Framework, Guiding Principles and Process for Transboundary Diagnostic Analysis (TDA) and Strategic Action Program (SAP) Development in International Waters (LME) Projects

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Nature and Objectives of TDA and SAP

- Both TDA and SAP are recommended for most of the projects in the Global Environment Facility (GEF)'s International Waters Operational Programme 8 (OP8) and 9 (OP9).

Transboundary Diagnostic Analysis (TDA)

- Provides scientific and technical analysis on status and impacts of the environment in given international waters.
- Technical role of TDA is to:
  (a) identify, quantify, and set priorities for environmental issues which are transboundary in nature;
  (b) identify the immediate and root causes of these priority environmental issues;
  (c) identify specific practices, sources, locations, and sectors of human activity associated with these priority environmental issues and from which environmental degradation arises or threatens to arise.
- A TDA report, therefore, provides factual basis for the formulation of an SAP.

Nature and Objectives of TDA and SAP

Strategic Action Programme (SAP)

- Objectives of SAP are to identify the policy options and their associated governance mechanisms in addressing the priority transboundary issues as well as formulate the appropriate mechanisms to implement the priority interventions.

- 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.

- An SAP report is a negotiated policy document - endorsed at the highest levels of all relevant sectors - which establishes clear priorities for action relating to reforms in policy, legal, institution or investments in order to resolve the priority problems identified in the associated TDA report.

Recommendations from GEF International Waters Program Study

Recommendations for TDA

- The TDA can only be an effective tool if it:
  a) sets appropriate boundaries;
  b) identifies all relevant stakeholders;
  c) conducts studies by joint fact-finding (without excluding any relevant regional expertise);
  d) includes an appropriate balance of disciplines;
  e) identifies the socioeconomic causes of the transboundary problems identified;
  f) evaluates the institutional capacity;
  g) makes all the information available to the stakeholders in a concise and non-jargonistic manner.

- Stakeholder analysis and institutional mapping should be an integral component of all TDAs.

- A TDA should be periodically updated to reflect the changing regional situation.

Recommendations from GEF International Waters Program Study

Recommendations for SAP

- Should have an agreement on regional objectives, defined in space and time and congruent with its associated TDA .

- Greater care should be taken to integrate social issues with measures that would maximize economic yield, environmental benefits, and social benefits.

- Should enable 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 associated TDA should be addressed according to their agreed on priorities in 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.

- 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.

TDA/SAP and Management of LME

LME Module	TDA	SAP
1. Productivity	Transboundary issue, identify threats and root causes	Regional and national reforms to maintain productivity
2. Fish resources and fisheries	Transboundary issue, identify threats and root causes	Regional and national reforms to sustain fisheries
3. Pollution and Ecosystem Health	Transboundary issue, identify threats and root causes	Regional and national reforms to reduce pollution and sustain ecosystem
4. Socioeconomics	Socioeconomic impact analysis, including prioritization of issues	Economic instruments, investments, etc. as tools for SAP implementation
5. Governance	Governance analysis; stakeholder analysis	Legal, policy and institutional reforms; ministerial level adoption; stakeholder involvement (private sector & civil society)

Guiding Principles for Formulation of TDA and SAP

- It is important that in the process of developing the TDA and SAP there should have:

(a) Full stakeholder participation;
(b) Joint fact-finding and transparency;
(c) Ecosystem approach (EA);
(d) Adaptive management and accountability;
(e) Inter-sectoral policy development and step-wise consensus building;
(a) Risk management;
(b) Inclusion of partnerships and incremental costs; and
(c) Aligned actions and government commitment.

Frameworks for Preparation of TDA and SAP

Framework for Preparation of TDA

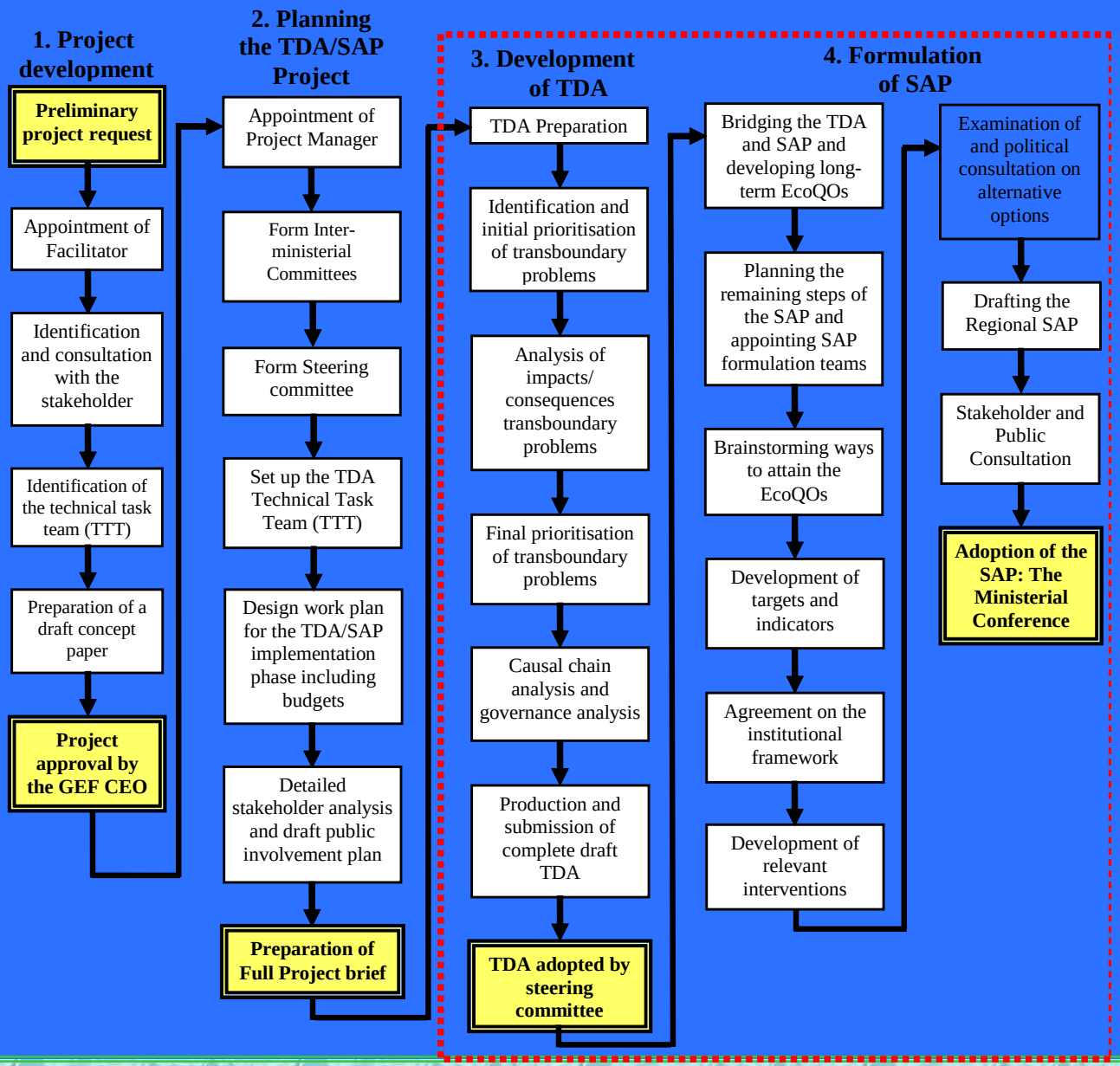
- There should be detailed definition of boundary, bio-physical and socio-economics characteristics of the region under study.
- The analysis of socio-economic, legal, administrative, and political context/constraints – collectively known as the "governance analysis" - should constitute an important process for preparation of the TDA.
- Existing environmental problems or issues in the region under study have to be assessed and prioritized and their relative severity be evaluated.
- Transboundary environmental issues are assessed, prioritized and their relative severity evaluated; impacts of these issues assessed, their possible causes identified and, as far as possible, quantified or qualitatively justified.
- When possible causes relative to the impacts of the prioritized environmental issues have been identified, 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.
- The priority transboundary environmental issues 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.

Frameworks for Preparation of TDA and SAP

Framework for Preparation of SAP

- ✓ Root causes of priority transboundary issues as derived in the associated TDA of the region under study are reviewed and their Ecological (Ecosystem) Quality Objectives (EcoQOs) developed.
- ✓ Specific, quantifiable and time-constrained targets are set for achieving the EcoQOs and specific interventions or program actions that permit realization of the target within the time frame designated.
- ✓ Cost benefit analysis, including economic and evaluation of natural resources, and feasibility assessment for each program action are to be conducted.
- ✓ Incremental partnerships that allow the SAP to assign costs which would discriminate between baseline (national) and incremental (regional) costs are to be established.
- ✓ Investment needs and estimate of costs associated with the SAP implementation should be assessed and determined based on the existing financing arrangements.
- ✓ Mechanisms for implementation of the SAP which 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 are to be developed.

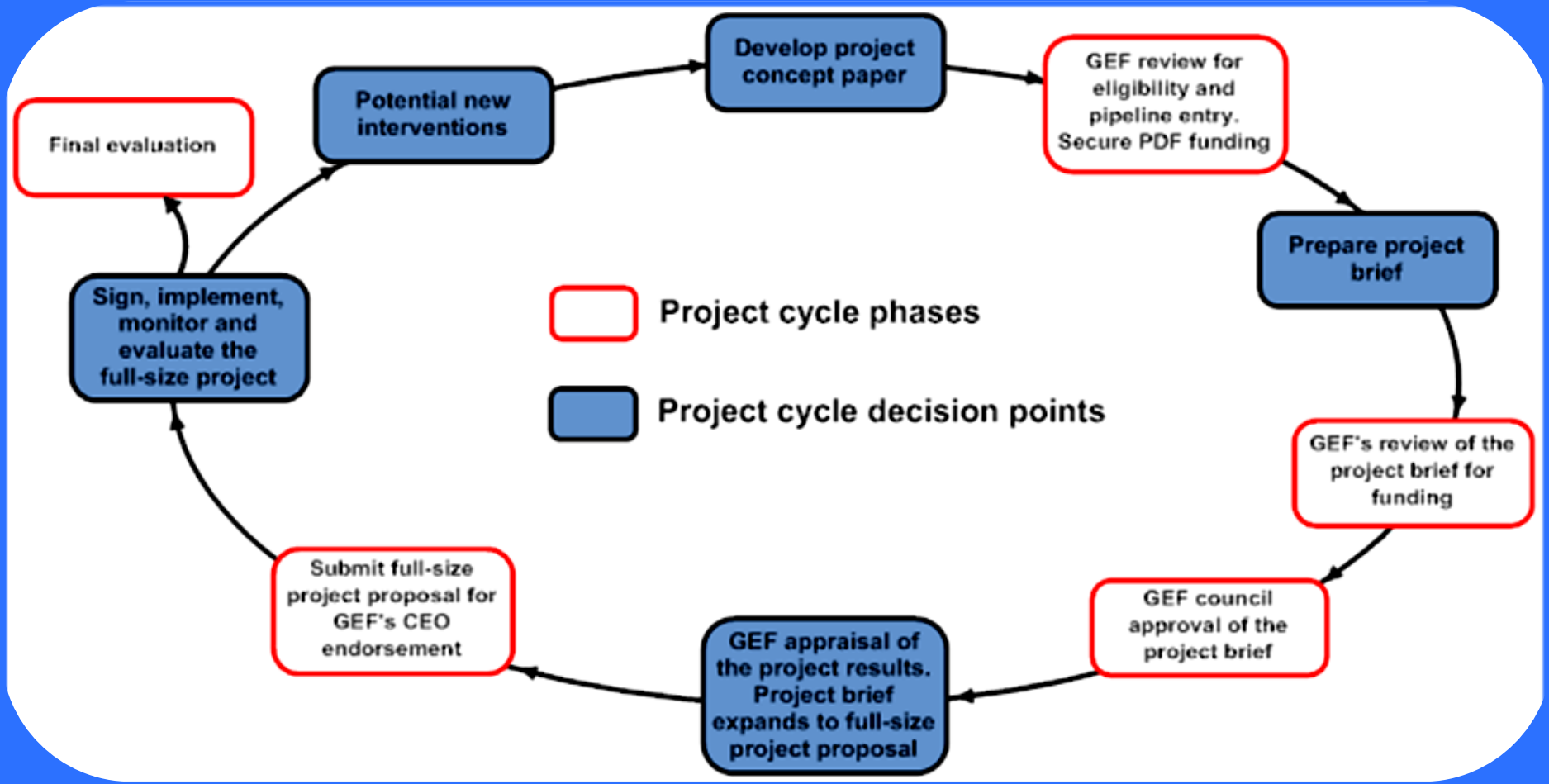
Process of Preparing the TDA and SAP



Complete Process of Developing and Preparing the TDA and SAP

Process of Preparing the TDA and SAP

GEF Project Development Cycle



Process of Preparing the TDA

Preparation for Formulation of TDA

- Appointment of "Regional Coordinator"
  - Formation of "Regional TDA Task Team"
  - Preparation of "Plan of Action" and conduct of "Inception Meeting"
- Appointment of "National Coordinators" (one for each participating country)
  - Stakeholder analysis – selection of stakeholders
  - Formation of "National TDA Task Team" (one for each participating country)
  - Preparation of "Plan of Action" and conduct of "Inception Meeting"
  - Information and data collection and analysis; joint-fact finding exercises

Impact Assessment & Identification/ Prioritization of Transboundary Problems

- Definition of regional boundaries; regional geographical, socio-economic & ecological aspects.
- Analysis of environmental and socio-economic impacts; prioritization of environmental problems; identification of transboundary problems; prioritization of transboundary problems.
- Identification and prioritization of transboundary environmental problems of the region.

"Impact Assessment Workshop" attended by national and regional experts; "Review Meeting" to review the impact assessment results.

Governance Analysis

Stakeholder analysis, institutional analysis, and legal & policy analysis.

"Governance Analysis Workshop" attended by national and regional experts; report of governance analysis.

Causal Chain Analysis

- Identification of immediate and intermediate causes of the perceived environmental problems or issues as well as their underlying root causes; identification of sectoral activities associated with the root causes.
- Prioritization of the root causes in accordance to the current and future environmental status of the region under study.

"Causal Chain Analysis (CCA) Workshop" attended by national and regional experts; "Review Meeting" to review the CCA results.

Preparation of TDA Reports

- Preparation of "National TDA" — One "National TDA" by each of the participating countries of the region.
- Preparation of "Regional TDA" — Collation of "National TDAs" into a "Regional TDA" in a workshop.

"Formulation of Regional TDA Workshop" – collation of National TDAs into Regional TDA.

Review and Adoption of Regional TDA Report

Conduct of public consultation meeting to review the draft "Regional TDA Report"; finalization and revision of the Report; adoption of the Report by participating countries of the region.

Process of Preparing the TDA

- **Impact assessment** to assess the relative importance of different impacts on the ecosystems within the region, and identification/prioritization of transboundary environmental issues.

- Example of transboundary environmental issues for the management of international waters.

- 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".

- Example of prioritized transboundary environmental problems and their associated transboundary elements.

- **Governance Analysis:** 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.

Process of Preparing the TDA

Causal Chain Analysis:

- 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.

- 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.

- The components of a CCA for the region under study may include:
  - ***Priority environmental problems or issues:*** The transboundary environmental issues as identified from the impact assessment conducted earlier are prioritized.
  - ***Immediate causes:*** The physical, biological or chemical variables that have a direct impact on a priority environmental issue.
  - ***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.
- Example of the results of a causal chain analysis (CCA).

Process of Preparing the TDA

Preparation of TDA Reports:

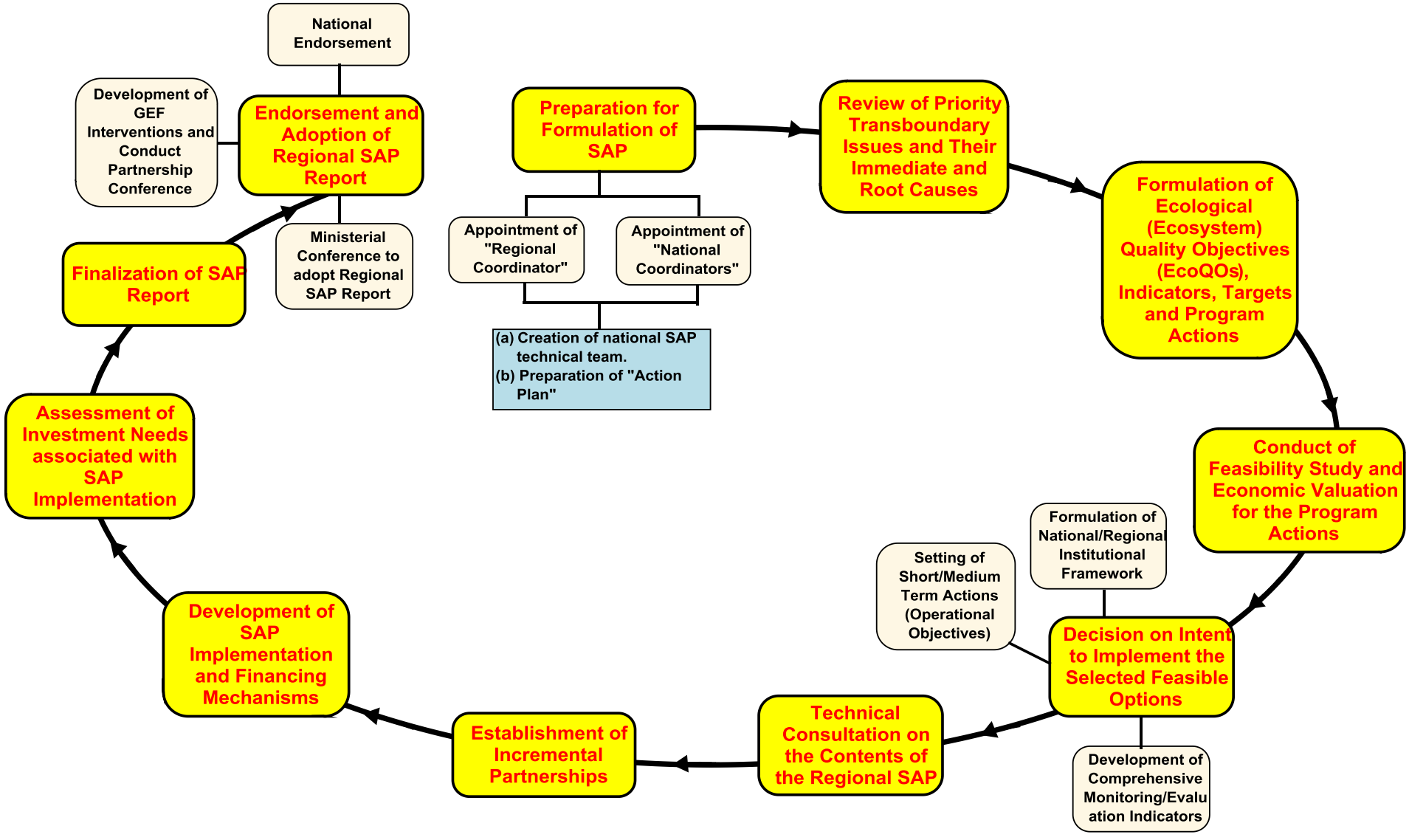
- ***Preparation of National TDA Report:*** The National Coordinator shall prepare a National TDA Report summarizing the conclusions of the National TDA Task Team. An open consultative meeting attended by as wide as an audience as possible, including the public, to present and obtain feedback on the 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.

- ***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.

- **Review and Adoption of Regional TDA Report:** Public Consultative Meeting to review Regional TDA Report; Revision and Finalization of Regional TDA Report; Presentation of Regional TDA Report for Review in Inter-governmental Meeting; Adoption of Regional TDA.

- Suggested formats for preparing the National and Regional TDA Reports (see Annex 6 of the reference document).

Process of Preparing the SAP



Process of Preparing the SAP

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; Example showing formulation of these parameters.

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, stakeholders 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;

Process of Preparing the SAP

f) **Establishment of incremental partnerships** for achieving maximum benefits in environmental management;

g) **Development of SAP implementation and financing mechanisms** for implementation and managing the SAP project;

h) **Assessment of investment needs** associated with the implementation of the SAP project;

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.

❖ Suggested formats for preparing the National Action Plan and Regional SAP Reports (see Annex 7 of the reference document).

Case Studies and Experience and Lessons Learned

Case Studies:

- ***Yellow Sea LME Project: Transboundary Diagnostic Analysis (TDA)***

  The report entitled: "UNDP/GEF (2007). UNDP/GEF Project: Reducing Environmental Stress in the Yellow Sea Large Marine Ecosystem: Transboundary Diagnostic Analysis. 98 pages." Retrievable from: http://www.yslme.org/publication.htm or http://www.iwlearn.net/publications/TDA

- ***Black Sea LME Project: Transboundary Diagnostic Analysis (TDA)***

  The report entitled: "BSERP/GEF/UNOPS (2007). Black Sea Transboundary Analysis. UNDP/GEF Black Sea LME Project, 263 pages." Retrievable from: http://www.iwlearn.net/publications/TDA

- ***Caspian Sea Environment Programme: Strategic Action Programme (SAP)***

  The report entitled: "CEP (2006). Strategic Action Programme (SAP) for the Caspian Sea. EC/GEF/World Bank/UNEP/UNDP/UNOPS Caspian Sea Environment Programme (CEP), 38 pages." Retrievable from: http://www.iwlearn.net/publications/SAP

- ***Guinea Current Large Marine Ecosystem Programme: Strategic Action Programme (SAP)***

  The SAP report was prepared as an agreement for implementation by riparian countries of the Guinea Current LME (GCLME, 2009). Retrievable from: http://www.iwlearn.net/publications/SAP

Experience and Lessons Learned:

Transboundary Diagnostic Analysis (TDA)

- Should be regarded as an element of an adaptive management strategy enabling the identification of transboundary issues and their causes.
- Should be periodically updated to reflect the changing regional situation.

- An effective TDA should have:

(a) setting of appropriate boundaries;
(b) identification of all relevant stakeholders;
(c) conducting studies by joint fact finding (without excluding any relevant regional expertise);
(d) appropriate balance of disciplines in the technical teams;
(e) identification of socioeconomic causes of the priority transboundary problems;
(f) evaluation of institutional capacity; and
(g) making all the information available to all the stakeholders.

- Stakeholder analysis and institutional mapping should be an integral component of all TDAs.

Experience and Lessons Learned:

Strategic Action programme (SAP)

- There should be an agreement on regional objectives, defined in space and time, which may constitute as the "Ecosystem Quality Objectives (EcoQOs)"
- All these objectives should be congruent with the TDA and clearly understandable to all stakeholders involved.
- Greater care should be taken to integrate social issues.
- Local-level actions with full stakeholder involvement and clear public participation plans should be included.
- Care must be taken to maintain its political momentum by development of the Inter-ministerial Councils (IMCs) represented by senior personnel, who have genuine authority in their respective sectors, from the participating countries.

Experience and Lessons Learned:

Strategic Action programme (SAP)

- SAP should include:

(a) Agreed on region wide objectives through specific national actions;
(b) Identification, reinforcement, or creation of sustainable institutions;
(c) Planning mechanism that includes National Action Pans;
(d) Provision of detailed information on operationalization of the regional objectives on the deployment of human capacity , infrastructure, legal and policy reforms, finance, and investments;
(e) Costs, benefits, and alternatives of the program actions should be fully explored;
(f) Addressing of the transboundary issues identified in the TDA according to their agreed on priorities.;
(g) Identify baseline and incremental processes and costs;
(h) Identify regional and national arrangements for monitoring the environmental status and trends, pressure relief, and the implementation of the action programs themselves; and
(i) 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.


THANK YOU !

Environmental Problems of Transboundary Nature for the Management of International Waters (e.g., LME)

Major Concern	Issue
I: Freshwater Flow Modifications	• Excessive withdrawals of surface and/or groundwater for human uses • Changes in freshwater availability • Changes in flow regimes from structures
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
III: Habitat and community modification	• Loss of ecosystems or ecotones • Modification of ecosystems or ecotones • Invasive Species
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
V: Fluctuating Climate	• Freshwater flow fluctuations such as drought and floods • Fluctuating ocean circulation patterns • Sea level change (including saltwater intrusion) • Natural disasters

Summary of Transboundary Implications of Priority GIWA Concerns/Issues of Yellow Sea LME

Priority GIWA Concern	Priority GIWA Issue	Transboundary 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.

Summary of the Causal Chain Analysis for the Yellow Sea LME

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) *Agriculture*: increased crop farming activities and expansion in the farming areas. (b) *Industry*: changes in the types of industries and increased human settlements following the industrial development. (c) *Infrastructure Provision*: 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) *Agriculture*: excessive use of fertilizers and pesticides by farmers. (b) *Industry*: 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) *Industry*: increased industrial development leading to increased reclamation of coastal land areas to be used for establishment of factories or other industrial installations. (1)-(b) *Urbanization*: rapid urbanization following the increased economic growth leading to increased reclamation of more lands (with natural habitats) for human settlements. (2)-(a) *Agriculture*: 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) *Industry*: increased discharges of wastes high in trace metals and other harmful pollutants from factories and other industrial installations. (1)-(b) *Agriculture*: increased or uncontrolled uses of fertilizers and pesticides by crop farms. (2)-(a) *Transportation*: increase in shipping traffic had raised the chances of introducing invasive species through ballast water and/or attachment to ship hulls. (2)-(b) *Aquaculture*: 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.

Ecosystem quality objectives (EcoQOs), Indicators and Program Actions

(a) EcoQOs are statements of the 'vision' of how the stakeholders would like to see the state of the ecosystem in the future;
(b) Each of these statements may constitute a broad policy-oriented statement;
(c) Usually specific, quantifiable and time-constrained targets are set for achieving the EcoQOs; each EcoQO may constitute one or more than one target;
(d) 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.

❖ ***Example – Caspian Sea LME***

Major Perceived Problem & Issue (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)

Example – Caspian Sea Region - *continued*

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.

Example – Caspian Sea Region - *continued*

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.

What is Ecosystem Approach (EA)

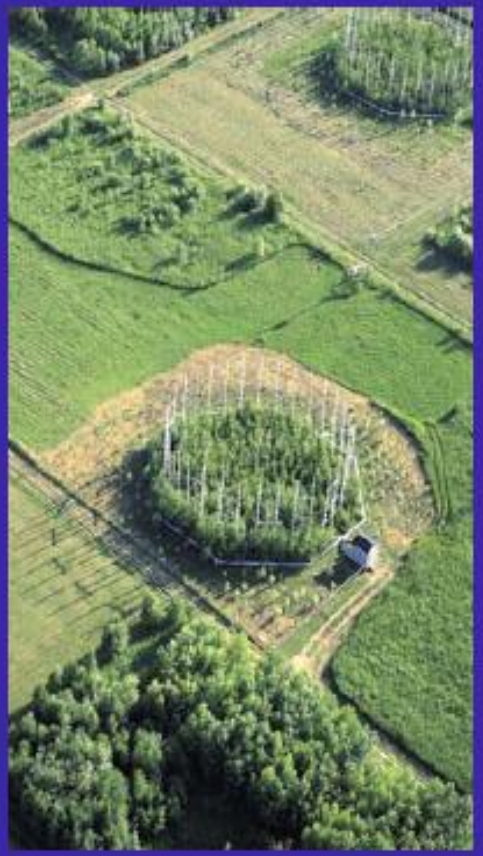
- **Ecosystem Approach (EA)** emphasizes a holistic, participatory and integrated approach that aims to manage human interactions with ecosystems and all associated organisms, rather than only individual species.

- **EA** is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way as well as for "**Sustainable Development**".

- **Sustainable Development:** "***development that meets the present, without compromising the ability of future generations to meet their own***"

I. Process Indicators (regional/national)

- Functioning national inter-ministry committees
- Agreed transboundary diagnostic analysis (TDA)
- Ministerial endorsement of a joint SAP with needed reforms and investments
- Documentation of public involvement
- Documentation of harmonized indicators/M & E plan, including environmental status indicators
- Adoption of joint legal/institutional framework
- National adoption of policy/legal reforms in sectors
- National ratification of regional conventions/protocols



II. Stress Reduction Indicators
On-the-ground national implementation of measures

- Pollution reduction investment operating (kg/yr)
- Management practice implemented-agriculture pollution reduction, soil erosion control, water use efficiency (crop water use productivity; industry/municipal water savings)
- Amount of wetland restored, protected area established, fishing fleet removed, fisheries management measures; groundwater recharge area protected, releases from dams

III. Environmental Status Indicators
Measures of results in the water resource environment

- Measured chemical, physical,or biological parameters
- Improved flow regimes—hydrologic parameters, including parameters related to groundwater use and recharge area protection.
- Ecological parameters: age classes of fish; biodiversity
- Socio-economic parameters: local income/social conditions not worsened.

GEF Incremental Cost

The GEF Incremental Cost: consideration of the baseline and additional costs associated with achieving *'domestic' benefits (i.e., those accruing to the participating countries) and* global environmental benefits (*i.e., those accruing beyond the jurisdiction of the participating countries*).

Incremental cost is "the additional cost that the GEF funds between the cost of an alternative project that a country would have implemented in the absence of global environmental concerns, and a project undertaken with global objectives in mind.