships needed for the success of a participatory project or policy. Targets of the analysis include various entities such as the government and regulatory agencies, communities (including local communities), industries, and NGOs, etc. Analysis on all the relevant stakeholders may reveal who are the real actors and decision-makers. Structured questionnaires may be employed for the analysis and the collected data analyzed statistically.

The process of stakeholder analysis may involve the following steps (Allen and Kilvington, 2006; GEF-UNDP, 2005a):

1) *Identification of Major Stakeholder Groups*

Key stakeholder groups are identified and analyzed in accordance to their interests and roles that they can play during the process of preparing the TDA. Stakeholders can be divided into the following three broad categories:

- *Government institutions* which include the central and local governments as well as municipal bodies. Central governmental stakeholders encompass Ministries such as fisheries, environment, tourism, transport and energy, etc. Local governmental stakeholders are usually local policy makers in environmental matters, often key actors in the control of possible damage to the environment;
- *Public and private sectors* which include sectors such as the fishing, aquaculture, forestry and mining industries that may be privately owned and operated, fully owned and controlled by the governments, or have shared ownerships. Associated organizations, such as trade organizations or chambers of commerce are also included.

- *NGOs/citizens-based organizations* which include non-governmental organizations, community organizations, research institutions, schools, media channels, international donor agencies, concerned individuals and, in some cases, religious institutions. NGOs focus not only on such issues as environment and human rights, but can also act as advocates for specific interest groups, such as oil or logging companies.

2) *Determining Interests, Importance and Influence*

Key interests for each stakeholder group in the initial list are drawn and analyzed. The key questions could be used to draw interests of the stakeholder groups in the process of preparing the TDA may include:

- What are the likely expectations of the TDA project by the stakeholder?
- What benefits are there likely to be for stakeholders?
- What resources are the stakeholders likely to commit (or avoid committing) to the TDA project?
- What other interests does the stakeholder have that may conflict with the TDA project?
- How does the stakeholder regard others on the list?

The influence and importance of each stakeholder on the TDA project are then assessed. In this context, the influence refers to how powerful a stakeholder is while the importance pertains to those stakeholders whose problems, needs and interests coincide with the aims of the TDA project.

3) *Establishing Strategies for Involvement*

Strategies for approaching and involving each stakeholder in the TDA process are established. How the strategies will be established will usually depend on the results of the previous analysis as well as the appropriate type and level of participation by the stakeholder. There is no need to involve reluctant stakeholders and stakeholders who may change their level of involvement as the TDA process continues. Where the stakeholder is a group rather than an individual, decision on whether all in the group or only representatives of the group will participate should be made.

5.3.2 Institutional Analysis

Institutional analysis in the TDA process focuses on key institutions or organizations that either have “direct mandates” for environmental management or whose activities have “environmental impacts”. The institutions are not limited to government agencies, but include also private sector organizations, community-based organizations, academic and research institutions (GEF-UNDP, 2005a).

A basic assessment on the strengths and weaknesses of key institutions is made. Issues such as the following should be evaluated during the assessment:

- ✓ The need for clarification of agency mandates;
- ✓ Areas that require institutional reform or strengthening;
- ✓ The need for better intra- and inter-sectoral coordination;
- ✓ Potential areas for increased cooperation between institutions in order to catalyze resources, expertise, and funding;

- ✓ The need for capacity building;
- ✓ The ability to manage resources effectively; and
- ✓ The ability to formulate, implement, enforce and monitor relevant policies and regulations.

A comparative institutional mapping exercise should also be undertaken at a regional level as neighboring countries in the region are often unfamiliar with each other's institutional and legal frameworks. This exercise will also review existing multinational institutional arrangements. Priorities and actions which have already been established, and which will orient the eventual SAP, must also be incorporated into the TDA. The same types of issues outlined above are also applicable to the regional analysis.

5.3.3 Legal and Policy Analysis

The analysis involves a thorough overview of relevant instruments, with special emphasis on their actual implementation, compliance and enforcement as well as identification of the existing policy frameworks, constraints and obstacles for their implementation. The aim of the analysis is to provide bases for recommending policy and legal reforms (GEF-UNDP, 2005a).

Key elements to be included in the analysis may include:

- ✓ The existing national development plans/strategies;
- ✓ The national environmental strategies/plans such as, for example, the biodiversity strategies; and
- ✓ The relevant investments.

Selected priorities for action and for policy development contained in these elements should be described.

Basic issues that need to be looked at during the analysis may include:

- Are policy-making processes largely sectoral, or is there room for inter-sectoral discussion and decision-taking?
- Are the policies clear, open and based on relevant information?
- Are the policies consultative? Are efforts made to conciliate different interests?
- Is there any conflict between any sectoral policies and laws?
- What are the environmental impacts of sectoral policies?
- Are there any so-called "perverse" policies?
- Are there any jurisdictional overlaps?
- Have the priorities of development been set?
- Has priority been given to controlling/remediating environmental impacts over strategies for preventing environmental impacts, or vice versa?
- What are the impacts of the relevant policies?
- Is there a need for harmonization of legislation, national or regional?
- Is there effective compliance with, and enforcement of, legislation and regulations?

Policies and legislation specifically directed at the environment and sectoral activities that have significant environmental impacts must also be reviewed. A

comparative analysis on how policy/legal frameworks in the region differ is needed. At the regional level, relevant instruments such as conventions, treaties or agreements must also be reviewed and analyzed, to assess whether they are effective as a basis for cooperative environmental management. Similarly, relevant global instruments that the countries are parties to should also be included.

Normally a consultant specialized in the governance analysis is employed to facilitate a “Governance Analysis” (GA) workshop participated by national and regional experts and to prepare a GA report based on the results of the workshop. Details on the processes and techniques for the governance analysis are provided by GEF-UNDP (2005a).

5.4 Causal Chain Analysis

A causal chain analysis (CCA) traces the pathways of cause-effect associated with each priority transboundary problem, from the socio-economic and environmental impacts back to its root causes; the main purpose of CCA is to identify the most important root causes of each of this priority problems in order to target them by appropriate policy measures for remediation or mitigation (GIWA, 2002). The CCA is, therefore, developed to help identify and understand the root causes of environmental and socio-economic problems in international waters and is conducted by identifying the human activities that cause the problem and then the factors that determine the ways in which these activities are undertaken. A completed CCA should help to locate potential areas of intervention for GEF and respective governments, and is an important basis for the design of the practical actions that will be included in the SAP (GEF-UNDP, 2005). In most cases, the environmental and socio-economic data and information to support the statements are made during the process of carrying out the CCA. Only with strong scientific backing, can the causal chain analysis can be persuasive. Completion of a causal chain analysis for each of the priority environmental problems, therefore, requires a mixture of expertise: scientific for the immediate causes, and social and economic for the root causes (UNDP, 2003; GEF-UNDP, 2005).

The components of a CCA for the region under study may include:

1. **Priority environmental problems or issues:** The priority environmental problems or issues of transboundary nature as identified from the impact assessment conducted earlier; for example, the eutrophication, the chemical pollution, etc;
2. **Immediate causes:** The physical, biological or chemical variables that have a direct impact on a priority environmental issue; for example, enhanced nutrient inputs in the case of eutrophication;
3. **Root causes:** They refer to the key factors, trends, processes or institutions that: (a) influence a situation, issue, or decision; and (b) propel the system forward, and determine a scenario’s outcome, for example, the subsidies to pesticides or access to an important market.

The causal chain effects and inter-relationships of the above components in association with the prioritized transboundary environmental problem or issue are assessed by a team of multi-disciplinary experts in a workshop. Detailed procedures are provided by GIWA (2002) but the procedures suggested by USEPA (2005), as depicted diagrammatically in Figure 3, are also applicable for conducting the CCA. Table 3 shows, as an example, the

summary of CCA results for the priority environmental problems found in the Yellow Sea LME.

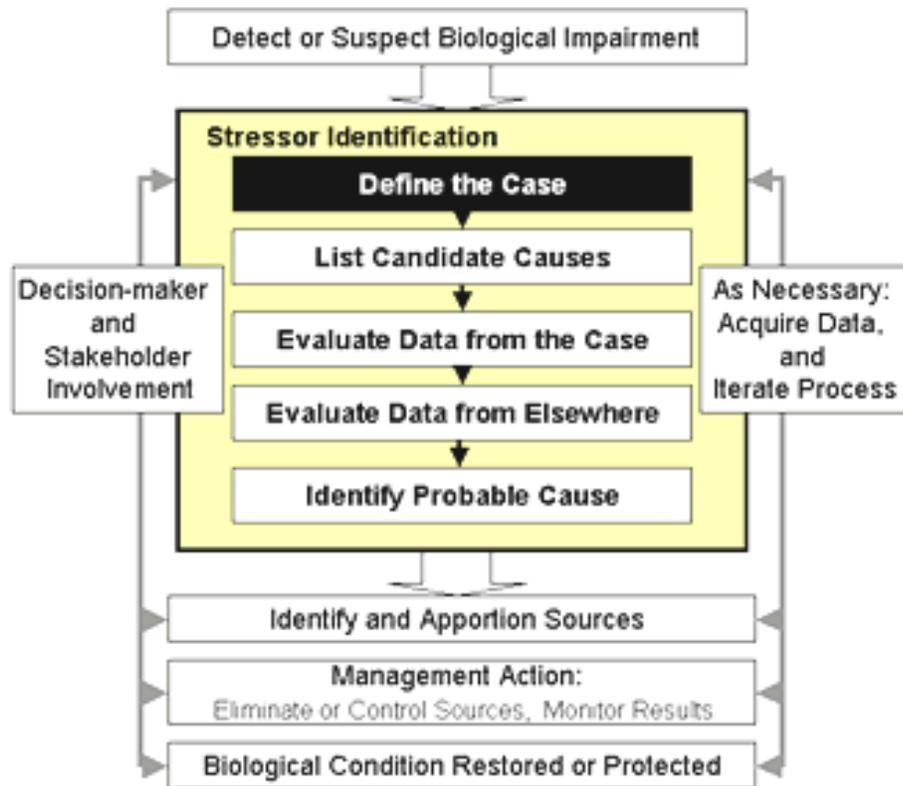


Figure 3. Procedures of conducting the causal chain analysis for an identified biological or environmental problem (USEPA, 2005)

Table 3. Summary of the Causal Chain Analysis for the Yellow Sea Region (modified from: UNEP, 2005)

Priority GIWA Concern	Priority GIWA Issue	Immediate Cause	Sector Activity	Root Cause
I. Freshwater Shortage	1. Modification of stream flow	“Changes in stream water inputs” due to (a) increased diversion of stream waters for irrigation, industrial and domestic uses; and (b) upstream damming/diking for flood control and for meeting the water requirements by the increased agricultural activities.	(a) <i>Agriculture</i> : increased crop farming activities and expansion in the farming areas. (b) <i>Industry</i> : changes in the types of industries and increased human settlements following the industrial development. (c) <i>Infrastructure Provision</i> : building of dams and dikes upstream of the river systems for flood control.	(a)-1. Increased population growth. (a)-2. Poor crop irrigation systems. (b)-1. Changes in economic structures. (b)-2. Increase in economic growth. (c)-1. Increased deforestation and incidence of natural disasters (e.g., typhoons and El Nino). (c)-2. Increase in economic growth.
	2. Pollution of existing supplies	“Increased inputs of pollutants from land-based point and non-point sources”	(a) <i>Agriculture</i> : excessive use of fertilizers and pesticides by farmers. (b) <i>Industry</i> : increased discharge of treated and/or partially treated industrial wastewaters due to rapid industrial development.	(a)-1. Inadequate access to technical and scientific information. (a)-2. Decrease in soil productivity. (a)-3. Lack of awareness on environmental impacts due to excessive use of fertilizers and pesticides. (b)-1. Insufficient investment in facilities for pollution prevention and wastewater treatment. (b)-2. Insufficient enforcement of regulations and laws.
III. Habitat and Community Modification	12. Loss of ecosystem	(1) “Reclamation of coastal land for industrial development and urbanization” leading to destruction of coastal habitats. (2) “Changes in freshwater inputs/discharges” through: a) increased diversion of stream waters for irrigation; and b) building of tidal embankments that changed the stream flow rates, leading to loss of freshwater habitats such as the freshwater marshlands.	(1)-(a) <i>Industry</i> : increased industrial development leading to increased reclamation of coastal land areas to be used for establishment of factories or other industrial installations. (1)-(b) <i>Urbanization</i> : rapid urbanization following the increased economic growth leading to increased reclamation of more lands (with natural habitats) for human settlements. (2)-(a) <i>Agriculture</i> : activities include: (i) increased building of tidal embankments to protect crop production; and (ii) increased crop farming activities and expansion of farming areas leading to increasing use of stream water for irrigation.	(1)-(a)-1 Increased economic growth. (1)-(a)-2 Increased population growth. (1)-(b)-1 Mass population migration to urban areas. (1)-(b)-2 Increased population growth. (2)-(a)-1 Increased population growth.
	13. Modification of ecosystem	(1) “Pollution through waste discharges high in nutrients, trace metals and organics” from land-based point and non-point sources which alters the overall biodiversity of the ecosystems. (2) “Introduction of invasive species and diseases”, which modifies the species population structure and replacement of endemic with exotic species.	(1)-(a) <i>Industry</i> : increased discharges of wastes high in trace metals and other harmful pollutants from factories and other industrial installations. (1)-(b) <i>Agriculture</i> : increased or uncontrolled uses of fertilizers and pesticides by crop farms. (2)-(a) <i>Transportation</i> : increase in shipping traffic had raised the chances of introducing invasive species through ballast water and/or attachment to ship hulls. (2)-(b) <i>Aquaculture</i> : both introduction of exotic species for culture and outbreak of diseases have been found to alter the species population structure in habitats in the premises of aquaculture facilities.	(1)-(a)-1 Increased economic growth. (1)-(a)-2 Lack of or insufficient regulations, policy or enforcement mechanism. (1)-(b)-1 Profit-oriented with disregard to environmental impacts attitudes of farmers. (2)-(a)-1 Increased trade and energy demand. (2)-(a)-2 Lack of or insufficient regulations, policy or enforcement mechanism. (2)-(b)-1 Increased economic growth. (2)-(b)-2 Lack of or insufficient regulations, policy or enforcement mechanism.

Table 2. Summary of the Causal Chain Analysis for the Yellow Sea Region (modified from: UNEP, 2005) - continued

Priority GIWA Concern	Priority GIWA Issue	Immediate Cause	Sector Activity	Root Cause
IV. Unsustainable Exploitation of Fisheries and Other Living Resources	14. Over-exploitation	(1) <i>“Improved efficiency of fishing practices”</i> by introduction of improved fishing technology. (2) <i>“Increased fishing efforts”</i> leading to over-harvesting of living resources.	(1)(2) <i>Fisheries</i> : activities include (i) easy access to improved fishing technologies in the fisheries sector encouraging more efficient fishing practices; (ii) increased number of fishing fleets entering the fishing industry leading to increased fishing efforts.	(1)(2)-1 Increased population growth. (1)(2)-2 Profit motive in disregard of the environmental consequences. (1)(2)-3 Increased market demands for seafood.
	16. Destructive fishing practices	<i>“Low capital input and high yield characteristics of the destructive fishing practices”</i> (e.g., bottom trawling and dynamite fishing) leading to frequent practices of such fishing gear.	<i>Fisheries</i> : activities include the technology and supplies related to the destructive fishing practices are readily available and of easy access to fishermen.	(a) Lack of public awareness on the consequences of destructive fishing practices. (b) Increased market demand for seafood.

5.5 Preparation of TDA Reports

5.5.1 Preparation of National TDA Report

The National Coordinator shall prepare a report summarizing the conclusions of the National TDA Task Team prior to a final meeting where the report will be discussed, revised and adopted as the draft National TDA report. An open consultative meeting attended by as wide an audience as possible, including the public, to present and obtain feedback on the draft National TDA Report shall be convened. National TDA Task Team shall convene to revise and finalize the report upon receipt of the feedbacks from the public consultative meeting. The finalized draft National TDA Report from each country shall be used as a key reference document for preparation of the Regional TDA Report.

5.5.2 Preparation of Regional TDA Report

The Regional Coordinator shall prepare a report summarizing the conclusions derived from a “Regional TDA Formulation Workshop” attended by the Regional TDA Task Team and invited regional experts. The Regional TDA report as prepared by the Regional Coordinator will be discussed, revised and adopted as the draft Regional TDA report in meeting attended by the Regional TDA Task Team.

5.6 Review and Adoption of Regional TDA Report

5.6.1 Public Consultative Meeting to review draft Regional TDA Report

The draft Regional TDA report will be presented for review and obtaining feedback in an open consultative meeting attended by as wide an audience as possible, including the public and other relevant stakeholders.

5.6.2 Revision and Finalization of Regional TDA Report

Regional TDA Task Team shall convene to revise and finalize the report upon receipt of the feedback from the public consultative meeting. The finalized draft Regional TDA Report shall be presented to an Inter-governmental Meeting for review and adoption.

5.6.3 Presentation of Regional TDA Report for Review in Inter-governmental Meeting

The Regional TDA report shall be presented for review in an Inter-governmental Meeting attended by government representatives from all participating countries in the region. The regional TDA report represents the mid-way stage in the TDA-SAP development process but the possible causes and impacts of the priority environmental problems or issues in the Regional TDA report shall be reviewed and consensus reached for the adoption will be made in the meeting.

5.6.4 Adoption of Regional TDA Report

Regional TDA Task Team shall convene to revise and finalize the report upon receipt of the feedback from the Inter-governmental Meeting. The finalized Regional TDA Report shall be submitted for adoption by participating countries in the region.

5.7 Workshops and Meetings

A number of workshops and meetings may have to be conducted in the process of preparing the national and regional TDAs:

5.7.1 Identification and Collation of Information

All sources of the information/data that could be used for preparing the TDA will be identified and obtained. The collected information/data will be reviewed and analyzed in meetings attended by the TDA Task team members and subsequently the refined information assimilated for the preparation of the TDA.

5.7.2 Impact Assessment and Identification/Prioritization of Transboundary Problems Workshop

The workshop shall be attended by a multi-disciplinary team (National TDA Task Team and invited regional experts) to, (a) define the geographic boundaries of the land and aquatic systems that are to be investigated (scaling); (b) identify and assess those impacts of the environmental problems within the region; and (c) identify and prioritize the environmental problems with transboundary implications. Procedures for conducting the workshop could be found in GIWA (2001).

5.7.3 Governance Analysis (GA) Workshop

The workshop shall be attended by experts with relevant fields of training relating to the governance analysis. The purpose of the workshop is to identify a list of stakeholders and assess their roles and functions that they can play in the process of preparing the TDA. The legal and institutional frameworks on the national and regional levels will also be identified for preparation of the national and regional TDA reports.

5.7.4 Causal Chain Analysis (CCA) Workshop

The purpose of the CCA workshop is to identify the most important root causes of the priority issues identified earlier in the TDA process, in order to target them by appropriate policy measures for remediation or mitigation. The workshop is to be attended by a multi-disciplinary team (National TDA Task Team and invited regional experts). Detailed procedures for conducting the CCA workshop could be found in GIWA (2002).

5.7.5 Workshop for Formulation of Regional TDA

The workshop shall be attended by the Regional TDA Task Team and invited regional experts. The purpose of the workshop is to assess, review and collate all the National TDA reports from the participating countries in the region into a Regional TDA report.

6. Process of Preparing the SAP

General objectives of an SAP for a region under study are to,

- formulate principles, approaches, measures, timetables and priorities for action;

- prepare a priority list for intervention and investments;
- conduct detailed analysis of expected baseline and additional actions needed to resolve each transboundary priority problem;
- identify the elements and prepare guidelines for the formulation of national action plans for the protection of the marine environment and rational use of marine and coastal resources consistent with the regional SAP;
- foster the involvement of regional and, where appropriate, national Non-Governmental Organizations and the private sector in the implementation of the SAP;
- foster collaboration and co-operation between all regional entities having interests in the environment of the region in an attempt to reduce or eliminate duplication of effort and waste of scarce human and financial resources (UNEP-GEF-SCS, 2004).

The following provide the process of preparing the SAP in conjunction with the objectives mentioned above.

6.1 Preparation for Formulation of SAP

6.1.1 Appointments of National and Regional SAP Coordinators

The earlier National and Regional TDA Coordinators of the region under study could be reappointed as the National SAP Coordinators and Regional SAP Coordinator.

6.1.2 Creation of Regional and National SAP Formulation Teams

Essentially, the earlier Regional and National TDA Task Teams could be reappointed as the Regional and National SAP Formulation Teams with addition of some appropriate experts from the region as needed. In any case, the teams should consist of multi-disciplinary specialists in technical, legal, financial and public policy issues; the teams should also have adequate stakeholder representation. The SAP Formulation Teams shall be responsible for the overall tasks related to the conduct of the SAP in the region. While there will only one Regional SAP formulation Team, each of the participating countries in the region should have a National SAP Formulation Team; this will have the advantage of ensuring that all SAP formulation actions are firmly anchored on realistic national policy actions. The national teams will eventually generate draft National SAPs for deliberation and collation into a Regional SAP by the regional team.

6.1.3 Action Plan for Preparing SAP

The Regional SAP Coordinator together with the National SAP Coordinators shall prepare an action plan for preparation of the SAP. The action plan shall detail the strategies, timeframe and procedures on how the SAP would be prepared, incorporating the comments from the perspective stakeholders.

6.2 Review of Priority Transboundary Issues, and their Immediate and Root Causes

Formulation of the SAP shall start with the review of the priority transboundary issues, and their immediate and root causes as derived from the associated regional TDA report by the SAP Formulation Teams. Results of the review, which are to be documented,

shall be used as the reference material for deliberating and establishing the vision statements for each of the priority issues.

6.3 Formulation of Ecosystem Quality Objectives (EcoQOs), Indicators, Targets and Program Actions

With reference to the review results of the associated TDA report, vision statements are formulated for each of the priority transboundary issues. Each vision statement, which represents one long-term Ecosystem Quality Objective (EcoQO), is the tangible, measurable and easily communicated statement on how the stakeholders, including government agencies, in the region would like to see the state of the ecosystem or the environment that would look like in the future. It is important that there is full consultation with all the stakeholder groups to encourage ‘buy-in’ and ownership during the process of formulating the EcoQOs. The EcoQO is the bridging mechanism to move from the understanding of the primary problem areas, root causes, and threats into the action phase of the SAP, where specific national and transboundary actions and interventions must be identified and agreed.

Once the EcoQOs for the priority transboundary issues have been established, the next step is to identify quantitative targets for achieving or satisfying each EcoQO. These targets should be precise, succinct and achievable, having an associated timeline (next five to ten years) and environmental indicators associated with them. The environmental indicator is the metric that will be used to determine whether that target has been achieved or not and might be one of the following kinds: Process Indicator, Stress Reduction Indicator, or Environmental Status Indicator. Once the targets are agreed, then specific program actions or interventions leading to achievement of the targets within the stated time period are identified. The proposed program actions for each target should be wide-ranging in class of intervention, such as in the form of policy/legal interventions, demonstration projects, capacity building or institutional strengthening. Some of these actions may also represent scientific studies or data management. This diversity of interventions is required to provide a sustainable SAP, and sustainable long-term efforts at environmental protection and management. Several brainstorming meetings attended by a team of multi-disciplinary experts are normally held to discuss and establish the list of prioritized EcoQOs and their associated targets and actions. Box 2 provides examples of the EcoQOs, indicators, targets and actions of the prioritized environmental issues derived from the Caspian Sea SAP report.

Box 2. Ecosystem quality objectives (EcoQOs) and their associated indicators, targets and program actions for a prioritized environmental issue in Caspian Sea region

Eight Major Perceived Problems and Issues (MPPIs) were identified in the Caspian Sea TDA report. These MPPIs were later refined through further regional consultation into four priority environmental regional concern areas which require coordinated efforts by all littoral states of the Caspian Sea region: (a) Unsustainable use of bio-resources; (b) Threats to biodiversity including those from invasive species; (c) Pollution; and (d) Unsustainable coastal area development. It was determined that these areas of concern, and their root causes, could be most effectively and appropriately addressed through the aims of the following five Environmental Quality Objectives or Ecosystem Quality Objectives (EcoQOs): (1) Conservation and sustainable use of bio-resources; (2) Conservation of Caspian biodiversity; (3) Improved water quality of the Caspian; (4) Sustainable development of the coastal zones; and (5) Strengthened stakeholder participation in Caspian environment stewardship.

Each EcoQO consists of a number of targets that are comprised of inter-related interventions or actions that address the root causes of the concern areas. For the regional level interventions, the littoral states and the international partners shall work collectively to take the required steps to fulfill the intervention. The national level supporting interventions will be the responsibility of the littoral countries. The following provides an example in the relationship of the EcoQO, EcoQO indicator, targets and actions/interventions for the root cause (*Poor management practices leading to over-exploitation of fish stock*) of the regional concern area of “*Unsustainable use of bio-resources*” in the Caspian Sea region:

MPPI: Unsustainable use of bio-resources

Root cause: Poor management practices leading to over-exploitation of fish stock

EcoQO 1: Conservation and sustainable use of bio-resources

EcoQO Indicator: Commercial fish stocks are maintained at sustainable levels with reference to the base year (1998)

Target 1: Sustainable use of commercial fisheries resources

Program Actions/Interventions:

- 1.1 Promote the signature and implementation at the governmental level of a regional agreement on the preservation and management of bio-resources of the Caspian Sea. (H) 1-5 years.
- 1.2 Further strengthen the regional cooperation for fisheries management, including the development of regional standards of fisheries harvest practices for commercial species, and the setting of scientifically based quota system. (H) 1-5 years.
- 1.3 Develop compliance, enforcement and monitoring mechanisms for sturgeon fisheries in accordance with CITES Paris declaration. (H) 1-5 years.
- 1.4 In coordination with national and regional organizations, develop enforcement mechanisms and economic instruments to reduce illegal trade in Caspian commercial fish resources in accordance with CITES Paris declaration. (H) 1-5 years.

Target 2: Rehabilitate stocks of migratory (sturgeon, inconnu, herring) commercially valuable fish species

Program Actions/Interventions:

- 2.1 Carry out national activities to identify, protect, restore and manage natural spawning grounds for sturgeon and other commercially valuable anadromous species, within the framework of regional agreements, including development of a financing strategy. (M) 1-5 years.
- 2.2 Increase sturgeon hatchery efficiency and capacity through improvement in bio-techniques and fry growth technology as well as enhancing production scales. (H) 1-5 years.
- 2.3 Strengthen regional cooperation including scientific exchanges on improving hatchery efficiency and the creation of a gene bank for anadromous fish stocks. (H) 1-5 years.

Target 3: Improve livelihoods in coastal communities to reduce dependency on unsustainable fishing practices via pilot projects

Program Actions/Interventions:

- 3.1 Promote more selective fishing methods and small-scale aquaculture. (M) 5-10 years.
- 3.2 Promote alternative income sources for fishing communities and adoption sustainable livelihoods, and improve access to social/community services. (H) 5-10 years.

(Source: CEP, 2003)

6.4 Conduct of Feasibility Study for the Program Actions

The National SAP Formulation Team in each of the participating countries of the region shall examine the program actions associated with the targets of each EcoQO. The team will revisit the prioritized EcoQOs and select those of higher priority that require further study. Brainstorming meetings/sessions are held in conducting the feasibility study for the actions. Feasibility study of the actions shall include: (a) evaluation on the costs, benefits, social soundness and links to current policies of the actions to meet the targets for each EcoQO; (b) determination on what degree that the long-term EcoQOs would be addressed and which of the actions will require a region-wide coordinated common approach; (c) economic and ecological evaluation of the resources; and (d) benefits obtained after the GEF project is completed.

In parallel, the regional SAP team shall conduct a preliminary environmental accountancy on each of the program actions, in order to evaluate whether or not they would make significant progress towards the long-term EcoQOs. If the proposed measures do not signify significant progress towards the longer term objectives, the actions considered should be revisited at the national level and strengthened.

6.5 Decision on Intent to implement Selected Feasible Options

The feasibility study of the actions associated with the targets for the prioritized EcoQOs will derive on a list of feasible options, which may include a mix of the key reforms and investments that the governments and private sector would commit themselves to in the short/medium term. A firm political decision for implementation of these selected feasible options is generally sought through careful consultation with the Project Steering Committee (PSC) as well as the national Inter-ministerial Committees (IMCs). Outcomes of these discussions would ultimately be reflected in the draft national SAPs.

6.6 Technical Consultations on the Contents of the Regional Strategic Action Programme

Several technical consultation meetings or workshops are held to integrate the national SAPs into a coherent regional SAP. The meetings/workshops will be convened to, (a) set short/medium term actions or operational objectives; (b) agree on national/regional institutional framework; and (c) develop comprehensive monitoring/evaluation indicators. Details of these are provided in the following:

6.6.1 Setting of Short/Medium Actions (Operational Objectives)

The above technical and political consultation process through PSC and IMCs should enable the regional SAP team to determine how far the political process can be taken towards achieving the targets of the long-term EcoQOs in the short/medium term (5-10-15 years). By careful accountancy of the environmental and social benefits, short to medium term Operational Objectives can be set. Operational objectives, which should be unambiguous and easy to communicate to the wider public, can be reflected in the process, stress reduction or environmental status indicators (including living resources).

6.6.2 Formulation of National/Regional Institutional Framework

In the TDA the institutional strengths and weaknesses were examined while in the SAP proposals on how the identified weaknesses should be corrected would be formulated in terms of capacity building requirements. These institutional arrangements would be discussed in parallel with the formulation of national policy, legal and institutional reforms and priority investments which would be formulated by the national SAP teams and agreed by the National Inter-ministerial Committees. Final agreement would be reached following the decision on the Operational Objectives. The institutional framework for the SAP would be described, listing all the stakeholders involved and illustrating the mechanism for ensuring sustainable financial support to the mechanisms developed.

6.6.3 Development of Comprehensive Monitoring/Evaluation Indicators

The SAP teams shall prepare a set of process, stress reduction and environmental status indicators (including living resources), based on the results of the TDA but adapted according to the needs of the long-term EcoQOs and short-term operational objectives/targets, as well as project monitoring and evaluation indicators for any subsequent GEF interventions. The GEF International Waters Projects (IW) Monitoring and Evaluation (M&E) guide (Duda, 2002) contains detailed information on the development of such indicators. There should be clear linkages between the indicators and the institutional capacity for monitoring them.

6.7 Establishment of Incremental Partnerships

The existing and planned investments by the countries, donors and non-government organizations of the region as a baseline for assessing the incremental cost of the SAP will be investigated. Ways to establish partnerships available for achieving maximum environmental benefits will be examined and established. The potential for existing and planned investments will be studied. Based on these assessments, proposal for achieving effective incremental partnerships will be developed.

6.8 Development of SAP Implementation and Financing Mechanisms

The legal and institutional arrangements for implementation of SAP will be assessed and developed. Plan for the stakeholder and public participation in the SAP implementation as well as the framework for the monitoring and evaluating the implementation of SAP will be established.

6.9 Assessment of Investment Needs associated with the SAP Implementation

Investment needs and estimate of costs associated with the SAP implementation will be assessed. The existing financing arrangements will be investigated and the potential of using them for financing the implementation of SAP will be assessed. Ways of financing the incremental costs for the implementation of SAP will be studied.

6.10 Finalization of SAP Report

The Regional SAP Formulation Team shall convene to revise and finalize the report upon receipt of the feedback from the technical and public consultative meetings.

The draft SAP report should be a concise, jargon-free document with clear targets, quantifiable time-limited milestones or operational objectives and unambiguous assignment of responsibilities.

The report shall embody, (i) a statement of the priority problems; (ii) principles adopted for solving the problems; (iii) joint planning and dispute settlement mechanisms; (iv) institutional arrangements; (v) public participation; (vi) long and short-term EcoQOs; (vii) common measures taken in solving the problems; and (viii) monitoring, and review arrangements and reporting. The document should also include a series of annexes providing, (a) full details of agreed measures at the national and regional levels including national policy/legal/institutional reforms and investments as well as their implementation mechanisms and process; (b) stress reduction, environmental and living resource status indicators; (c) stakeholders and their involvement in the implementation and review process; and (d) lists of contact points of the responsible authorities for implementation in each country of the region under study.

6.11 Technical and Public Consultation of Regional SAP Report

The draft SAP report will be presented for review in a technical consultative meeting attended by the SAP Formulation Team and regional resource persons. The meeting shall review the following from the draft SAP report: (a) Setting of the short- and medium-term EcoQOs' measurable targets to determine how far the political process can be taken towards the long-term EcoQOs' measurable targets in the short/medium term; (b) Agreeing on national/regional institutional framework; and (c) Developing comprehensive monitoring/evaluation indicators, and project monitoring and evaluation indicators for any subsequent GEF interventions.

The finalized draft SAP report will be presented for review and obtaining feedback in an open consultative meeting attended by as wide an audience as possible, including the public.

6.12 Endorsement and Adoption of Regional SAP Report

The finalized draft SAP report shall be presented for endorsement by the participating countries in the region through the following procedures:

6.12.1 National Endorsement

The finalized SAP report shall be submitted for endorsement by each participating country in the region under study. Broad-based consultations with affected populations and stakeholders should be held before submitting the SAP report for endorsement. The regional SAP and appropriate national SAP should be endorsed in each participant country. This should be conducted under the auspices of the National Inter-ministerial Committee (NIC) which should seek approval of the SAP at the highest possible level. The public involvement plan agreed at the start of the project should identify the pertinent mechanism for public consultation in each instance. In the event of a major reservation of the SAP, the Project Steering Committee (PSC) should decide whether or not to amend the draft SAP and submit it for additional consultations and the report revised accordingly before resubmitting for endorsement.

6.12.2 Develop GEF Interventions and Conduct Partnership Conference

The ultimate purpose of GEF is to identify future interventions based on the results of the TDA/SAP prepared. These interventions should be planned on the basis of the draft SAP report in parallel with the endorsement process. The process is normally facilitated through the convention of a partnership conference which enables bilateral and multi-lateral organizations to review the specific proposals requiring development assistance (including TA, loans and possible equity transfers) and to engage in joint planning for actions to address priority transboundary issues in potential future projects. From the GEF's perspective, the SAP process should have identified clear requirements for incremental cost funding. These can be translated into proposals in the form of one or more project briefs following the established procedures.

6.12.3 Ministerial Conference to adopt Regional SAP Report

A Ministerial Conference to formalize national commitment to the draft SAP report (after it has been endorsed by the National Inter-ministerial Committee in each country) is to be conducted, giving suitable press coverage. The conference can also serve as a launch pad for a new GEF initiative in association with the SAP report.

The best practices of preparing the SAP are provided by UNDP (2003) and UNDP-GEF (2004a).

7. TDA and SAP Report Formats

7.1 Format for Regional TDA and National TDA Reports

The following provides the format of the key topics for preparing both the National and Regional TDA reports; a brief description on the contents proposed for each of the topics in the format may also be presented as needed.

Title *(It should reflect the title of the TDA project)*

Table of Contents

(Clearly lists the titles of the sections of the report and the relevant page numbers they appeared in the report; lists of tables, figures, boxes, appendices and annexes are also provided here)

Acknowledgements

(Individuals, organizations and institutions whoever made contributions, in one way or another to the formulation of the TDA are clearly acknowledged)

Executive summary

(A summary that covers adequately the contents and key findings of the report is provided here)

Abbreviations and Acronyms

(Abbreviations and acronyms that are referred to in the report are provided here)

1. Introduction

(Provides brief description on the purpose and objectives for preparation of the TDA; the current pressing environmental problems in the region; how the preparation of the TDA is initiated; etc)

2. Methodology

(A brief description on the methodology including the governance analysis, impact assessment, causal chain analysis, identification and prioritization of transboundary issues, etc is provided here)

3. Boundary and General Characteristics of the Region

(Supported by maps defines the boundary of the region; describes on the general characteristics including general topography, ecosystems, rivers and river basins, coastal areas, etc that can be found within the boundary of the region; also describes, in genera, the transboundary implications with regards to the use of resources and sectoral activities in the region; etc)

4. Bio-physical Characteristics

4.1 The Climate *(e.g., weather conditions, temperatures, rainfall, etc)*

4.2 Natural Resources and Their Utilization

(The availability and status of utilization of the following natural resources are described here)

4.2.1 Water Resources

4.2.2 Mineral Resources

4.2.3 Energy Resources

4.2.4 Biodiversity, Exotic and Endangered Species

4.2.5 Critical Habitats

4.2.6 Forest and Land Resources

4.2.7 Aquatic Living Resources

5. Socio-economic Characteristics

5.1 Population and People

5.2 Main Economic Sectors

5.2.1 Agriculture

5.2.2 Forestry

5.2.3 Fisheries and Aquaculture

5.2.4 Mineral Extraction

5.2.5 Energy Production

5.2.6 Transportation

5.2.7 Tourism

5.2.8 Urbanization and Industrial Development

5.3. Economic Characteristics

6. Legal and Institutional Framework, Stakeholder Participation

(Results from the governance analysis are described under the topics/subtopics provided hereunder)

6.1 Policies, Strategies and Legislation

6.2 Institutional Arrangements

6.2.1 National Management Institutions

6.2.2 Non-governmental Organizations (NGOs)

6.2.3 Public Involvement and Environmental Awareness

6.2.4 Regional Cooperation and External Support Agencies

6.3 Stakeholder Participation

7. Impact Assessment

(Results of the impact assessment study are described here; environmental and socio-economic impacts in relation to the following major environmental concerns, for example, that can be found in the region are elaborated; each of the following environmental concerns may have several specific issues as relevant to the region concerned; environmental and socio-economic impacts of each of these issues are also described)

- 7.1 Freshwater flow modifications (*e.g., Modification of stream flow; Pollution of existing supplies; Changes in the water table*)
- 7.2 Pollution (*e.g., Microbiological; Eutrophication; Chemical; Suspended solids; Solid wastes; Thermal; Radio nuclides; Spills*)
- 7.3 Habitat and community modifications (*e.g., Loss of ecosystems or ecotones; Modification of ecosystems or ecotones, including Community structure and/or species composition*)
- 7.4 Unsustainable exploitation of fisheries and other living resources (*e.g., Over-exploitation; Excessive by-catch and discards; Destructive fishing practices; Decreased viability of stock through pollution and disease; Impact on biological and genetic diversity*)
- 7.5 Fluctuating climate (*e.g., Freshwater flow fluctuations such as drought and floods; Fluctuating ocean circulation patterns; Sea level change including saltwater intrusion*)

8. Priority Transboundary Issues

- 8.1 Identification and Prioritization of National and Transboundary Issues (*The priority environmental issues of the region with transboundary nature are described with justification; a list of priority transboundary issues is provided; etc*)
- 8.2 Characteristics of Priority Transboundary Issues (*Brief description of the environmental and socio-economic characteristics for each of the priority transboundary issues; key transboundary justification for the priority transboundary issues; etc*)
- 8.3 Priority Transboundary Issues (*Results of the identification and prioritization of transboundary issues for the region are described here; transboundary implications or transboundary elements of the list of the priority transboundary issues are also provided here*)

9. Causal Chain Analysis

- 9.1 Immediate and Root Causes and underlying Sectoral Activities (*Results of the causal chain analysis are described; perceived impacts of the transboundary issues and linkage to their immediate causes and root causes as well as the sectoral activities associated with these causes as well as the causal linkage of these causes with the impacts of the priority environmental problems or issues and justification for the linkage are provided; etc*)
- 9.2 Summary of Causal Relationship of Priority Transboundary Issues (*Summarizes in graphic and/or tabular forms the linkage of the priority root causes in the causal chain process and justification for the linkage; describes the impact statements for each priority issue as derived from these causal causes used for formulation of the EcoQOs; etc*)

10. Conclusion

(Concludes on the key findings found during the process of preparing the TDA; derives on a list of the priority transboundary issues for further analysis that can lead to the preparation of the SAP; etc)

References

List of Tables

List of Figures

List of Annexes:

Annex 1. Participants in the TDA Process

Annex 2. Functions and Activities of the Institutions and Agencies Involved in Addressing and Managing Water-related Environmental Issues and Problems in the area/region under study

Annex 3. List of Conventions and Specific Laws that Affect Water Use in the area/region under study

7.2 SAP Report Format

The following provides the format of the key topics for preparing both the National and Regional SAP reports; a brief description on the contents proposed for each of the topics in the format may also be presented as needed.

Title *(It should reflect the title of the SAP project)*

Table of Contents

(Clearly lists the titles of the sections of the report and the relevant page numbers they appeared in the report; lists of tables, figures, boxes, appendices and annexes are also provided here)

Acknowledgements

(Individuals, organizations and institutions whoever made contributions, in one way or another to the formulation of the TDA are clearly acknowledged)

Executive summary

(A summary that covers adequately the contents and key findings of the report is provided here)

Abbreviations and Acronyms

(Abbreviations and acronyms that are referred to in the report are provided here)

1. Introduction

(Provides brief description on the purpose and objectives for preparation of the SAP; the current pressing environmental problems in the region; how the preparation of the SAP initiated; etc)

2. Need and Purpose of the SAP

(Briefly describe the need and purpose of the SAP for the concerned region; what benefits can be achieved from implementing the SAP; etc)

3. Geographic Scope of the SAP

(Brief narration of the geographic scope of the SAP for the region under study including the system boundary, key ecosystems, water basins, land and marine areas as well as the key socio-economic activities and characteristics; essentially a brief summary from those appeared in the TDA; etc)

4. Principles of Environmental Management and Cooperation

(Describes on any of the following principles whichever are relevant to the situation of the region as strategic guidelines for preparation of the SAP: The Principles of: (a) Sustainable Development; (b) Precautionary; (c) Polluter Pays; (d) Anticipatory Action; (e) Preventative Action; (f) Accessibility of Information; and Public Participation and Transparency. Also other principles such as those that include into all relevant policies and sectoral plans and programmes the environmental and health considerations; the use of clean technology when replacing or phasing-out high waste and waste-generating technologies; and the use of economic instruments that foster sustainable development through the implementation of economic incentives for introducing environmentally friendly technologies should be promoted for environmental management and cooperation.)

5. Priority Transboundary Issues

(Summary of the priority transboundary issues, their root causes, etc from TDA)

6. SAP Development and Prioritization

6.1 Ecosystem Quality Objectives (EcoQOs), EcoQO Indicators, Targets and Program Actions

(Describes on the EcoQOs, one by one in sequence of priority; each EcoQO is supported by an EcoQO indicator (for use as a reference point for monitoring and evaluating the implementation of the SAP), targets of achieving the EcoQO and program actions for attaining the EcoQO are described; etc)

6.2 Feasibility and Cost Benefits of Program Actions

(Based on the results of the study conducted by the SAP Formulation Team earlier, describes the cost benefits of the program actions focusing on the: (a) economic and ecological valuations of the resources; (b) costs of the actions to meet the targets of the program actions; (c) value saved by meeting the targets identified by specific actions of the SAP; (d) benefits obtained after the GEF project is completed; a list of feasible options for carrying out the program actions for prioritized EcoQO are derived and described; etc)

6.3 Priority Program Actions for Implementation

(Summarizes on the priority program actions feasible for implementation as remedial measures in improving the environment of the region; how these priority program actions could be further developed into GEF projects for GEF intervention and funding are provided; etc)

7. Implementation of SAP

7.1 Mobilization of Resources

(Describes the results of the assessment on the financial, human and facility resources which are available from the concerned government agencies and research institutions that could be mobilized to support implementation of the SAP; also resources from international donors, NGOs and private sectors available for supporting the SAP implementation; etc)

7.2 Legal and Institutional Framework

7.2.1 Legal Framework

(Describes the existing national and regional legal framework that could be used as vehicle for the implementation of the SAP; options for improving the existing legal framework for strengthening the implementation of SAP; etc)

7.3.2 Institutional Framework

(Describes the existing national, regional and international institutions that could be arranged to support the implementation of the SAP; options for improving the existing institutional frame for strengthening the implementation of SAP; etc)

7.3.3 Public Participation

[Describes the arrangements for the participation of the public and non-governmental organizations (NGOs) in the implementation of SAP at international, national and local levels; etc]

7.3 Financing the SAP

7.3.1 Investment Needs and Costs for the SAP Implementation

(Describe the total investment cost of financing the implementation of the SAP and how the cost could be shared by the budgetary and non-budgetary sources from the participating countries of the region; etc)

7.3.2 Existing Financing Arrangements

7.3.2a National Sources of Finance

(Describe the assessment of the existing budgetary and non-budgetary sources from the participating countries that could be used to finance the implementation, particularly the environmental investments, of the SAP; etc)

7.3.2b International Sources of Finance

(Describes the international sources of finance from international donors, bilateral cooperation programs, developed countries, etc that could be secured to finance the SAP implementation; etc)

7.3.3 Strengthening the Financing Arrangements

(Describes how the financing arrangements could be strengthened under the broader context of national environmental policy, the economic incentives that encourage the active involvement of nature users in the implementation of environmental actions, including the program actions identified in the SAP as well as the Public-Private Partnership arrangements designed to encourage the active involvement of governance bodies, business community and civil society seen as a potential option for improving the existing situation; etc)

7.3.4 Financing the Incremental Costs

(Incremental costs to strengthen the financial sustainability and ensure the prompt and adequate provision of funding for priority program actions identified in the SAP that could be sourced from the participating countries in the form of external investments, loans, grants, and other technical assistance arrangements; etc)

7.4 SAP Program Monitoring and Evaluation

(Describes the organization of agencies (national, regional and international) responsible and their duties for monitoring and evaluation (M&E) of the SAP implementation; performance indicators developed in line with the GEF IW's framework or the GEF M&E Office for monitoring and evaluation of the SAP implementation; etc)

8. Incremental Partnerships

(Describes on topics such as: (a) Justification for forming partnerships; (b) Partnerships available for achieving maximum environmental benefits; and (c) Potential for existing and planned investments; etc)

9. The Future of the SAP

(Describes the critical success factors relating to the implementation of the SAP in the future as well as the problems that should be addressed, the needs of coordinated actions and cooperation among the participating countries of the region; etc)

References

List of Tables

List of Figures

List of Annexes:

Annex 1. Participants in the SAP Process

Annex 2. Agreement of Endorsement by Participating Countries

Annex 3. Contact Information of National Focal Points for SAP Implementation

8. The East Asian Seas Region – Environmental and Socio-economic Information

This section provides as detailed as possible the environmental and socio-economic information which may be useful to assist the practitioners from the East Asian Seas Region in preparing the TDA and SAP. Sources of the information, notably the websites where the information could be retrieved, are provided in the following.

8.1 Country Profiles and General Information

The East Asian Seas Region, as defined by PEMSEA (2003), is bordered by China, Democratic People's Republic of Korea (DPRK), Republic of Korea (ROK), Japan, Philippines, Indonesia, Brunei Darussalam, Malaysia, Singapore, Thailand, Cambodia, and Vietnam. There are five LMEs, namely the East China Sea, the Yellow Sea, the South China Sea, the Sulu-Celebes Sea, and the Indonesian Seas found within the region; these LMEs are semi-enclosed and interconnected, providing great ecological and economic importance to the region. The river systems of ecological significance in the region include: the Mekong River; the Yangtze River; the Yellow River; the Red River; and the Pearl River. More environmental and socio-economic information for the East Asian Seas Region are also retrievable from publications and websites provided in the following.

8.1.1 General Information for East Asia Seas Region

- (a) The “*East Asian Seas Region*”, an article by the UNEP's Regional Coordinating Unit for East Asian Seas (EAS/ECU) is retrievable from:
<http://www.unep.ch/regionalseas/pubs/profiles/eas.doc> The article provides a general profile of the East Asian Seas Region as a whole, focusing on information relating to:
(a) Geographic and general information; (b) Organization; (c) Partners; (d) Action plan; (e) Convention; (f) Issues and threats; (g) Current activities; etc.
- (b) Other information such as the status report for the region in 2003 is retrievable from:
<http://www.unep.ch/regionalseas/pubs/regdata/eas03.doc> ; the list of collaborative partners in managing the region is retrievable from:
http://www.unep.ch/regionalseas/pubs/partdata/part_eas.doc
- (c) More information on the East Asian Seas Region could also be retrieved from the publications by the Coordinating Body on the Seas of East Asia (COBSEA) in its website: <http://www.cobsea.org/publications.html>
- (d) Information for the East Asian Seas Region could be obtained from the following technical reports, workshop proceedings and information series published by PEMSEA and are retrievable from its website:
<http://www.pemsea.org/ecommm/onlinestore.htm> These include:
(1) Technical Reports
 - Development of national coastal and marine policies in PR China: a case study;
 - Case Study on the Integrated Coastal Policy of the Republic of Korea;
 - Coastal environmental profile of Xiamen;
 - Integrated waste management action plan for the Batangas Bay Region;
 - Integrated coastal management (ICM) contingency valuation survey in

- Batangas Bay, Philippines;
- Initial environmental risk assessment of pesticides in the Batangas Bay Region, Philippines and the Xiamen Seas, China;
- Benefit-cost analysis of tourism development and sustainability in the Malacca Straits;
- Malacca Straits environmental profile;
- Malacca Straits: refined risk assessment.

(2) Workshop Proceedings

- Determining environmental carrying capacity of coastal and marine areas: progress, constraints, and future options;
- Challenges and opportunities in managing pollution in the East Asian Seas;
- Oil spill modeling in the East Asian Seas Region, with special reference to the Malacca Straits.

(3) Information Series

- Proceedings of the 2nd Forum of the Regional Network of Local Governments implementing integrated coastal management (RNLG);
- Proceedings of the seminar on leadership on ocean and coastal governance;
- Challenges and opportunities in managing pollution in the East Asian Seas.

Another publication by PEMSEA such as the “Tropical Coasts”, a semi-annual magazine also provides a good source for retrieving information on the East Asian Seas Region.

- (e) The “*Sustainable development strategy for the Seas of East Asia: regional implementation of the world summit on sustainable development requirements for the coasts and oceans*” published by PEMSEA and retrievable from its website: <http://www.pemsea.org/knowledgecetr/sdssea.html> provides excellent source of information relating to the environment and socio-economic aspects as well as strategies for managing the environment of the region.

8.1.2 CIA World Factbook

This electronic factbook of the Central Intelligence Agency (CIA) of the United States of America (USA) provides updated, summarized information relating to the background, geography, people, government, economy, communications, transportation, military and transnational issues for the countries of the East Asian Seas Region, obtainable from the following websites:

- Brunei:** <http://www.cia.gov/cia/factbook/geos/bx.html>
Cambodia: <http://www.cia.gov/cia/factbook/geos/cb.html>
China: <http://www.cia.gov/cia/factbook/geos/ch.html>
Hong Kong SAR: <http://www.cia.gov/cia/factbook/geos/hk.html>
Indonesia: <http://www.cia.gov/cia/factbook/geos/id.html>
Japan: <http://www.cia.gov/cia/factbook/geos/ja.html>
Korea, North: <http://www.cia.gov/cia/factbook/geos/kn.html>
Korea, South: <http://www.cia.gov/cia/factbook/geos/ks.html>
Laos: <http://www.cia.gov/cia/factbook/geos/la.html>
Macau, SAR: <http://www.cia.gov/cia/factbook/geos/mc.html>

Malaysia: <http://www.cia.gov/cia/factbook/geos/my.html>
Philippines: <http://www.cia.gov/cia/factbook/geos/rp.html>
Singapore: <http://www.cia.gov/cia/factbook/geos/sn.html>
Taiwan, Province of China: <http://www.cia.gov/cia/factbook/geos/tw.html>
Thailand: <http://www.cia.gov/cia/factbook/geos/th.html>
Vietnam: <http://www.cia.gov/cia/factbook/geos/vm.html>

8.1.3 “*ADB (2006). Asian development outlook 2006*”. Asian Development Bank (ADB), Manila, Philippines, 333 p.

The report provides an assessment of recent economic performance and projections for major macroeconomic indicators for 2006 and 2007 in 43 developing member countries in Asia, including countries in East Asian Seas Region. The outlook also reviews medium term (2006–2010) opportunities and constraints facing developing countries of Asia and the Pacific. (<http://www.adb.org/documents/books/ado/2006/default.asp>)

8.2 Completed and On-going Water-related GEF Projects

The completed and on-going water-related GEF projects in the region, which are retrievable from: http://www.iwlearn.net/iw-projects/iwProject_view are listed in the following:

- “*GEF/UNDP/IMO Regional Programme on Building Partnerships in Environmental Management for the Seas of East Asia (PEMSEA)*” : Full-size project with participating countries including Brunei Darussalam, Cambodia, China, Indonesia, Korea, Democratic People's Republic, Korea, Republic, Malaysia, Singapore, Thailand, Vietnam. (<http://www.pemsea.org>)
- “*Preparation of A Strategic Action Programme (SAP) and Transboundary Diagnostic Analysis (TDA) for the Tumen River Area, Its Coastal Regions and Related Northeast Asian Environs*”: Full-size project with participating countries including China, Korea, Republic, Mongolia, Russian Federation. (<http://www.tumennet.org>)
- “*Reducing Environmental Stress in the Yellow Sea Large Marine Ecosystem (YSLME)*”: Full-size project with participating countries including China and Republic of Korea. (<http://www.yslme.org>)
- “*China: Ship Waste Disposal*”: Full-size project; participating country: China.
- “*China: Hai River Basin Integrated Water Resources Management*”: Full-size project; participating country: China.
- “*Prevention and Management of Marine Pollution in the East Asian Seas (PMMSEA)*”: Full-size project; participating countries: Brunei Darussalam, Cambodia, China, Indonesia, Korea, Democratic People's Republic, Korea, Republic, Malaysia, Philippines, Singapore, Thailand, Vietnam. (<http://www.pemsea.org>)
- “*China: Preliminary Assessment to Identify the Requirements for Developing a National Implementation Plan in the People's Republic of China as a First Step to Implement the Stockholm Convention on Persistent Organic Pollutants (POPs)*”: Full-size project; participating country: China.

- “*China: Guangdong Pearl River Delta Urban Environment*”: Full-size project; participating country: China.
- “*Livestock Waste Management in East Asia*”: Full-size project; participating countries: China, Thailand and Vietnam.
- “*Implementation of Sustainable Development Strategy for the Seas of East Asia*”: Full-size project; participating countries: Brunei Darussalam, Cambodia, China, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Thailand, Timor-Leste and Vietnam.
- “*China: East Asia Land-Based Pollution Reduction Investment Fund: Ningbo Water and Environment Project*”: Full-size project; participating country: China.
- “*World Bank / Global Environment Facility Pollution Reduction Investment Fund for Large Marine Ecosystems of East Asia: Revolving Fund Component (Strategic Partnership for Land-Based Pollution Reduction Investment Fund for LMEs of East Asia, Tranche1)*”: Full-size project.
- “*Integrated Management of the Amur-Heilong River Basin*”: Full-size project; participating countries: China, Mongolia, and Russian Federation.
- “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”: Full-size project; participating countries: Cambodia, China, Indonesia, Malaysia, Philippines, Thailand and Vietnam. (<http://www.unepscs.org>)
- “*East Asian Seas Region: Development and Implementation of Public Private Partnerships in Environmental Investments*”: Medium-sized project; participating countries: Cambodia, China, Indonesia, Republic of Korea, Democratic People's Republic, Malaysia, Philippines and Thailand
- “*UNEP Regional Office for Asia and the Pacific (ROAP)*”: ROAP reports directly to the Division of Regional Co-operation and Representation of UNEP’s headquarters in Nairobi. It was established to adopt global environmental policies to meet the regional priorities and needs, putting particular emphasis on building partnerships with regional and subregional and intergovernmental agencies, other UN agencies, national governments, NGOs, the private sector, academic and research institutions, civil society and the media. (<http://www.roap.unep.org/>)
- “*UNEP Regional Seas Programme*”: The UNEP Regional Programme, established in 1974, is a global program for sustainable management of the coastal and marine environment areas on a regional basis. The Programme includes 14 regional seas (Mediterranean, Red Sea and Gulf of Aden, ROPME Sea Area, Wider Caribbean, East Asian Seas, South-East Pacific, East Africa, West and Central Africa, South Pacific, Black Sea, North-West Pacific, South Asian Seas, North-East Pacific) and five partner seas (Baltic, North-East Atlantic, Arctic, Antarctic and Caspian) involving 140 coastal states worldwide. Each regional sea and partner sea may have a Regional Action Plan which was formulated according to the needs and priorities of the region as perceived

by the concerned governments. Regional Seas Conventions were in place for several regional sea areas. (<http://www.unep.ch/seas/rshome.html>)

- “*UNEP/GEF - International waters: Reversing Degradation Trends in the South China Sea*”: Major outcomes will include an approved Strategic Action Programme to recommend a legal framework for improved regional cooperation in the management of the environment of the South China Sea. (http://www.unepscs.org/index.php?option=com_mamblog&Itemid=54)

8.3 Other Donor-supported National and Regional Projects

The water-related national and regional projects that are supported by international donors are listed below:

- “*Large Marine Ecosystem Project*”: The project is a global effort initiated by the World Conservation Union (IUCN), the Intergovernmental Oceanographic Commission of UNESCO (IOC), other United Nations agencies, and the US National Oceanic and Atmospheric Administration (NOAA). The project aims to improve the long-term sustainability of resources and environment of the Large Marine Ecosystems (LMEs) worldwide. (<http://na.nefsc.noaa.gov/lme/project.htm>)
- “*Nautilus Institute for Security and Sustainable Development*”: The Institute is a policy-oriented research and consulting organization which promotes international cooperation for security and ecologically sustainable development and has programs that address both global and regional issues on marine environment, sustainable development and environmental cooperation, focusing on those in the Northeast Asia and Asia-Pacific regions. (<http://www.nautilus.org/>)
- “*Green Vision 21 of Republic of Korea (1995 - 2005)*”: Green Vision 21 presents the policy approach to provide advanced environmental administrative services and make the environment of the land and waters in the Republic of Korea ecologically sound for future generations. The vision includes the idea of "Environmentally Sound and Sustainable Development (ESSD)", environmentally-friendly consumption and business management. (<http://www.me.go.kr:8080/me/environment/html/polices/president.htm#seoul>)
- “*North Pacific Marine Science Organization (PICES)*”: PICES is an intergovernmental scientific organization established in 1992 with Canada, People’s Republic of China, Japan, Republic of Korea, the Russian Federation, and the United States of America as its participating members. PICES was established to promote and coordinate marine research in the North Pacific and adjacent seas at latitudes of 30 degrees north. (<http://pices.ios.bc.ca/>)
- “*UN Economic and Social Commission for Asia and the Pacific (ESCAP)*”: Water-related activities in Asia and the Pacific Region are carried out under ESCAP’s “Water Resources Programme”, Environment and Natural Resources Development Division. (<http://www.unescap.org/>)
- “*East Asian Seas Action Plan*”: On the initiative of the five States of the East Asian region - Indonesia, Malaysia, Philippines, Singapore and Thailand - the Governing

Council of UNEP in 1977 decided that “steps are urgently needed to formulate and establish a scientific programme involving research, prevention and control of marine pollution and monitoring “ for a regional action plan in East Asia. A new East Asian Seas Action Plan - “Leading the EAS Action Plan to the 21st Century” - has been elaborated for the period 2000-2009. (<http://www.cobsea.org/>)

- “*International Coral Reef Initiative (ICRI)*”: An environmental partnership that brings stakeholders together with the objective of sustainable use and conservation of coral reefs for future generations. ICRI is an informal mechanism that allows representatives of over 80 developing countries with coral reefs to sit in equal partnership with major donor countries and development banks, international environmental and development agencies, scientific associations, the private sector and NGOs to decide on the best strategies to conserve the world’s coral reef resources. (<http://www.icriforum.org/router.cfm?show=calendar.cfm>)
- “*Greater Mekong Subregion Program of the Asian Development Bank*”: The Program was created by the Asian Development Bank (ADB) in 1992 to enhance economic cooperation among the Greater Mekong Subregion (GMS) countries including Cambodia, Lao People’s Democratic Republic, Myanmar, Thailand, Vietnam, and Yunnan Province in the People’s Republic of China. (<http://www.adb.org/GMS/default.asp>)
- “*International Rivers Network (IRN)*”: IRN is an international non-governmental organization (NGO) that supports local communities working to protect their rivers and watersheds. Overall vision of IRN is to develop worldwide understanding of the importance of rivers and their essential place in the struggle for environmental integrity, social justice, and human rights. Its mission is to halt and reverse the degradation of river systems. (<http://www.irn.org>)
- “*Southeast Asia START Regional Center (SEA START RC)*”: SEA START RC is geographically representing alphabetically the Australia, Brunei Darussalam, Cambodia, China-Taipei, Indonesia, Lao, Malaysia, Philippines, Singapore, Thailand, and Vietnam and its operational objectives are to: (a) develop integrated scientific and socio-economic approaches to reduce uncertainties of forecasting and assessing impacts of environmental change for Southeast Asia region; (b) provide recommendations and expert advises to governments and private sectors to cope with long-term environmental changes; (c) encourage and support the sharing and exchange of environmental data and information within and between regions; and (d) promote public awareness on global environmental issues. (http://www.start.or.th/START/det_part.htm)
- “*World Resources Institute (WRI)*”: WRI is an independent nonprofit organization based in Washington D. C., USA. The Organization has a staff of more than 100 scientists, economists, policy experts, business analysts, statistical analysts, mapmakers, and communicators working to protect the Earth and improve people’s lives. (<http://about.wri.org>)

9. Information Resources relating to TDA and SAP

This section provides information on the sources for retrieving the completed TDA and SAP reports, on-going projects for developing TDA and SAP as well as the GIWA regional assessment reports of the region. The information may be useful for the practitioners in preparing the TDA and SAP for the region.

9.1 East Asian Seas Region

Completed TDA and SAP reports, and on-going projects for developing the TDA and SAP as well as GIWA regional assessment reports for the region, together with the sources for their retrieval are provided in the following.

9.1.1 Completed TDA and SAP

A number of GEF-funded TDA and SAP preparation projects in the region were completed over the past two decades. Reports from these projects and the sources for their retrieval are listed below:

- “*Yellow Sea LME - Preliminary Transboundary Diagnostic Analysis*”.
(http://www.iwlearn.net/publications/tda/File_112866880524)
- “*South China Sea - Transboundary Diagnostic Analysis*”
(http://www.iwlearn.net/publications/tda/southchinasea_tda.pdf)
- “*South China Sea - Strategic Action Plan*”
(http://www.iwlearn.net/publications/sap/southchinasea_sap.pdf)
- “*Tumen River - Strategic Action Plan*”
(http://www.iwlearn.net/publications/sap/tumen_sap.pdf)
- “*PEMSEA Sustainable Development Strategy and Strategic Action Plan*”
(http://www.iwlearn.net/publications/sap/pemsea_sdssap.pdf)

9.1.2 On-going TDA and SAP Projects

- “*Reducing Environmental Stress in the Yellow Sea Large Marine Ecosystem (YSLME)*”: Full-size project with participating countries including China and Republic of Korea. The purpose of this project is to prepare a Transboundary Diagnostic Analysis (TDA), National Action Plans (NAPs), and a regional Strategic Action Programme (SAP) for the Yellow Sea. The project will also initiate and facilitate the implementation of the SAP. Preparation of the TDA will be based on the preliminary TDA (PTDA) undertaken during the preparatory phase of this project. The TDA will be used as a basis for focusing on the threats, their root causes and the sectoral activities that endanger the critical ecosystem of the YSLME. The SAP will identify priority actions to be taken by the participating countries to restore and preserve the YSLME. (<http://www.yslme.org>)
- “*Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand*”: Full-size project; participating countries: Cambodia, China, Indonesia, Malaysia, Philippines, Thailand and Vietnam. The overall goals of the UNEP/GEF Project Entitled "Reversing Environmental Degradation Trends in the South China Sea and Gulf of Thailand" are: (a) to create an environment at the regional level, in which

collaboration and partnership in addressing environmental problems of the South China Sea, between all stakeholders, and at all levels is fostered and encouraged; and (b) to enhance the capacity of the participating governments to integrate environmental considerations into national development planning. The medium-term objective of the project is to elaborate and agree at an intergovernmental level, the Strategic Action Programme encompassing specific targeted and costed actions for the longer-term, to address the priority issues and concerns. (<http://www.unepscs.org>)

9.1.3 GIWA Regional Assessment Reports

GIWA has completed several regional assessment reports for the LMEs in the region; these reports are retrievable from: <http://www.giwa.net> and they contain a wealth of information related to the geography, environment, socio-economics, strategies for environmental management and policy options for intervention, etc for the region. Titles of the reports and the URLs for their retrieval are listed in the following:

- UNEP, 2005. Vantier, L., Wilkinson, C., Lawrence, D., and D. Souter (eds.) Indonesian Seas, GIWA Regional assessment 57. University of Kalmar, Kalmar, Sweden (<http://www.giwa.net/publications/r57.phtml>).
- UNEP, 2005. Wilkinson, C., DeVantier, L., Talaue-McManus, L., Lawrence, D. and D. Souter. South China Sea, GIWA Regional assessment 54. University of Kalmar, Kalmar, Sweden (<http://www.giwa.net/publications/r54.phtml>).
- UNEP 2005. De Vantier, L., Wilkinson, C., Souter, D., South, R., Skelton, P. and D. Lawrence. Sulu-Celebes (Sulawesi) Sea, GIWA Regional assessment 56. University of Kalmar, Kalmar, Sweden (<http://www.giwa.net/publications/r56.phtml>).
- UNEP 2005. Teng, S.K., Yu, H., Tang, Y., Tong, L., Choi, C.I., Kang, D., Liu, H., Chun, Y., Juliano, R.O., Rautalahti-Miettinen, E. and D. Daler. Yellow Sea, GIWA Regional assessment 34. University of Kalmar, Kalmar, Sweden (<http://www.giwa.net/publications/r34.phtml>).
- UNEP 2005. Qu, J., Xu, Z., Long, Q., Wang, L., Shen, X., Zhang, J. and Y. Cai. East China Sea, GIWA Regional assessment 36. University of Kalmar, Kalmar, Sweden (<http://www.giwa.net/publications/r36.phtml>).
- UNEP, 2006. Snidvongs, A. and S-K. Teng. Mekong River, GIWA Regional assessment 55. University of Kalmar, Kalmar, Sweden.

9.2 TDA and SAP Reports in Other Regions

A list of completed TDA and SAP reports as well as on-going projects for developing the TDA and SAP together with the sources for their retrieval in other regions of the world are provided in the following.

- “BCLME - Transboundary Diagnostic Analysis” (http://www.iwlearn.net/publications/tda/File_112866872112)
- “BCLME - Strategic Action Plan ” (<http://www.iwlearn.net/publications/sap/sapbclme.pdf>)
- “BSSAP - Transboundary Diagnostic Analysis” (<http://www.grid.unep.ch/bsein/tda/index.htm>)
- “Black Sea Environment Programme - Strategic Action Plan”

- (http://www.iwlearn.net/publications/sap/File_112866873321)
- “Bermejo River – TDA”
(http://www.iwlearn.net/publications/tda/bermejo_tda.pdf)
- “Bermejo II - Strategic Action Plan”
(http://www.iwlearn.net/publications/sap/File_11286688372)
- “Caspian Environment Programme - Transboundary Diagnostic Analysis”
(http://www.iwlearn.net/publications/tda/File_112866888832)
- “Caspian Sea - Strategic Action Plan”
(http://www.iwlearn.net/publications/sap/caspian_sap.pdf)
- “Dnieper River Basin - Transboundary Diagnostic Analysis”
(<http://www.iwlearn.net/publications/tda/dniprotda.zip>)
- “Dnieper River Basin Environment Programme - Strategic Action Plan”
(http://www.iwlearn.net/publications/sap/dnipro_sap.pdf)
- “Lake Tanganyika Biodiversity - Transboundary Diagnostic Analysis”
(http://www.iwlearn.net/publications/tda/File_112866872572)
- “Lake Tanganyika Biodiversity - Strategic Action Programme”
(http://www.iwlearn.net/publications/sap/File_112866872631)
- “Transboundary Diagnostic Analysis (TDA) for the Mediterranean Sea”
(<http://195.97.36.231/acrobatfiles/MAPDocAcrobatfiles/MEDTDA.pdf>)
- “Mediterranean SAP - Strategic Action Plan”
(http://www.iwlearn.net/publications/sap/File_112866890042)
- “Niger River Basin - GEF Project -- Preliminary TDA”
(http://www.iwlearn.net/publications/tda/File_112866883032)
- “Okavango - Transboundary Diagnostic Analysis (Phase I)”
(http://www.iwlearn.net/publications/tda/File_112866876917)
- “Volta - Transboundary Diagnostic Analysis – Appendices”
(http://www.iwlearn.net/publications/tda/File_112866890264)
- “Volta - Transboundary Diagnostic Analysis”
(http://www.iwlearn.net/publications/tda/File_112866889413)
- “Volta - Strategic Action Plan (Preliminary)”
(<http://www.iwlearn.net/publications/sap/volta-sap.pdf>)
- “WIO Land - Transboundary Diagnostic Analysis”
(http://www.iwlearn.net/publications/tda/File_112866889458)
- “WIO Land - Strategic Action Plan”
(http://www.iwlearn.net/publications/sap/File_112866889501)
- “PERSGA - Strategic Action Programme”
(http://www.iwlearn.net/publications/sap/persga_sap.pdf)
- “Strategic Action Programme for International Waters of Pacific Islands”
(http://www.iwlearn.net/publications/sap/File_112866874564)
- “Strategic Action Plan for the Danube River Basin 1995 – 2005”
(<http://www.ceit.sk/wwwisis/sap1.htm>)
- “Gulf of Honduras, Preliminary Transboundary Diagnostic Analysis, Final Draft”
(http://www.gefweb.org/Documents/Council_Documents/GEF_C24/IW_-_Regional_-_Gulf_of_Honduras_-_Annex_II.pdf)
- “Transboundary Diagnostic Analysis of Lake Peipsi/Chudskoe”
(http://www.peipsi.org/gef/lib/pdf/4956_TDA_Peipsi_Report_Final_010305.pdf)
- “Transboundary Diagnostic Analysis of San Juan River Basin”
(<http://www.environment-directory.org/Search/..%5Cuploadfiles%5Cdocument%5CradEA02F.doc>)

- “*Western Indian Ocean, Preliminary Transboundary Diagnostic Analysis for Land-Based Activities*”
(http://www.iwlearn.net/publications/tda/File_112866889458)
- “*West Indian Ocean Strategic Action Programme*”
(<http://mail.iwlearn.org/docs/wio/wio06e.pdf>)

References

- Allen, W. and M. Kilvington (2006). Stakeholder analysis. Manaaki Whenua Landcare Research, New Zealand. Retrieved from:
<http://www.landcareresearch.com.nz/index.asp> on 12 January 2006.
- Brewers, J. M. and J. I. Uitto (2001). International Waters Programme Study. Global Environment Facility (GEF), Monitoring & Evaluation Unit, 42 p.
- CEP (2003). Strategic action programme for the Caspian Sea. Caspian Sea Environmental Programme (CEP), GEF/UNDP/UNEP, 33 p.
- DBEP (2003). Chapters 1 – 7, Transboundary diagnostic analysis for the Dnipro River Basin. UNDP-GEF Dnipro Basin Environment Programme (DBEP), Kyiv, 179 p.
- Duda, A (2002). Monitoring and evaluation indicators for GEF International Waters Projects. GEF Corporate Monitoring and Evaluation Team, Wahsington DC, USA. Monitoring and Evaluation Working Paper 10: 11 p.
- Duda, A., J. Uitto, S. Chen and D. Sklarew (eds.) (2002). International Waters Manager’s insights regarding the Global Environment Facility (GEF) International Waters Study – Transboundary analyses, demonstrations, sustainability and lessons learned. International Waters: Learning Exchange Networks (IW:LEARN), GEF, 25 p.
- GEF (2005). GEF International Waters Strategy. Meeting on the Fourth Replenishment of GEF Trust Fund, September 2, 2005, Washington D. C., U.S.A., GEF/R.4/Inf 8: 22 p.
- GEF-UNDP (2005). Brief introduction on the TDA/SAP processes and their requirements. Second Regional Technical Meeting on Preparation of the Implementation Plan for the GEF/UNDP Yellow Sea Project, Ansan, Korea, 3-5 March 2005, GEF-UNDP, UNDP/GEF/YS/RSTP.2/5: 10 p.
- GEF-UNDP (2005a). Brief description of governance analysis. Second Regional Working Group Meeting for Biodiversity Component of the UNDP/GEF Yellow Sea Project, Jeju, Korea, 9-12 November 2005, UNDP/GEF/YS/RWG-B.2/7: 56 p.
- GIWA (2001). GIWA methodology – Stage 1: Scaling and scoping – Guidance to the methodology and its use. Global International Waters Assessment (GIWA), 10th July 2001: 104 p.
- GIWA (2002). GIWA methodology – Detailed assessment, causal chain analysis and policy option analysis. Global International Waters Assessment (GIWA), Kalmar, Sweden. Doc No: GIWA SG4: 9(b), March 12, 2002: 41 p.
- Mee, L., Okedi, J., Turner, T., Caballero, P., Bloxham, M. and A. Zazueta (2005). Program study on international waters 2005. Global Environment Facility (GEF), GEF Monitoring & Evaluation Unit, 85 p.
- PEMSEA (Partnerships in Environmental Management for the Seas of East Asia) (2003). Sustainable development strategy for the Seas of East Asia: regional Implementation of the World Summit on Sustainable Development Requirements for the Coasts and Oceans. PEMSEA, Quezon City, Philippines.
- Talaue-McManus, L (2000). Transboundary diagnostic analysis for the South China Sea. EAS/RCU Technical Report Series No. 14, UNEP, Bangkok, Thailand, 105 p.

- TRAN-SEA-COAST (2005). Trainee Manual. Module 3: Joint-fact finding I – Identification and prioritization of problems and the analysis of impacts. Training Course on the TDA/SAP Approach in the GEF International Water Programme, 52 p.
- UNDP (2003). The GEF IW TDA/SAP process – notes on a proposed best practice approach. United Nations Development Programme (UNDP), New York, U.S.A., 15 p.
- UNDP-GEF (2004). Dnipro Basin strategic action programme and implementation mechanisms. UNDP-GEF, Kyiv, Ukraine, 46 p.
- UNDP-GEF (2004a). Annex 1 – The GEF approach to the Dnipro Basin SAP preparation. Strategic action programme for the Dnipro Basin and mechanisms for its implementation. UNDP-GEF, Kyiv, Ukraine, 7 p.
- UNEP 2005. Teng, S.K., Yu, H., Tang, Y., Tong, L., Choi, C.I., Kang, D., Liu, H., Chun, Y., Juliano, R.O., Rautalahti-Miettinen, E. and D. Daler. Yellow Sea, GIWA Regional assessment 34. University of Kalmar, Kalmar, Sweden.
- UNEP-GEF-SCS (2004). Extract from draft strategic action programme 1999, relevant to habitats. UNEP/GEF South China Sea Project, Report No. UNEP/GEF/SCS/RWG-CR.5/9: 11 p.
- USEPA (2005). Causal analysis/diagnosis decision information system (CADDIS) – step-by-step guide. US Environmental Protection Agency (USEPA), Washington DC, USA. Retrieved from: <http://cfpub.epa.gov/caddis/step.cfm?step=14&Section=19> on 26 January, 2006.
- YSLMEP (2000). Yellow Sea Large Marine Ecosystem – Preliminary transboundary diagnostic analysis. Yellow Sea Large Marine Ecosystem Project (YSLMEP), GEF-UNDP-UNEP, YSLME TDA Draft 9 – 11/11/01: 109 p.

Appendix 1.

Extract from the “Programme Study on International Waters 2005”

(Source: Mee, L., et al., 2005)

The TDA/SAP process is a major element of an adaptive management strategy that sets long-term goals based upon *environmental status* targets and indicators that are achieved through a stepwise process of interventions guided by shorter-term *stress reduction* and *process* targets and indicators. Feedback mechanisms, based upon objective information, stakeholder participation, and inter-ministerial (national) and intergovernmental (international) action, enables the various targets to be periodically assessed and adjusted.

The main technical role of a TDA is to identify, quantify, and set priorities for environmental concerns that are transboundary in nature; identify their immediate, intermediate, and root causes; and identify specific practices, sources, locations, and human activity sectors from which environmental degradation arises or threatens to arise. Consequently, a TDA provides the factual basis for the formulation of an SAP. In addition to this, however, the TDA is part of a process of engagement of the stakeholders through initial joint fact finding and subsequent (during the SAP) development of alternative solutions. Stakeholder identification and consultation and studies of institutional capacity, governance, and investment are all essential components of the TDA process.

The SAP is a negotiated policy document, endorsed at the highest level of all relevant sectors, that establishes clear priorities for action (for example, policy, legal, institutional reforms, or investments) to resolve the priority problems identified in the TDA. A key element of the SAP is a well-defined baseline. This enables a clear distinction between actions with purely national benefits and those addressing transboundary concerns with global benefits. Another key element involves the development of institutional mechanisms at the regional and national levels for implementing the SAP and monitoring and evaluation procedures to measure effectiveness of the outcomes of the process.

The reviews of TDAs and SAPs provided much useful information on the development of the process. The main conclusions of our review of TDAs are as follows:

1. Discrimination between Transboundary and National Issues

- Most TDAs do not discriminate clearly between transboundary and national issues. However, nearly all of them regard the issues described as “transboundary.”
- Notable exceptions were the Dnipro Basin and the Caspian Sea TDAs, where discrimination between transboundary and national issues was presented.

2. Identification and Prioritization of Issues

- All TDAs (with the exception of the Okavango River Basin TDA) identified the major transboundary issues.
- The issues were generally well defined, although in many cases there was confusion between what constituted an issue, the impact or consequence of an issue, or the cause of an issue.
- Most TDAs did not prioritize the major transboundary issues. Notable exceptions include the SCS, Lake Tanganyika, the Volta River Basin, and the Dnipro Basin TDAs.
- The methodological approaches for identifying issues were clear and objective in some TDAs (for example, the Volta River Basin, Benguela Current, Western Indian Ocean,

and Dnipro Basin TDAs), but relatively poor in others (for example, the Black Sea, Mediterranean Sea, and Red Sea/Gulf of Aden TDAs).

3. Identification of System Boundaries

- In all cases (with the exception of the Bermejo River TDA), the system boundaries for each transboundary issue were not implicitly detailed in the TDA, although supporting text often described the geographical extent of the issues. Unfortunately, the text was usually difficult to locate.

4. Identification of the Causes (Immediate, Underlying, and Root)

- The identification of causes should be a primary aim of the TDA. However, some projects presented little or no information on this subject (for example, the SCS and Okavango River TDAs).
- Many identified the root causes, but failed to distinguish the immediate and underlying sectoral causes. Furthermore, most failed to determine the linkages between the issues' immediate, underlying, and root causes.
- In some cases, the causal chain approach was good and the material presented was logical and easy to understand (for example, the Benguela Current, Volta, Bermejo River, and Dnipro Basin TDAs). However, in others the approach lacked logic and was confusing and the material was poorly presented (for example, the Lake Tanganyika, Mediterranean Sea, Red Sea/Gulf of Aden, and the Caspian Sea TDAs).

5. Stakeholder Involvement (also refers to SAPs)

- For the majority of TDAs and SAPs reviewed, there is little evidence of stakeholder analysis or stakeholder participation. It should be noted that this does not mean that stakeholders were not consulted on the process, just that their contribution is not recognized.
- However, there are a small number of good examples of stakeholder involvement or participation. These include the Caspian Sea, Lake Tanganyika, and the Bermejo River TDAs and SAPs.

In most cases, the TDAs were well presented and well written. In only one case was the TDA poorly translated (Bermejo River TDA). However, the documents often lacked a logical structure and were difficult to navigate. Many suffered from confusion of terms (for example, Issue, Threat, Problem, Major Problem, Transboundary Problem, and Sub-issue), and there is a need for consistency in terminology. Many also suffered from a lack of “glue” holding the document together, making it feel like a series of tables and figures loosely linked with text. Of concern was the number of TDAs that placed considerable emphasis on solutions and interventions. This should be considered a function of the SAP, not the TDA, and detracts from the concept of providing objective information without political influence.

The analysis demonstrates the evolution of TDAs, but raises concerns regarding a poor level of stakeholder analysis and involvement and the unclear discrimination between national and transboundary problems. The latter issue may also be a reflection of the deficient guidance given in the OPs themselves.

The conclusions of our analysis of SAPs are in the following:

1. Characterization of Interventions and Actions, and Linkages with Transboundary Issues and Causes

- Generally, there is good linkage between the interventions and actions listed in the SAPs and the transboundary issues and causes identified in the TDAs, although the linkages can be confusing and difficult to follow at times.
- Two different approaches for developing interventions and actions have been used. Historically, most have used a target or action-based methodology (for example, Lake Tanganyika, Bermejo River, Benguela Current, SCS, and the Mediterranean Sea SAPs). More recently, the use of Ecosystem Quality Objectives (EcoQOs) has become popular (for example, Caspian Sea and the Dnipro River Basin SAPs).
- A general concern regarding many of the targets, EcoQOs, or proposed actions is that they are vague and cannot easily be associated with quantitative indicators that encourage accountability.
- Furthermore, a number of SAPs do not prioritize the proposed actions, provide alternatives or costings, or list anticipated outcomes (and benefits), although in some cases these have been detailed in the TDA. Again, solutions and interventions should be considered a function of the SAP, not the TDA.
- Because of the failure to clearly identify outcomes, it can sometimes be difficult to determine those proposed actions that are national (baseline) in scope and those that are global (potentially incremental).
- Another major concern is that many of the proposed actions are detailed at the national level and not at the regional. These should be detailed in the SAP, not the NAP.

2. Formulation of National Action Programs (NAPS)

- The majority of projects have not formulated NAPs, although in a number of cases a general objective of the SAP was to prepare guidelines for their formulation (for example, the Bermejo River, Benguela Current, SCS, Mediterranean Sea, Volta River, and Western Indian Ocean SAPs).
- Notable exceptions include the Caspian Sea and the Dnipro Basin, both of which formulated NAPs.

3. Monitoring and Evaluation Indicators

- Monitoring and evaluation indicators were not presented in most SAPs, although some have stated that they would be developed in accordance with the Office approach (for example, the Bermejo River, Caspian Sea, Dnipro Basin, Volta River, and Western Indian Ocean SAPs).
- However, a number of these simply list generic indicators according to the proposed action and do not specify the type (for example, process, stress reduction, or environmental status).

In conclusion, though the development of SAPs is showing encouraging progress, we are concerned that many of these outputs lack key elements that enable them to be useful *operational* documents. At a regional level, it appears that many governments have limited themselves to formulation and agreement of documents that establish a loose agenda of actions to resolve identified problems. This does not imply a lack of good faith in the process on their part. However, it has long been recognized that international processes often generate noble declaratory statements that fail because they are not linked to hard commitments toward pragmatic national actions (including institutional and legal

reforms and investments), resilient and sustainably financed coordination mechanisms (at national and international levels), and accountability to stakeholders through inclusivity and transparent monitoring. Unfortunately, we have not seen substantial evidence of these elements in many of the SAPs produced to date, and we are particularly concerned at the lack of National Action Programs or similar supporting documents.

We identified a number of inconsistencies between the results of the questionnaire and our analysis of TDAs and SAPs. There is a clear difference, for example, on one hand, with the view of the majority of projects that stakeholders were involved and consulted and, on the other, with the lack of explicit stakeholder analysis underpinning the TDAs or embodied in the SAPs. The poor identification of causality in many TDAs is inconsistent with the view of most projects that this was conducted in a satisfactory manner.

Furthermore, most respondents to questionnaires uncritically regarded their SAPs to have generated quantitative targets and a clear timetable, identified capacity-building requirements, addressed policy and regulatory reform, and identified critical investments—whereas our analysis of the SAPs and our site visits question the validity of this statement.

We do not wish to undervalue the enormous progress made by projects in implementing the TDA/SAP approach. We have seen ample evidence of progress. However, we are concerned that an over-reliance on self-assessment would not enable early feedback to projects and governments on the real progress of projects toward their stated goals. Self-assessment can be effective only with robust indicators, and these are clearly lacking.

CONCLUSIONS

Eight years have passed since the first TDA and SAP were published. Since then, at least 13 of these processes have been completed and much experience has been gained. We are not overly concerned with the lesser technical imperfections of some of these documents, provided they make a significant contribution to the overall adaptive management process and generate tangible outcomes of decreased stress to transboundary aquatic systems and their improved status. The adaptive management process requires that assessments and strategies should be revisited periodically, however, to examine new information, set new targets, and adjust the strategies for achieving them. This will soon be put to the test in the Black Sea, where a new TDA and revised SAP are urgently required to underpin the work of the Black Sea and Danube Commissions and major interventions such as those of the Black Sea Strategic Partnership.

The revised TDA and SAP will be an opportunity to complete a full learning cycle and should be carefully evaluated for lessons learned for other GEF IW projects. It should be noted, however, that the success and failure of the adaptive management approach, including the TDA and SAP as key tools, relies heavily upon quality monitoring and robust institutions. Without these, the process will be deemed to have failed.

LESSONS LEARNED

1. The Transboundary Diagnostic Analysis (TDA)

- The TDA is sometimes regarded as a bureaucratic prerequisite for donor funding, rather than an element of an adaptive management strategy enabling the identification of transboundary issues and their causes. As part of a continuous process, a TDA should be periodically updated to reflect the changing regional situation. As yet, this has not happened in any of the IW projects (though it is planned for the Black Sea).
- The TDA, where applied, is an effective tool, provided that it sets appropriate boundaries, identifies all relevant stakeholders, conducts studies by joint fact finding (without excluding any relevant regional expertise), includes an appropriate balance of disciplines, identifies the socioeconomic causes of the transboundary problems identified, evaluates the institutional capacity, and makes all the information available to the stakeholders in a concise and non-jargonistic manner. Unfortunately, some of the TDAs examined have not considered all of these elements, and the scope of the study has been constrained by inappropriate boundaries, limited input of social scientists, weak analysis, and poor diffusion to stakeholders.
- We are particularly concerned that many IW projects have failed to conduct careful analyses of stakeholders, institutional capacities, and responsibilities. This has led to difficulties in strategic planning and effective operationalization of projects at a later stage. It also risks capture of projects by particular sectors. Stakeholder analysis and institutional mapping should be an integral component of all TDAs and proposals for demonstration sites.

2. The Strategic Action Programme (SAP)

- The first step in SAP or similar processes should be an agreement on regional objectives, defined in space and time. In some cases, these may constitute Ecosystem Quality Objectives. In all cases, however, they should be congruent with the TDA and clearly understandable to all stakeholders involved. The establishment of such objectives, together with a statement of vision, has not occurred in many projects, and their effective public diffusion is often ignored.
- In recommending actions within the SAP/NAP process, greater care should be taken to integrate social issues. Projects that have linked reforms to the provision of alternative livelihoods, poverty alleviation, and gender issues have been particularly successful at engaging community support. This may result in tradeoffs among measures that would maximize economic yield, environmental benefits, and social benefits. Such tradeoffs are highly political and require well-informed participatory processes and careful impartial facilitation. The ability to demonstrate the linkages between sustainable economic and social development and the maintenance of natural capital is a crucial input to this process.
- Projects developed to date have shown that a great deal of pragmatism is required to develop a SAP. The SAP should enable the achievement of the agreed on region wide objectives through specific national actions and, at a regional level, identify, reinforce, or create the sustainable institutions necessary for effective regional coordination.

National Action Programs are an essential part of this planning mechanism, but we have seen little evidence of their widespread development to date. They need to give detailed information on how the regional objectives will be operationalized. This should include deployment of human capacity (or capacity-building needs), infrastructure, legal and policy reforms, finance, and investments. Care must be taken not to lose sight of the global benefits in the national-scale planning process; costs, benefits, and alternatives should be fully explored. The transboundary issues identified in the TDA should be addressed, according to their agreed on priorities.

- Both the SAPs and the NAPs should identify baseline and incremental processes and costs. They should identify regional and national arrangements for monitoring the environmental status and trends, pressure relief, and the implementation of the action programs themselves. They must incorporate a process for periodically revising the short-term goals and the overall region wide objectives, and each revision should be endorsed at a high level. To date, very few IW projects have developed such detailed operational strategies and effective monitoring programs at a national level. The consequence of this situation is limited accountability, transparency, and sustainability.
- In designing an SAP, care must be taken to maintain political momentum. The Inter-ministerial Councils (IMCs) have not been developed in many projects, but they are crucial at a national level to avoid capture of the project by a particular sector or to avoid difficult discussions that will be needed in order for the project to succeed. The experience in GEF IW projects suggests that the representatives should be senior enough to have genuine authority in their respective sectors, but not so senior as to be subject to the volatilities of frequent political change. The IMC should be chaired by a Minister or Deputy Minister from the appropriate sector. Special arrangements will be required in highly decentralized countries to ensure inclusion of relevant government entities.
- The IMCs by themselves may not be sufficient to maintain the necessary political momentum. Local-level actions should be included with full stakeholder involvement and clear public participation plans, but these are currently absent from almost all SAPs. This may require additional intersectoral groupings at the regional, national, or local levels.

Appendix 2.

TERMS OF REFERENCE FOR THE *TDA/SAP CONSULTANCY OF THE PROJECT «SOUTHEAST ASIA REGIONAL LEARNING CENTRE (SEA-RLC) »*

1. Background

The Southeast Asia Regional Learning Centre (SEA-RLC) is a regional initiative of a four-year global GEF-funded International Waters project - 'Strengthening Global Capacity to Sustain Transboundary Waters: the International Waters Learning Exchange and Resource Network (IW:LEARN), Operational Phase'. The SEA-RLC aims to strengthen capacity of knowledge-sharing for managing international waters of Southeast Asia.

The IW:LEARN project was launched in November 2004 and is conducted in partnership with the United Nations Environment Programme, United Nations Development Programme, The World Bank, and numerous other organisations. The SEA-RLC initiative is led by the United Nations Environment Programme and implemented by the Southeast Asia START Regional Centre (SEA START RC) of Chulalongkorn University, Bangkok. Development of the SEA-RLC focuses on five core service areas, including developing: Geographic Information System (GIS) resources; online communities; a 'Library of Practical Experience' (addressing Transboundary Diagnostic Analyses/Strategic Action Programmes, Stakeholder Participation, Public Awareness, and Public-Private Partnerships); a Sustainable Financing Reference Centre; and support of IW:LEARN structured learning activities.

This consultancy addresses one component of the 'Library of Practical Experience' that seeks to provide guidelines for supporting practitioners in preparing Transboundary Diagnostic Analysis (TDA) and Strategic Action Programme (SAP) reports, with special reference to lessons learned from GEF IW and Biodiversity-OP2 projects in the region.

2. Terms of reference

Under overall supervision of the SEA-RLC Task Manager and SEA-RLC Coordinator, as well as in consultation with relevant IW:LEARN colleagues, the consultant shall perform the following tasks, for a period of 6 weeks (42 working days), distributed over 6 months or until the following tasks are completed.

- a) Prior to preparation of the DRAFT OUTLINE the consultant should contact Mr. Sean Khan (SEA-RLC Task Manager; email: sean.khan@unep.org) and Dr. Dann Sklarew (Director, IWLEARN Project; email: dann@iwlearn.org) to obtain up-to-date information on the TDA/SAP process (especially coming out of this year's GEF IW Conference in Brazil) and contact details for TDA/SAP experts.
- b) Prepare and submit DRAFT OUTLINE of report by 31st of October 2005. The proposed title of the report: 'Practitioner Guidelines for Preparation of Transboundary Diagnostic Analysis (TDA) and Strategic Action Programme (SAP) in East Asian Seas Region'.

The proposed DRAFT OUTLINE will address four main sections, as follows:

Section 1. The TDA/SAP process

This section will provide an outline of the TDA/SAP process.

Section 2. Addressing aspects of the TDA/SAP process

This section will examine the TDA/SAP process in detail with specific reference to GEF projects in the region. It is **critical** that the **practicalities** of the TDA and SAP process are examined in relation to GEF IW (and Biodiversity OP2) projects in the region (e.g., how projects accessed relevant data and information; how projects organised inter-ministerial meetings; how projects ensured public participation; how projects achieved stakeholder involvement, etc).

Section 3. TDA/SAP Report Template

This section will provide a template for future TDA/SAP reporting. The template will identify key reporting needs, and based on past experience of GEF projects (from *Section 2* above), show how these needs might be addressed. It is envisioned that this section will provide practitioners with a draft document that can be used as a basis for future TDA and SAP reporting.

Section 4. Bibliography

A listing of all information resources relevant to conducting TDA/SAP activities in the region.

- c) REVIEW of draft outline by SEA-RLC Task Manager, Director of IW:LEARN project, and other TDA/SAP experts.
- d) If considered necessary, visits to GEF projects in the region will be organized (with finance made available from the SEA-RLC travel budget).
- e) The final report to be submitted by the end of February 2006 if review of the draft report outline (see iii above) could be completed and submitted to the consultant within two (2) months from the date of the submission of the draft report outline.

3. Deliverables, schedule of payment

The consultancy period shall last for a period of up to six months, from 1st September 2005 to 28th February 2006, or until the above mentioned tasks have been completed.