1. 

**Project Document**

**Section 1: Project Identification**

**1.1 Project title:** A Transboundary Waters Assessment Programme: Aquifers, Lake/Reservoir Basins, River Basins, Large Marine Ecosystems, and Open Ocean to catalyze sound environmental management

**1.2 Project number:**

 PMS:

**1.3 Project type:**

**1.4 Trust Fund:**

**1.5 Strategic objectives:**  GEF5/IW - SP 1, 2, & 4

**1.6 UNEP priority:**  Ecosystem Management; Environmental Governance

**1.7 Geographical scope:** Global

**1.8 Mode of execution:**

**1.9 Project executing organization:**  UNEP/DEWA

**1.10 Duration of project:** 24 months

 Commencing:  01/2013

 Technical completion: 01/2015

 **Validity of legal instrument**: 30 months

* + 1. **Cost of project US$ %**

|  |
| --- |
| **Cost to the GEF Trust Fund** |
|  | 5,000,000 | 13.6 |
| Co-financing |
| Cash |  |  |
| **DEWA** | 1,790,500 | 4.9 |
| **River Component under DHI** | 126,500 | 0.3 |
| **TBA component under UNESCO-IHP** | 4,800,000 | 13.0 |
| **Lakes component under ILEC** | 418,000 | 1.1 |
| **LME component under UNESCO-IOC** | 1,969,000 | 5.3 |
| **OO component under UNESCO-IOC** | 2,993,416 | 8.1 |
| **Government of Finland** | 1,019,000 | 2.8 |
| ***Sub-total*** | **13,116,416** | **35.5** |
| **In-kind** |
| **River Component under DHI** | 6,065,231 | 16.5 |
| **TBA component under UNESCO-IHP** | 6,314,000 | 17.1 |
| **Lakes component under ILEC** | 804,000 | 2.2 |
| **LME component under UNESCO-IOC** | 2,356,000 | 6.4 |
| **OO component under UNESCO-IOC** | 3,208,166 | 8.7 |
| ***Sub-total*** |  18,747,397 | 50.9 |
| **Total** | **36,863,813** | **100** |

* + 1. **Project summary**

This is a two year project for which UNEP will serve as the implementing agency and UNEP/DEWA will act as the primary executing agency coordinating the work of UNESCO-IHP, ILEC, UNEP-DHI and the IOC of UNESCO. These agencies will serve as the lead executing agencies for the assessment of: transboundary aquifers and SIDS groundwater; transboundary lakes and reservoirs; transboundary rivers; Large Marine Ecosystems and the Open Ocean respectively[[1]](#footnote-1). Each of these executing agencies will engage with a network of partners with responsibilities either of a thematic issue or geographic area together with an extensive network of data and information rich institutions and organisations.

The overall objective of the project is to produce the first truly global assessment of all transboundary waters within the five recognised categories, and at the same time formalise the network of partners to establish a firm institutional basis on which to base future periodic global assessments of transboundary waters.

Global environment objective: To apply the agreed methodologies developed during the medium sized project to the conduct of a global assessment of transboundary groundwater aquifers, lakes/reservoirs, river basins, large marine ecosystems, and the open ocean,

The project aims to assist the GEF and other international organizations in improved priority setting for funding by providing a baseline and priorities for intervention. It is anticipated that this baseline will serve to assist international funding agencies in tracking the impacts of their interventions in terms of changes in state of the aquatic environments under consideration.

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**Acronyms and Abbreviations**

|  |  |
| --- | --- |
| BGR | German Federal Institute for Geosciences and Natural Resources |
| CD ROM | Compact Disc Read Only memory |
| DEWA | Division of Early Warning and Assessment (of UNEP) |
| FAO | Food and Agriculture Organisation of the UN |
| GEF | Global Environment Facility |
| GEMS-Water | Global Environmental Monitoring System-Water Programme |
| GEO | Global Environment Outlook |
| GEOWOW | GEOSS interoperability for Weather, Ocean and Water (European Commission) |
| GESAMP | Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection |
| GOOS | Global Oceans Observing System |
| GPA | Global Programme of Action for the Protection of the Marine Environment from Land-based Activities |
| GRID | Global Resource Information Database  |
| IGBP | International Geosphere-Biosphere Programme (of ICSU) |
| IGRAC | International Groundwater Resources Assessment Centre |
| ILEC | International Lake Environment Committee  |
| IOC | Intergovernmental Oceanographic Commission (of UNESCO) |
| IOC-UNESCO | Intergovernmental Oceanographic Commission (of UNESCO) |
| ISARM | Internationally Shared Aquifer Resources Management |
| IUCN | International Union for Conservation of Nature  |
| IW | International Waters (GEF) |
| IW:LEARN | International Waters Learning Exchange and Resource Network |
| LME | Large Marine Ecosystem |
| LOICZ | Land-Ocean Interaction in the Coastal Zone (Core project of the IGBP) |
| M&E | Monitoring and Evaluation |
| MEA | Millennium Ecosystem Assessment |
| MSP | Medium Size Project (GEF) |
| NGO | Non-governmental Organization |
| NOAA | National Oceanic and Atmospheric Administration (USA) |
| PCU | Project Coordination Unit |
| PIR | Project Implementation Review (of GEF) |
| PMS | Project Management System |
| PSC | Project Steering Committee |
| RSP | Regional Seas Programme |
| SAP | Strategic Action Programme (GEF) |
| SIDS | Small Island Developing States |
| SIWI | Stockholm International Water Institute |
| SMART | Self-Monitoring, Analysis and Reporting Technology |
| STAC | Scientific and Technical Advisory Committee (of TWAP)  |
| TBA | Transboundary Aquifers |
| TDA | Transboundary Diagnostic Analysis |
| TWAP | Transboundary Waters Assessment Programme  |
| UN | United Nations |
| UNEP | United Nations Environment Programme |
| UNEP-DHI | UNEP -DHI Centre for Water and Environment |
| UNEP-GC | UNEP Governing Council |
| UNEP-WCMC | World Conservation Monitoring Centre (of UNEP) |
| UNESCO | United Nations Educational, Scientific and Cultural Organization |
| UNESCO-IHP | International Hydrological Programme (of UNESCO) |
| UNGA | United nations General Assembly |
| WMO | World Meteorological Organization |
| WWAP | World Water Assessment Programme (of UNESCO) |

**Section 2: Background and Situation Analysis (Baseline course of action)**

* 1. **Background and context**
1. Many aquatic systems (aquifers, lakes/reservoirs basins, river basins, large marine ecosystems (LMEs) and open ocean areas) extend across, or lie beyond, national boundaries, and are referred to in the context of the Global Environment Facility (GEF) as “transboundary waters”. The ecosystem goods and services (e.g.) provided by transboundary aquatic systems are critical to the socioeconomic development and well being of a significant portion of the world’s population. These systems, which cover most of the planet, continue to be impacted and degraded by multiple and complex human-induced and natural stressors that threaten the sustainability of these goods and services and, in turn, human survival and well being. Addressing these issues requires more effective management of transboundary waters, but this is increasingly becoming constrained by limited availability of funds, resulting in the need for better prioritization of the allocations of limited financial resources.
2. Another major constraint to the effective management of transboundary waters is the lack of a systematic, periodic global comparative assessment of the changing conditions of international waters in response to changing human induced and natural stresses. A systematic aggregation and analysis of available data at the transboundary scale is needed to allow GEF and others to set priorities for funding, and to document the results of their investments in relation to the changing state of these transboundary systems. This project addresses this need for a global assessment of transboundary waters.
3. A significant constraint to effective management of transboundary waters has been the lack of a scientifically-robust methodology for assessing the changing conditions of the five different types of transboundary water systems resulting from human and natural causes. The absence of such a methodology has resulted in a lack of co-ordination and comparability among and between past assessments, with consequent duplication and overlap in the use of scarce resources, both human and financial. The absence of a global assessment based on an agreed methodology prevents policy makers, the GEF and international organisations to set science-based priorities for financial resource allocations.
4. GEF recognized the above gaps and the GEF’s Technical Advisory Group for strategy development in the International Waters (IW) focal area identified the need for a Transboundary Waters Assessment Programme (TWAP) in early 2007. Subsequently, the GEF Council included such a programme in its February 2012 Inter-sessional Workprogramme to assist in results-based management for the future.
5. An indicator-based assessment methodology has been developed for each of the five water systems through the GEF Medium sized project (the first phase of TWAP) entitled: “Development of the Methodology and Arrangements for the GEF Transboundary Waters Assessment Programme (TWAP)”. Application of these methodologies in a global comparative assessment of each of the five transboundary water system types will enable the GEF (and national authorities, bilateral donors and other organizations), to set science-based priorities for GEF allocations of its limited financial resources.
6. The assessments will provide a baseline to facilitate identification and evaluation of changes in the state of environmental and natural resources in the transboundary water systems resulting from interventions by national authorities and international/regional communities. Such worldwide, comprehensive assessments of transboundary waters have not yet been undertaken, although the required data, information, modelling tools and expertise needed to undertake a global assessment, are generally available. These, however, are currently scattered among different sources, including governments, regional organisations, academic networks, research programmes, private sector, and local and indigenous communities. Additionally, there is no GEF programme for capturing and analysing the time series of data collected by GEF IW projects, which could be a valuable addition to a worldwide assessment programme.
7. One outcome of the medium sized project cited above has been the establishment of an informal institutional framework and partnership between the principle international agencies and organizations collecting data or currently engaged in regular assessments of one or more of the transboundary water systems. This network has been established for the systematic utilization of the enormous data and information base and expertise in an integrated manner that would take advantage of potential synergies to produce the TWAP assessment in an efficient and cost effective manner. The proposed project will formalize the institutional framework and partnerships thereby establishing the institutional basis for a sustainable global process for future transboundary waters assessments, whilst at the same time producing the first global assessment of transboundary waters.
8. In addition to the difficulties associated with scattered data and information, another problem is that, despite the existence of many global-scale water assessment programmes (run by UN and other international or regional organisations), they do not highlight transboundary issues, which require more attention from the riparian and littoral countries. Cross-comparison within the five water systems (river basins, lake basins, groundwater aquifers, etc.) will be addressed through the application of the agreed methodologies for assessment of each transboundary water type developed during the implementation of the Medium Sized Project (MSP). This will facilitate prioritization of waterbodies within each of the five transboundary water systems.
9. Production of periodic worldwide assessments also provides a means of tracking the impacts of the interventions of the GEF and others over the longer term through identification of changes to the baseline environmental and water resource conditions. In this manner, GEF can make more effective use of its resources for addressing higher priority waterbodies, and can also determine and report on the impacts of its funding. UNEP and other UN organizations would use the results to contribute to global assessments (e.g., Global Environmental Outlook (GEO) of UNEP; UN-wide World Water Development Report coordinated by the United Nations Educational, Scientific and Cultural Organisation (UNESCO), and the UN Regular Process. Regional organizations may use the assessment results as a baseline, and for tracking improvements in environmental and water resource situations against the baseline. National governments can use the results to establish national programme priorities between transboundary and domestic water issues.
	1. **Global significance**
10. The project is of considerable global significance not only in terms of indirect environmental benefits, but more importantly in terms of the indirect benefits derived from more strategic use of GEF funding in the international waters portfolio; and through provision of a mechanism that will permit the GEF and other financing organizations to assess the global environmental impacts of their investments.
	1. **Threats, root causes and barrier analysis**
11. The transboundary aquifers, lake/reservoir basins, river basins, large marine ecosystems and open ocean areas on which the socioeconomic development and well-being of a significant part of the world’s population depends, continue to be degraded by anthropogenic and natural pressures, including the impacts of global climate change. During the development of the methodology and the implementation of the MSP a wide range of priority transboundary issues were identified which are detailed in the appendices (15 to 20). The priority issues identified encompassed issues of biodiversity and production; food security, pollution and ecosystem health, natural habitat loss and destruction resulting in loss of ecosystem goods and services. Compounding these threats were problems relating to the governance of transboundary waters, whilst emerging issues arise from, *inter alia*, unprecedented human population levels; anthropogenic climate change; ocean acidification; and climate-related shifts in species distribution.
12. A central theme of TWAP is the vulnerability of ecosystems and human communities to natural and anthropogenic stressors, and impairment of ecosystem services. All four categories of ecosystem services[[2]](#footnote-2) identified by the Millennium Ecosystem Assessment (MEA http://www.maweb.org/en/index.aspx) are provided by the different categories of transboundary waterbody, with food provisioning in the form of fish catch and regulating and cultural services that support lucrative revenue generating coastal tourism activities being among the most valuable. Some coastal ecosystems, such as coral reefs, are particularly vulnerable to external perturbations and are increasingly being subjected to a range of stressors, with potentially serious consequences for the services they provide. In turn, human communities on small islands are dependent on limited aquifer resources for their freshwater supplies; while lake communities are highly vulnerable to fluctuations in water inputs to the lake system.
13. The proposed global assessment will, focus on environmental and natural resource status and trends, using the identified indicators, to enable a comparative assessment to be undertaken. The assessment will identify major threats to each of the five water systems; the most important root causes as well as major barriers that are resulting in inefficient management of transboundary waters. Governance and socioeconomic issues are particularly important in assessing threats, root causes and barriers since they result in the vulnerability of societies and ecosystems to pressures on the water resources as well as indicating society’s capacity to adapt to and manage these pressures. In a recent paper on the global threats to rivers (Vörösmarty, *et al.,* 2010[[3]](#footnote-3)), human vulnerability was addressed by including an ‘investment benefits factor’ in their analysis. This incorporated the level of supply stabilisation (e.g. reservoirs), and improved supply services and access to waterways. When this factor was applied to the indicator results, it significantly changed the global risk map. Such an approach could also be developed during the project, either using the same data, or socioeconomic and governance information obtained during project implementation.
14. In the freshwater domain increasing water scarcity and depletion of natural resources, partly as a consequence of climate change, leads to a potential increase in water conflicts between countries that share transboundary waters (Yoffe*, et al.,* 2004[[4]](#footnote-4)). This water scarcity is however caused not only by natural processes but also by inadequate and inefficient water management and competition between water uses (Wester*, et al.,* 2002[[5]](#footnote-5)).
15. The indicator framework has been designed to enable the investigation of a range of issues and highlight the key, or priority threats, for each transboundary waterbody. It will also be possible to identify whether some issues are particularly important at a regional or global scale. The indicator framework has been designed in such a way that, as new issues emerge, indicators can either be modified, or new indicators can be incorporated into the existing structure or replace existing indicators without compromising its integrity.
16. To meet the objective of a comparison between waterbodies, the assessment will compute indicators based on basin averages. Since this may mask variations found within individual waterbodies, hotspots will be identified within specific waterbodies. This will be facilitated through the use of gridded data for certain indicators (typically 30 minute grids, or approximately 50 x 50 km), such that analysis of information at this resolution may be possible.
17. Human communities are increasingly being exposed to the impacts of global climate change through the associated increase in frequency and intensity of extreme weather events (such as storms and droughts). In coastal areas this vulnerability increases when the protective function of coastal habitats such as coral reefs and mangroves is lost. Humans can also be directly affected by contaminants in the aquatic environment, through direct physical contact and consumption of contaminated food products. Assessing social well-being and vulnerabilities in addition to economic well-being provides a more complete picture of human-environment interactions. This concept underpins the approach to socioeconomic assessment developed as part of the methodology.

**2.4 Institutional, sectoral and policy context**

1. UNEP’s overall mission is to provide leadership and encourage partnership in caring for the environment by inspiring, informing, and enabling nations and peoples to improve their quality of life without compromising that of future generations. This includes providing the world community with improved access to meaningful environmental data and information, and helping to increase the capacity of governments to use environmental information for decision-making and action-planning for sustainable human development. In carrying out this mission, and consistent with its mandate to keep the state of the global environment under review, UNEP’s Division of Early Warning and Assessment (DEWA), is implementing or participating in several ongoing global and regional environmental assessments, as well as the UNGA Regular Process for Global Reporting and Assessment on the State of the Marine Environment, including socioeconomic aspects. Within its GEF role, UNEP’s mandate includes *inter alia* promoting scientific assessments, consequently it is appropriate that UNEP should lead this initiative.
2. This global assessment of the five types of transboundary water systems will utilize networks and globally available information and data sets and will directly address the primary need in the water sector for a global assessment of transboundary waters. Newly collected information (from observation networks and modelling) will complement the assessment where needed to address crucial data gaps. This will include evaluation of existing environmental and natural resource status of transboundary waters, human and natural drivers and related stress, human dependency and vulnerability to the extent possible, and the current status of governance arrangements. Predicted stresses (to years 2030 and 2050) and resulting changes in state also will be assessed. In this way, the assessment will establish a baseline environmental, governance, socioeconomic and natural resource overview of the five types of transboundary water systems. Without a proper baseline for monitoring of the stresses and environmental status, GEF and other international organisations cannot identify and track the impacts of their interventions on the status of transboundary water systems. Issues related to interlinkages between the five water systems will also be addressed by the assessment.
3. The GEF’s Technical Advisory Group for strategy development in the International Waters (IW) focal area identified the need for a Transboundary Waters Assessment Programme (TWAP) in early 2007, and the GEF Council included such a programme in its approved GEF 4 Strategy for International Waters to assist in results-based management for the future.Such a global, comprehensive assessment has never been undertaken. The TWAP project arose out of the need for a systematic and scientifically robust methodology and institutional arrangements for assessing the changing conditions of transboundary water systems (aquifers, lakes/reservoirs, river basins, LMEs, and open ocean areas) resulting from human and natural causes.
4. The purpose of TWAP Project is to help the GEF identify priority areas for intervention in the management of shared water systems; to help governments in managing their shared waterbodies and formalise a partnership and arrangements for conducting periodic global assessments. The assessment methodology should allow the monitoring of evolving trends in these water systems, and the identification of the impacts of GEF International Waters programmes and those of other agencies and actors. UNEP has the responsibility and comparative advantage for undertaking assessment in the GEF and globally through its various programmes including the Global Environment Outlook (GEO). With fragmentation in the various agencies’ responsibilities and mandates, and because the GEO is not currently able to address the changing state of transboundary water systems, the TWAP project will make a unique contribution.
5. The Bali Strategic Plan for Technology Support and Capacity Building, agreed to by the Governing Council of UNEP (UNEP-GC) and UNEP’s Global Ministerial Environment Forum, calls upon UNEP to strengthen national capacities for data collection, research, analysis, monitoring and integrated environmental assessment; developing institutional capacities, staff training and support for appropriate and adaptable technologies and methodologies; support for assessments of environmental issues of regional and subregional importance and for the assessment and early warning of emerging environmental issues; support for scientific exchanges and for the establishment of environmental and inter disciplinary information networks; and promotion of coherent partnership approaches. This project is in full conformity with this policy framework and plan.
	1. **Stakeholder mapping and analysis**
6. The implementation of this project and the conduct of the global transboundary waters assessment itself will be coordinated by UNEP (Division of Early Warning and Assessment) and will involve many partners that are already engaged in assessment efforts. The following are lead organizations and core partners for the implementation of this Project:

(a) **transboundary aquifers and SIDS groundwater systems**: UNESCO’s International Hydrological Programme (IHP) (lead), International Groundwater Resources Assessment Centre (IGRAC), Internationally Shared Aquifer Resources Management (ISARM), World Water Assessment Programme (WWAP), Food and Agriculture Organization of the United Nations (FAO), Swiss Development Cooperation (SDC), and the World-wide Hydrogeological Mapping and Assessment Programme (WHYMAP);

(b) **transboundary lake/reservoirs basins**: International Lake Environment Committee (ILEC) (lead), UNEP Division of Early Warning and Assessment (DEWA), International Center for Watershed Studies (ICWS), Texas State University, and Research Center for Sustainability and Environment (RSCE), Shiga University;

(c) **transboundary river basins:** UNEP-DHI Centre for Water and Environment (lead), International Union for the Conservation of Nature (IUCN), and Stockholm International Water Institute (SIWI);

(d)  **LMEs:** Intergovernmental Oceanographic Commission of UNESCO (IOC of UNESCO) (lead), National Oceanic and Atmospheric Administration (NOAA);

(e) **open ocean:** Intergovernmental Oceanographic Commission of UNESCO (IOC of UNESCO) (lead), European Commission - Global Earth Observation System of Systems (GEOSS) interoperability for Weather, Ocean and Water (GEOWOW), UNEP Division of Early Warning and Assessment (DEWA), Global Ocean Observing System (GOOS); and

(f) **data and information management:** UNEP/DEWA/GRID-Geneva (lead), the Government of Switzerland (CH-FOEN) and the University of Geneva (UniGe).

1. The full list of (i) lead organisations (6); (ii) core partners (18); (iii) thematic partners (40); and (iv) Data/Expertise Providers (68) is presented in the Table 2 of this document. Short summaries for lead organisations and core partners are presented below, with additional information relating to some key entities serving as regional, or thematic partners and major data providers.

**Component 1. Transboundary Aquifers and SIDS Groundwater**

1. **UNESCO’s International Hydrological Programme (IHP) – Lead Organisation.** UNESCO’s International Hydrological Programme (IHP) is the only intergovernmental scientific programme in freshwater resources in the UN system. IHP is a vehicle through which Member States can upgrade their knowledge of the water cycle and thereby increase their capacity to better manage and develop their water resources. The Programme was ranked the most influential of all intergovernmental and nongovernmental organizations concerned with freshwater issues by a comprehensive independent survey of nearly 40 water-related institutions carried out by the Udall Centre for Studies in Public Policy at the University of Arizona. In particular, UNESCO IHP is the world leader in the promotion of science based policies for the sound management of transboundary aquifers.
2. **International Groundwater Resources Assessment Centre (IGRAC) – Core Partner.** The International Groundwater Resources Assessment Centre (IGRAC) facilitates and promotes global sharing of information and knowledge for optimal and sustainable groundwater resources development and management. IGRAC works under the auspices of UNESCO and WMO, having the status of the UNESCO Category II Centre. The Centre provides support to the assessment, monitoring and management of internationally shared aquifers and plays a central role in the implementation of many of UNESCO’s groundwater activities. As a member of ISARM core group, IGRAC has developed and maintains the ISARM portal on shared aquifers. On the regional scale, IGRAC supports various transboundary aquifer projects in the Americas, Africa, Europe and Asia.
3. **Internationally Shared Aquifer Resources Management (ISARM) – Core Partner.** The Internationally Shared Aquifer Resources Management (ISARM) initiative was launched in June 2000 by UNESCO-IHP with the objective to prepare a global inventory of transboundary aquifers of the planet and set up recommendations to Member States for the peaceful and sustainable management of these systems. ISARM is a multi-agency effort aimed at improving the understanding of scientific, socioeconomic, legal, institutional and environmental issues related to the management of transboundary aquifers. Regional inventories of transboundary aquifers have been carried out in the Americas, in Africa, Europe, Asia and in the Balkans. In 2009 the first comprehensive global Atlas of Transboundary Aquifers was published. The ISARM project also links with parallel activities existing within the UN Economic Commission for Europe and creates a successful cooperation between international organizations (FAO, Organisation of American States, Observatoire du Sahara et du Sahel), non-governmental organizations (International Association of Hydrogeologists), and scientific structures (University of Aristotle, Thessaloniki, Greece). The Programme operates through a joint coordination committee of experts from UNESCO-IHP, International Association of Hydrogeologists, FAO and United Nations Economic Commission for Europe.
4. **World Water Assessment Programme (WWAP) – Core Partner.** The United Nations World Water Assessment Programme (UN WWAP) is a UN Water programme. Its scope comprises the monitoring of freshwater issues in order to provide recommendations to decision-makers and water resource managers, developing case studies, enhancing monitoring and assessment capacity at national and regional level, and informing the decision-making process with the identification of alternative futures (scenarios). The Programme also aims to measure progress towards achieving sustainable use of water resources through robust indicators, and promote gender equality. Hosted and led by UNESCO, UN WWAP coordinates the work of 30 UN-Water members and partners for the periodical publication of the World Water Development Report (WWDR). This UN Report provides an authoritative picture of the state, use and management of the world’s freshwater resources.
5. **Food and Agriculture Organization of the United Nations (FAO) – Core Partner.** FAO maintains an extensive multi-scale information base on water for use at global, national and local levels. AQUASTAT, FAO's global information system of water and agriculture, monitors and reports on water resources and agricultural water use in member countries. The main mandate of the programme is to collect, analyze and disseminate information on water resources, water uses, and agricultural water management; It also contributes extensively to the periodic issuance of the UN World Water Development Report. At global level, FAO contributes to the development of perspective studies on agriculture, food production, food security and environment services, and on the impact of global warming on future water resources and use. FAO's information serves as basis for decision in major international natural resources management initiatives (UN-Water, World Water Forum, etc.) and feeds into international conventions (UN-CCD, UNFCC, CSD). At national and local level, FAO assists countries and local institutions in enhancing their natural resources assessment and monitoring capacities.
6. **Swiss Agency for Development and Cooperation (SDC) – Core Partner**. The Swiss Agency for Development and Cooperation (SDC) is Switzerland’s international cooperation agency within the Federal Department of Foreign Affairs (FDFA). In operating with other federal offices concerned, SDC is responsible for the overall coordination of development activities and cooperation with Eastern Europe, as well as for the humanitarian aid delivered by the Swiss Confederation. The SDC Global Program Water Initiatives (WIs) has within the frame of its Strategic Framework 2010-2015 recently started a new project on Transboundary Groundwater Governance and Management. The activities to be carried out within this framework have been designed as a direct contribution to the TWAP Transboundary Aquifers component and will encompass the in-depth assessment of three transboundary aquifer case studies.
7. **The World-wide Hydrogeological Mapping and Assessment Programme (WHYMAP) – Core Partner**. WHYMAP is a joint programme of UNESCO and the German Federal Institute for Geosciences and Natural Resources (BGR) in Hannover, Germany. The Programme focuses on collecting, collating and visualizing hydrogeological information at a global scale and provides a broad knowledge base on the scientific-hydrogeological side. The Worldwide Hydrogeological Mapping and Assessment Programme is based at BGR, the central geoscientific authority providing advice to the German Federal Government in all geo-relevant questions. BGR is subordinate to the [Federal Ministry of Economics and Technology](http://www.bmwi.de/English/Navigation/root.html). WHYMAP has prepared and published the first global maps on transboundary aquifers in 2006.

**Component 2. Lake Basins**

1. **International Lake Environment Committee (ILEC) – Lead Organisation.** The mission of the International Lake Environment Committee, established in 1986, is to advance international cooperation for the conservation of lake environments and to promote environmentally-sound management of world lakes and reservoirs through encouraging investigations and research on rationale and suitable methods for harmony between environmental management and sustainable development and scientific knowledge on lake environments. The general strategies utilized to achieve this mission include (1) promotion of scientific research on environmental management of lakes and reservoirs; (2) assistance to developing countries regarding the environmental management of lakes and reservoirs and the planning of environmentally sound development of lakes and reservoirs; (3) promotion of training on technical and management aspects of lake environments; (4) support of activities on environmentally sound management of lakes and reservoirs, which UNEP promotes for developing countries; and (5) promotion of interchange with governmental agencies, regional agencies, and research institutes in the world which undertake international cooperation on environmentally-sound lake management.
2. **UNEP Division of Early Warning and Assessment (DEWA) – Core Partner.** UNEP Division of Early Warning and Assessment (DEWA) is implementing or participating in several global and regional environmental assessments that are related to or include water ecosystems. DEWA’s mission is to provide the world community with improved access to meaningful environmental data and information, and to help increase the capacity of governments to use environmental information for decision-making and action planning for sustainable human development. DEWA Water Assessment Strategy contributes to the overall implementation of the UNEP Water Policy and Strategy. The strategy provides an integrated water assessment approach that will tackle fresh and coastal/marine water issues with greater focus and impact. DEWA undertakes supports and is a partner in a number of environmental assessments with different thematic and geographic coverage. DEWA is represented in six regions (Africa, Asia and the Pacific, Europe, Latin America and the Caribbean, North America, and West Asia), through its six regional coordination offices.
3. **Shiga University, Research Center for Sustainability and Environment – Core Partner.** The Research Center for Sustainability and Environment was established in 2003 at Shiga University, Otsu, Japan. The role of the Center is to promote and implement multidisciplinary collaboration research on a wide range of issues pertaining to sustainability and environment, including a major focus on freshwater resources. It conducts its activities by drawing research capability from across the university campus, and from other major collaborating institutions both within and outside the region, as well as other countries throughout the world. Its staff interacts with 24 other collaborating members in two faculties. It has been involved in extensive work on integrated lake basin management in a range of countries, including lake basins in China, India, Kenya, Malaysia, Mexico, Nepal, Philippines, Russian Federation, Thailand and Zimbabwe, including development and application of the Integrated Lake Basin Management (ILBM) Platform Process.
4. **Texas State University, International Center for Watershed Studies – Core Partner.** The International Center for Watershed Studies was established in 2009 as a water center of excellence at Texas State University, San Marcos, Texas, USA. It is devoted to facilitating our ability to utilize freshwater resources (lakes, reservoirs, rivers, wetlands, groundwater aquifers), and their life-supporting ecosystem services, in a sustainable manner. Involved in studies around the world, its activities focus on development of ecosystem-based assessment and management approaches directed to meeting human well-being and economic development needs, while also maintaining the ecological integrity of these freshwater systems. Interdisciplinary by the nature of its fundamental mission, the Center addresses both the scientific/technical and the socio-economic/governance elements underlying integrated approaches to water resources assessment and management. Its staff has been involved in national and international activities since its inception, including UNEP’s GEO reports and UN-Water’s World Water Development Reports.

**Component 3. River Basins**

1. **UNEP-DHI Centre for Water and Environment – Lead Organisation.** The UNEP-DHI Centre for Water and Environment was established in 2001 as a centre of excellence supporting the United Nations Environment Programme with expertise on water issues related to UNEP’s global mandate. The Centre is hosted by DHI, a world leader in the development and application of tools for integrated water resources management (IWRM) with presence and experience in all regions of the world. The Centre has supported IWRM processes and capacity building at the national and transboundary level and contributed to several global assessments of the water resource, including the GEO reports and the World Water Development Reports. The Centre led the preparation of a UN-Water report to the Rio+20 conference in 2012 based on a global survey on water resources management among all UN member states.
2. **International Union for the Conservation of Nature (IUCN) – Core Partner.** The International Union for the Conservation of Nature (IUCN) is the world’s largest and most important conservation network. The Union brings together 82 States, 111 government agencies, more than 800 non-governmental organizations (NGOs), and some 10,000 scientists and experts from 181 countries in a unique worldwide partnership. The Union’s mission is to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.
3. **Stockholm International Water Institute (SIWI) – Core Partner.** The Stockholm International Water Institute (SIWI) is a policy think tank that contributes to international efforts to combat the world’s escalating water crisis. SIWI advocates future-oriented, knowledge-integrated water views in decision making, nationally and internationally, that lead to sustainable use of the world’s water resources and sustainable development of societies. SIWI links water experts with decision makers so that progressive policies and scientifically sound, water-cycle based solutions to water-related problems can be elaborated, necessary to achieve the UN Millennium Development Goals and the Johannesburg water-related targets as the first steps towards a sustainable global water situation. SIWI stresses that water is a key to socioeconomic development and quality of life, and that through integrated water resources management, barriers which hinder increased food production, pollution prevention and poverty reduction can be overcome. SIWI has several main components. It administers the Stockholm Water Symposium, a global water forum convened annually as part of the World Water Week in Stockholm; the Stockholm Water Initiative, which channels Symposium thinking into collaborative, interdisciplinary projects; and the Swedish Water House, a networking platform for international dialogue and action on water issues by Swedish institutes, organisations and universities.
4. The Global Water System Project *Data Provider River Basins*. A newly established joint project of the four Global Change Programmes that form the Earth System Science Partnership to take an integrative look at the Global Water System. The project aims at understanding impacts of global change on local and regional coupled water-human systems, and how local and regional anthropogenic activities in turn impact on global environmental change. Approaches to establish more sustainable water systems will be identified.

**Component 4. large marine ecosystems**

1. **Intergovernmental Oceanographic Commission of UNESCO (IOC of UNESCO) – Lead Organisation.** The Intergovernmental Oceanographic Commission (IOC) of UNESCO has been one of UNEP's key partners in global scientific programmes for the marine environment and in many of the Regional Seas programmes for the last 30 years. Within the UN system, IOC alone has responsibility for basic oceanographic research. The IOC focuses on four major themes: to develop, promote and facilitate international oceanographic research programmes to improve understanding of critical global and regional ocean processes and their relationship to the sustainable development and stewardship of ocean resources; to ensure effective planning, establishment and co-ordination of an operational global ocean observing system to provide the information needed for oceanic and atmospheric forecasting, for oceans and coastal zone management and for global environmental change research; to provide international education, training and technical programmes; and to ensure that ocean data and information obtained are widely available.
2. **National Oceanic and Atmospheric Agency (NOAA) – Core Partner.** NOAA is a scientific agency within the[United States Department of Commerce](http://en.wikipedia.org/wiki/United_States_Department_of_Commerce) focused on the conditions of the oceans and the atmosphere. NOAA's mission is "to understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet our nation's economic, social, and environmental needs." The five "fundamental activities" are: Monitoring and observing Earth systems with instruments and data collection networks; Understanding and describing Earth systems through research and analysis of that data; Assessing and predicting the changes of these systems over time; Engaging, advising, and informing the public and partner organizations with important information; and Managing resources for the betterment of society, economy and environment. The system of LMEs and five LME modules (on which the TWAP LMEs assessment methodology is based) were developed by NOAA. Since 1993, the NOAA Fisheries Service has been cooperating with GEF, IUCN, IOC-UNESCO, and several other UN agencies to assist developing countries in planning and implementing ecosystem-based management focused on LMEs as the principal assessment and management unit for near-coastal ocean resources. NOAA contributes scientific and technical assistance and expertise to aid developing countries in reaching the WSSD targets. NOAA was a core partner in the TWAP MSP and is a core partner in the FSP (www.lme.noaa.gov).

**Component 5. Open Ocean**

1. **Intergovernmental Oceanographic Commission of UNESCO (IOC of UNESCO) – Lead Organisation.** The Intergovernmental Oceanographic Commission (IOC) of UNESCO has been one of UNEP's key partners in global scientific programmes for the marine environment and in many of the Regional Seas programmes for the last 30 years. Within the UN system, IOC alone has responsibility for basic oceanographic research. The IOC focuses on four major themes: to develop, promote and facilitate international oceanographic research programmes to improve understanding of critical global and regional ocean processes and their relationship to the sustainable development and stewardship of ocean resources; to ensure effective planning, establishment and co-ordination of an operational global ocean observing system to provide the information needed for oceanic and atmospheric forecasting, for oceans and coastal zone management and for global environmental change research; to provide international education, training and technical programmes; and to ensure that ocean data and information obtained are widely available.
2. **European Commission - Global Earth Observation System of Systems (GEOSS) interoperability for Weather, Ocean and Water (GEOWOW) – Core Partner.** Observations of the earth system are critical input to improving human health, safety and welfare - a whole range of societal benefit areas. The Group on Earth Observations (GEO) Global Earth Observation System of Systems (GEOSS) coordinates national and organization contributions into an interoperable system. The GEOWOW project, short for “GEOSS interoperability for Weather, Ocean and Water”, is supporting this objective. GEOWOW’s main challenge is to improve Earth observation data discovery, accessibility and exploitability, and to evolve GEOSS in terms of interoperability, standardization and functionality. GEOWOW is co-funded under the European Community's Seventh Framework Programme (FP7) responding to a call for “Interoperable integration of Shared Earth Observations in the Global Context”. It is implemented by a consortium of 15 partners from Europe, Brazil and Japan and is coordinated by the European Space Agency (ESA-ESRIN). GOOS is a contributing organization to GEO, and under the auspices of the UNESCO-IOC is the lead partner for a GEOWOW ‘work package’ that will: make global ocean ecosystems data discoverable and available through the GEOSS Common Infrastructure (GCI), identify requirements for and monitor implementation of key ocean ecosystem observations, identify ocean projection and forecast results and make these available through the GCI, and support infrastructure for research and development of marine assessments. A major focus of the GEOWOW’s ocean ‘work package’ will be to develop the infrastructure for the indicators and mapping for the TWAP Open Ocean component. Through GEOWOW, the UNESCO-IOC will focus on developing, analysing and mapping the available ocean information gleaned from TWAP partners to build on already available ocean and socio-economic datasets in order to elaborate the indicators for human-related stress on the global ocean ecosystems. The final mapped interactive products will be ‘user-friendly’ to non-ocean specialists and policy makers.
3. **UNEP Division of Early Warning and Assessment (DEWA) – Core Partner.** UNEP Division of Early Warning and Assessment (DEWA) is implementing or participating in several global and regional environmental assessments that are related to or include water ecosystems. DEWA’s mission is to provide the world community with improved access to meaningful environmental data and information, and to help increase the capacity of governments to use environmental information for decision-making and action planning for sustainable human development. DEWA Water Assessment Strategy contributes to the overall implementation of the UNEP Water Policy and Strategy. The strategy provides an integrated water assessment approach that will tackle fresh and coastal/marine water issues with greater focus and impact. DEWA undertakes supports and is a partner in a number of environmental assessments with different thematic and geographic coverage. DEWA is represented in six regions (Africa, Asia and the Pacific, Europe, Latin America and the Caribbean, North America, and West Asia), through its six regional coordination offices.
4. **Global Ocean Observing System (GOOS) – Core Partner.** The objective of the Global Ocean Observing System (GOOS) is to provide the information needed by governments, industry, science and the public to deal with marine-related issues, including the effects of the ocean on climate. This is supported by a unified global network to systematically acquire, integrate and distribute oceanic observations, and to generate analyses, forecasts and other useful products. GOOS will provide information about the present and future states of seas and oceans and some aspects of their living resources, and on the role of the oceans in climate change. GOOS is conceived as: a sustained, co-ordinated international system for gathering data about the oceans and seas of the Earth’s system for processing such data, with other relevant data from other domains, to enable the generation of beneficial analytical and prognostic environmental information services; and the research and development on which such services depend for their improvement.

**Component 6. Cross-cutting Issues**

1. Governance issues will be addressed through a correspondence working group involving representatives from each of the lead organisations/components and coordinated by a governance consultant engaged by the PCU. Two academic institutions will provide input: Centre for Resource Management and Environmental Studies (CERMES), University of the West Indies, Cave Hill Campus, Barbados and the Marine Affairs Program, Dalhousie University, Halifax, Nova Scotia, Canada.
2. **The Centre for Resource Management and Environmental Studies (CERMES)**, University of the West Indies, Cave Hill Campus, Barbados http://www.cavehill.uwi.edu/cermes/ was established in 1987 to promote and facilitate sustainable development in the Caribbean and beyond through: graduate education, applied research, innovative projects, and involvement in the national regional and global initiatives. CERMES provides advisory services to governments, NGOs and the private sector, offers applied consulting services related to environmental issues and builds awareness and capacity through outreach. CERMES has been the lead for the governance component of the Caribbean Large Marine Ecosystem Project through developing governance assessment methodology and conducting assessments.
3. **The Marine Affairs Program Marine Affairs Program, Dalhousie University, Halifax, Nova Scotia.** Dalhousie is committed to Ocean Studies as an area of distinctive strength and excellence. The Marine Affairs Program, offers a professional education at the graduate level for ocean managers through its Master of Marine Management (MMM) degree. The staff of the program and its affiliates conduct research on marine affairs throughout the world and provide advice to governments and international organisations on coastal and marine governance.
4. A Crosscutting Socioeconomic Issues Correspondence Working Group has been established during the MSP. The Correspondence Working Group consists of thematic partners (socioeconomic experts) of each of the five Working Groups. Its functions are to identify the crosscutting socioeconomic indicators, the global input data sets and methods that all Working Groups will use to complete their respective assessments. Working Group members include experts from the University of Frankfurt, Texas State University, Columbia University Center for International Earth Science Information Network and independent resource persons.

**Component 7. Data and Information Management**

1. **UNEP/GRID - Global Resource Information Database (GRID) – Lead Organisation.** UNEP GRID - Global Resource Information Database (GRID) is a global network of environmental data centres facilitating the generation and dissemination of key environmental geo-referenced and statistical data-sets and information products, focusing on environmental issues and natural resources. GRID centres typically have the ability, expertise and specialized information technology (environmental data management, remote sensing/Geographic Information Systems) to prepare, analyse and present environmental data and information, which are the basis for reliable environmental assessments. They aim to provide and facilitate access to environmental data and information for decision-making and policy setting, and to underpin UNEP's review of the state of the world's environment and provide early warning on emerging environmental threats.
2. **The Government of Switzerland (CH-FOEN) and the University of Geneva (UniGe) – Core Partner.** The Swiss Federal Office for Environment (FOEN) is the lead agency of the Swiss Government for environmental matters. FOEN's participation in the Partnership with UNEP/DEWA/GRID-Geneva and the University of Geneva is based on its interest in strengthening UNEP in its scientific role as a central pillar of international environmental governance. Major goal of the Partnership is to improve access to environmental data and information for decision-making along with the scientific base of UNEP's assessment and early warning activities and outputs. The Partnership focuses on environmental data and information-related activities for assessment and early warning, including: facilitating access to and collection of a wide range of environmental data and information; broadening and strengthening networks for environmental assessment and early warning; and providing assistance and know-how for the use of information technologies and tools (GIS, remote sensing, Internet/web use, etc.).The Institute for Environmental Sciences (IES) of the University of Geneva (UniGe) shall contribute to the data management component of the TWAP through technical development of the TWAP Data Platform (or Portal) that links assessment results from Components and additional data and indicators and presents these in a harmonized way for use by TWAP stakeholders. The TWAP Data Platform will be linked to the main TWAP project website and any other relevant websites.

**2.6 Baseline analysis and gaps**

1. As described above, currently there is no global programme focussing on transboundary water assessment in the world. Except in the case of a very limited number of transboundary waterbodies, there is no regular monitoring or assessment programme, and baselines for the health of these waterbodies or trend in changes in them have not been established. The TWAP methodologies for the five transboundary water systems finalised during the medium sized project are largely based on years of work by numerous world renowned institutions on various aspects of water systems analysis, monitoring, and management. The GEF International Waters focal area has also spent considerable funds to address transboundary concerns identified by countries based on system-specific analyses of the transboundary waters and the root causes of degradation of their living resources and environment.
2. The data, information, modelling results and expertise required to complete a global assessment of transboundary waters are presently scattered among different sources, including governments, regional organisations, academic networks funded by governments, research programmes, private sector, and local and indigenous communities. Systematic utilization of the enormous data and information base and expertise in an integrated manner will take advantage of potential synergies to produce the TWAP assessment in an efficient and cost effective manner. This requires the formalization of the existing informal partnership network that holds these diverse sources of data and expertise. Together with the establishment of institutional arrangements, this will provide a sustainable, cost-effective process for transboundary waters assessments. Many of these institutions have already participated in the MSP, and have indicated their interest in participating in the proposed project.
3. In addition to the difficulties associated with scattered data and information, another problem is that, despite the existence of many global-scale water assessment programmes (run by UN and other international or regional organisations), they do not highlight transboundary issues, which require more attention from the riparian and littoral countries. This factor is an impediment to allow the cross-comparisons of water systems of the same type (river basins, lake basins, groundwater aquifers, etc.).

***The Baseline Projects***

1. The conduct of systematic and indicator-based assessments for groundwater aquifers, lake basins, river basins, large marine ecosystems, and the open ocean around the globe, will build on the baseline further described below. The added value of GEF incremental funding through the TWAP will be the transformation of dispersed information into an integrated assessment useful to underpin high-level management decisions that should ultimately lead to enhanced sustainability of the ecosystem goods and services associated with transboundary waters. Through the activities of this project, the GEF will integrate the outcomes of the baseline assessment programmes of relevant partners, thereby facilitating the acquisition and analysis of the data, information and modelling results that are fundamental to producing the needed holistic approach to global transboundary waters assessment.
2. ***Transboundary Aquifers.*** The programmatic baseline for the Transboundary Aquifers (TBAs) Assessment is largely based on the relevant work and activities of the four members of the TWAP groundwater coalition core group: UNESCO-IHP, IGRAC, the WWAP, and FAO. UNESCO-IHP has 35 years of institutional experience at the global scale, and its ISARM and Worldwide Hydrogeological Mapping and Assessment Programme flagship programmes provide access to the most comprehensive data and knowledge on TBAs available. IGRAC commands the Global Groundwater Information System, relevant TBA data sets and special thematic projects, as well as mapping of TBAs. The UN’s WWAP and World Water Development Reports I to III highlighted the most recent global-scale knowledge on freshwater resources. FAO’s Information System on Water and Agriculture provides comprehensive data on water resources and water use, including the Global Map of Irrigation Areas. The monetary value of these baseline programmes that contribute data, information and expertise to the TWAP assessment of Transboundary Aquifers is estimated at **30 million US$**. Incremental funding provided by the GEF will allow for addressing knowledge gaps, and advancing the knowledge on TBAs globally, by establishing a long-term partnership and pooling of data and information.
3. ***Transboundary Lake Basins.*** The Lake Basin assessment methodology builds on more than 25 years of intense, collaborative, international work on Integrated Lake Basin Management (ILBM) led by the International Lake Environment Committee (ILEC) Foundation **(25 million US$),** as well as monitoring and assessment activities carried out over recent decades in individual lake basins in countries throughout the world, global-level datasets not developed specifically for lakes and reservoirs, but nevertheless directly applicable to the TWAP assessment **(500 million US$)**. The value added by TWAP to this ongoing international work is to: (1) develop formal ILBM indicators applicable to transboundary lake basins, and (2) improve the integration of rivers, groundwater and Large Marine Ecosystem assessments and management within the ILBM concept.
4. ***Transboundary River Basins.*** The River Basins assessment methodology builds on ongoing baseline programmes of partners, worth **30-40 million US$ over the last 10 years**. This includes global modelling and assessments from the Universities of Kassel, Frankfurt, and New York, Center for International Earth Science Information Network, International Geosphere-Biosphere Programme (IGBP), and IUCN. This is complemented by projects and institutional experience in water governance associated with the UNEP-DHI Centre for Water and Environment (UNEP-DHI), Stockholm International Water Institute (SIWI), and Oregon State University. The assessment will utilize global datasets from the World Bank, FAO, United Nations Children’s Fund, World Health Organization, and the Global Water System Project, among other sources. Incremental funding provided by the GEF will allow for filling knowledge gaps and advancing the knowledge on transboundary river basins globally, by establishing a long-term partnership and pooling of data and information.
5. ***Large Marine Ecosystems.*** The TWAP LME assessments will build on a substantial programmatic baseline, consisting of a wide array of global, regional and national monitoring/observing and assessment programmes and datasets relevant to key indicators for assessing LMEs. These sources include satellite remote sensing information, empirical observations and mathematical modelling from organizations such as IOC-UNESCO, NOAA, UNEP, UNEP-WCMC, University of British Columbia ‘Sea Around Us’ project, IGBP, Centre for Resource Management and Environmental Studies, University of the West Indies; GESAMP and FAO. Similarly, baseline assessments can build on the State of the Marine Environment reports conducted periodically by the Regional Seas Conventions and Action Plans. The value of this programmatic baseline collectively amounts to about **10.5 million US$**. However, this baseline has not previously been harnessed in an integrated, coordinated manner for a comprehensive global assessment of LMEs. The GEF increment will catalyze a partnership among these and other key organizations to enable such a global assessment.
6. ***Open Ocean.[[6]](#footnote-6)*** The Open Ocean methodology builds on natural science observations and research coordinated globally by the Intergovernmental Oceanographic Commission of UNESCO’s (IOC-UNESCO) (GOOS). The IOC coordination effort of **1 million US$/year** leverages about **2 billion US$/year** of national investment in global ocean observations. A specific grant to IOC-UNESCO from the European Commission for the Global Earth Observation System of Systems interoperability for Weather, Ocean and Water) will underpin the information management and mapping in the assessment. Thematic partner programmes in climate (the World Climate Research Programme), ocean ecosystems and biodiversity (Center for Marine Assessment and Planning; UNEP-WCMC), fisheries (‘Sea Around Us,’ FAO), pollution (GESAMP), and marine governance (Centre for Resource Management and Environmental Studies, University of the West Indies; Dalhousie University) have elements essential to the TWAP Open Ocean assessment. The scientific community is active in research on the link between human well-being and the management of the human impact on the open ocean, and a desk review of this literature will add to the assessment of potentially high-uncertainty but high-risk issues. The GEF increment will transform this extensive, but disperse, knowledge base into information of relevance to stakeholders, catalyzing political action and sounder policy and management.
7. ***UNEP’s baseline – a cross cutting contribution***. Consistent with its mandate to keep the state of the global environment under review, and to promote scientific assessments of current and emerging issues for policy and decision making purposes, UNEP is providing the world community with improved access to, and better understanding of, meaningful environmental data and information. In doing so, it also is helping to increase the capacity of governments to use environmental information for decision-making and action-planning for sustainable human development. UNEP also works closely with many partners and collaborating centres in all regions of the world, and has over time established functional networks for data, information, assessments and capacity development. Further, in carrying out its mission, primarily through its Division of Early Warning and Assessment (DEWA), UNEP is implementing or participating in several ongoing global and regional environmental assessments, as well as the planned UNGA 60/30 regular process for Global Reporting and Assessment on the State of the Marine Environment, including the socioeconomic aspects. UNEP’s role in incorporating science into multi-national water projects has continuously been demonstrated through its oversight functions and its leadership role in the framework of its Regional Seas Programme. This role includes development of a comprehensive framework for the study of various water systems, with the main objective of identifying, assessing and proposing best management options directed to fresh, coastal and marine waters. Under its Marine and Coastal Ecosystems Branch, UNEP coordinates the 18 Regional Seas Conventions and Action Plans representing 143 member countries. These quasi-legal frameworks provide valuable entry points for conducting regular assessments at the national and regional level, including over 30 years of experience in developing regional State-of-the-Marine Environment reports. Similarly, UNEP also participates in the freshwater agenda at the international and national level, promoting scientific assessment and access to scientifically-credible environmental data and information, and supporting capacity building through its Freshwater Programme and Strategy, the GPA, GEMS-Water Programme, GEO water cluster, etc.
8. The UNEP DEWA and UNEP Regional Seas programmes baseline contribution from its global and regional assessment programmes and datasets is valued at 2.5 million US$ to support the TWAP (Rivers-LMEs-OO). The assessments will build on existing assessments, with access to scientifically credible data and information being made available through UNEP’s programmes, and its long-term partnerships and networks. The GEF increment will facilitate the solidification of long-term coordinated partnerships in support of a periodic assessment process, the results of which will be of interest and value to scientists, decision-makers and the public. It will also promote and facilitate the incorporation of transboundary concerns into regular assessment programmes.

**2.7 Linkages with other GEF and non-GEF interventions**

1. The proposed project will have particularly close linkages with GEF IW projects. GEF programmes that relate directly to TWAP include its entire IW portfolio, which can use the assessments from TWAP for: prioritizing transboundary waterbodies for GEF projects; and the assessment methodologies in developing Transboundary Diagnostic Analysis Studies (TDA http://iwlearn.net/publications/TDAs) and Strategic Action Programmes (SAPs http://iwlearn.net/publications/SAP). At the same time, TWAP will benefit from GEF IW projects and other assessment activities through the capture of data and information and the sharing of experiences. The process of regular assessments will also provide a platform for GEF and other international and regional agencies to monitor the results of their interventions in transboundary waters.
2. In keeping with its mandate to keep under review the state of the global environment, DEWA is implementing or participating in several ongoing global and regional environmental assessments, as well as the UNGA 60/30 Regular Process. The proposed project will have close linkages with these activities and programmes, through the sharing of data and experiences. The project will also be closely linked with the Regional Seas Programme and the GPA. Other international agencies/organisations whose activities and programmes are particularly relevant to the project, and with which close partnerships will be established, include the following:

**(i) FAO** is involved in activities worldwide related to monitoring of fisheries resources and the promotion of responsible fisheries. It also maintains several pertinent databases and information systems of direct relevance to the project. These include time series of freshwater and marine fish landing statistics by country, which are also being used by the University of British Columbia Fisheries Centre in its Sea Around Us project to develop ecological indicators related to fishing for Large Marine Ecosystems. FAO also maintains databases and information systems;

**(ii) IOC** is engaged in pertinent activities and programmes directed to marine systems. Of particular importance is the Global Ocean Observing System , which the IOC has developed and is continuously implementing. Standard GOOS products currently include regular oceanographic measurements, and the system is being further developed to monitor and forecast indicators of marine pollution, primary productivity, sediment transport and erosion, among others;

**(iii) UNESCO** has two programmes with particularly close linkages with the project, including the International Hydrological Programme and the World Water Assessment Programme (WWAP, http://www.unesco.org/water/wwap). Since the inception of the International Hydrological Programme, progress has been achieved in developing methodologies for hydrological and groundwater studies, and for training and education in the water sciences. Greater emphasis is being placed on the role of water resources management for sustainable development, and the adaptation of the hydrological sciences to cope with expected changing climate and environmental conditions. The global Internationally Shared Aquifer Resources Management) programme is a multi-agency effort aimed at improving understanding of scientific, socioeconomic, legal, institutional and environmental issues related to management of transboundary aquifers. WWAP focuses on terrestrial freshwater, serving as an "umbrella" for coordination of existing UN initiatives within the freshwater assessment sphere. In this regard, it links strongly with the data and information systems of the UN agencies, examples being Global Resource Information Database (GRID), GEMS-Water (UNEP), Global Runoff Data Centre (WMO & FAO), International Groundwater Resources Assessment Centre (WMO and UNESCO), and the water supply and sanitation databases (World Health Organization and United Nations Children’s Fund). WWAP monitors freshwater issues and provides recommendations, develops case studies, enhances assessment capacity at a national level, and informs the decision-making process. The main objective of WWAP is ‘*to assess and report on the state, use and management of the world’s freshwater resources and the demands on these resources, define critical problems and assess the ability of nations to cope with water-related stress and conflict’* (WWAP 2000). The periodic publication of the World Water Development Report provides a comprehensive picture of the state of the world’s freshwater resources, that will be enhanced by the inclusion of transboundary issues in future reports;

**(iv) Land-Ocean Interactions in the Coastal Zone (LOICZ):** LOICZ has developed scientific knowledge and tools that address global change in the coastal zone, focusing on material flux and human dimensions at regional and global scales. Of relevance is the current development of a set of principles that provide the foundation for more efficient and responsible integrated management, by evaluating catchment and coastal governance with the capacity to respond to the impacts of global change. Central to this work is the interactions between practitioners and science;

**(v) GEF projects:** This project will have links with another IW MSP “Enhancing the use of science in International Waters projects to improve project results which aims at capacity building”. Lessons learnt from TWAP on assessments can be provided to the science MSP. While the TWAP will focus on environmental and resource status indicators, the science MSP focussed on process and stress indicators. This is complemented by continued further development and application of assessment models of material fluxes from land to sea, including nutrients, sediments and others (building on findings of the earlier UNEP/GEF IW project executed by LOICZ *“The role of the coastal Ocean in the disturbed and undisturbed nutrient and carbon cycles”*), and the framing topic of assessing and modelling coastal and marine system status and change within a coupled socio ecological system approach. Outcomes comprise current ecological system state and vulnerability, and resilience information and plausible future scenarios considering socio political developments, as well as climate change. LOICZ is taking a leading role in these integrative modelling and assessment approaches encompassing the whole catchment-coast water continuum as the relevant scale down to the continental margins. The proposed project will have close linkages with these above-noted activities and programmes, through the sharing of information, data and experiences;

**(vi) Regional Seas Programme:** the (RSP) covers 18 world regions, making it one of the most globally comprehensive initiatives for the protection of marine and coastal environments (http://www.unep.org/regionalseas/default.asp). Currently there are six UNEP-administered RSPs, seven non-UNEP administered RSPs and five independent RSPs. The RSP, an alliance between the Regional Seas Conventions and Action Plans constitutes a unique approach to the protection of the coastal and marine environment, mandated by the Governing bodies of the individual Regional Seas Conventions and Action Plans. The RSP is UNEP’s central mechanism for the implementation of activities relevant to Chapter 17 of Agenda 21 referring to the ‘Protection of the Oceans and Seas’. The RSP also provides an important platform for co-ordinated regional implementation of many of the governance outcomes and SAP activities of GEF under LME projects, as well as the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA), among other global initiatives, programmes and Multilateral Environment Agreements. The RSP fosters regional cooperation in the marine and coastal environment, which it accomplishes by stimulating the creation of 'Action Plans' for each region. These include a series of regional Conventions - unique legal instruments designed to protect shared environmental interests.

1. UNEP’s mission is to provide the world community with improved access to meaningful environmental data and information, and to help increase the capacity of governments to use environmental information in decision-making and in action planning for sustainable human development. The DEWA Water Assessment Strategy contributes to the overall implementation of the UNEP Water Policy and Strategy. The Strategy provides an integrated water assessment approach to address freshwater and coastal/marine water issues with greater focus and impact. With its partners, UNEP has made substantial investments over the years in the global and regional, as well as thematic state of the environment assessment and reporting processes. It is expected that UNEP, as well as other organizations, will integrate the methodology, as well as the results of the assessments, within other global cooperative assessment processes and programmes. The project will strengthen these processes by developing a foundation for providing the required data and information related to transboundary aquatic systems on a regular basis, as well as making available a methodology for use in assessing transboundary aquatic systems.

**Section 3: Intervention strategy (Alternative)**

**3.1. Project rationale, policy conformity and expected global environmental benefits**

1. As noted above the GEF’s Technical Advisory Group for strategy development in the International Waters (IW) focal area identified the need for a global Transboundary Waters Assessment Programme (TWAP) in early 2007, and the GEF Council included this in its approved GEF 4 Strategy for International Waters to assist in results-based management for the future.
2. Such a global, comprehensive assessment does not currently exist although the required elements are in place (institutions engaged in water related assessments, data and information). Many agencies including GEF-IW projects are collecting some assessment data and information, and global science organizations undertake modelling and projections based on the data collected. Additionally, there is no GEF programme for capturing and analysing the time series of data collected by GEF IW projects, which can be a valuable addition to global assessment. UNEP has the responsibility and comparative advantage for undertaking assessment in the GEF and globally through its various programmes. With fragmentation in the various agencies’ responsibilities and mandates, such a programme would be valuable globally. However, prior to the GEF funded medium sized project there was no catalyst to begin the complex process of bringing partners together to collaborate and share information toward the first global assessment and the longer term TWAP programme. Furthermore no standard methodology was available to undertake a global assessment of the five transboundary systems.
3. The medium-size project developed a partnership among organisations; a methodology for assessment/results tracking for each of the five categories of transboundary water systems (groundwater aquifers; lakes/reservoirs; river basins; large marine ecosystems; and open ocean areas) under the TWAP; and established the arrangements needed to conduct a baseline transboundary waters assessment through implementation of the present project. The data, the models and the sources of information are disparate, being located in many different places, including in government agencies. Details on the agreed methodologies and appropriate processes for conducting such assessments through the partnership are now available following completion of the MSP.
4. Future periodic assessments would be sustained through the partnership of agencies and organizations to be formally established under this project which will utilise data series collected by a number of agencies together with the GEF IW projects that will be useful to other assessments such as the UN Regular Process and to UNEP’s GEO process.
5. For the purposes of the assessment the Earth’s transboundary waters will be divided into five categories of transboundary water system (groundwater aquifers; lakes/reservoirs; river basins, large marine ecosystems; and open ocean). Information System (GIS) will be used to manage, analyze and visualize geographically referenced data including those that would be used to evaluate biophysical and gridded socioeconomic indicators. Data to support indicator assessment have been identified. Polygons will be utilised in a Geographic Information System to characterize individual systems as assessment units, such as individual lake basins or river catchments or a current, gyre system or region in the oceans. Various attributes would be assigned to those polygons for different assessment criteria/indicators/projections to enable a relative assessment among water systems within the five categories. Indicators to be used have been identified together with sources of information/data; and the assessment units have been identified.
6. The main concerns for assessing each of the five categories of the transboundary water systems have been identified. They may be assessed using indicators such as: groundwater extraction/discharge, groundwater recharge, contamination and vulnerability; water withdrawals, use, availability, shortage and projections; precipitation, variability, and projection; water quality, pollution loading estimates; aquatic/marine living resources and habitats, time series of harvesting, measures of threat or loss of value, primary productivity from satellite imagery, fishing pressure, by-catch estimates, etc. and freshwater wetlands as well as mangroves, coral reefs, sea-grass beds, tidal flats; ocean current fluctuations, oceanic ecosystems and living resources, warnings from satellite time series, and salinity changes.
7. Periodic worldwide assessments using the standard methodology will provide a means of tracking relative results over time for GEF purposes in setting priorities for its resource allocation, understanding of baseline environmental and water resource conditions and tracking the longer term results of its interventions. In this manner, GEF can make more effective use of its resources for addressing higher priority waterbodies, and also can determine and report on the impacts of its funding. UNEP and other UN organizations would use the results to contribute to the global assessments carried out by each organization (e.g., GEO of UNEP; UN-wide World Water Development Report coordinated by UNESCO, UN Regular Process. Regional organisations may use the assessment results as a baseline, and for tracking improvements in environmental and water resource situations against that baseline. National governments can use the results to establish national programmatic priorities between transboundary and domestic water issues.
8. The proposed global assessment will add value to the array of existing and planned national, regional and international water assessment activities and programmes, by developing a framework to produce a global assessment of major transboundary water systems based on data and information generated by these activities. By focusing the assessment process on data and information management, new assessment results can be obtained in a timely, cost-effective manner by regularly updating and revising data and information.
9. This project is fully consistent with GEF IV International Waters Strategy, which focuses on the targeted learning aspect of GEF IW projects. The mandate to establish a GEF Transboundary Waters Assessment Programme was identified in the GEF Council–approved International Waters Strategy (paragraph 38). The project will contribute to the Strategic Programmes 1-4 of the same strategy.

**3.2. Project goal and objective**

1. **Long-term goal:** To promote financing of future management and development of the environments and resources of transboundary water systems, through strong stakeholder engagement.
2. **Global environment objective:** To apply the agreed methodologies to the conduct of a global assessment of transboundary groundwater aquifers, lakes/reservoirs, river basins, large marine ecosystems, and the open ocean, and to formalize the partnerships and institutional arrangements for periodically conducting such global assessments.
3. **Project Objective:** To undertake the first global assessment of transboundary waterbodies, through a formalised consortium of partners, that will assist GEF and other international organizations to improve the setting of priorities for funding; and to formalise the partnership with key institutions aimed at incorporating transboundary considerations into regular assessment programmes, resulting in periodic assessments of transboundary groundwater, lake/reservoirs, river basins, large marine ecosystems, and open ocean areas.
	1. **Project components and expected results**
4. The overall assessment will consist of five independent assessments (sub-projects) of the five transboundary water systems, but with consideration of linkages between the systems and cross-cutting elements (socio-economic and governance). The project activities will be executed by the respective lead organisations in collaboration with core partners and through their networks of data providers and collaborators, operating under the direction of a Project Steering Committee (PSC) and advised by an independent, high level scientific and technical advisory committee (STAC). UNEP will establish a TWAP Secretariat to: facilitate the work of the partners; to organize meetings of the PSC and STAC; oversee financial transfers to the partners; be responsible for due diligence monitoring of the financial aspects of the project; oversee execution of project activities; and day-to-day liaison with the coordination units established by the partners to oversee the individual component implementation.

1. Component co-ordination units shall be established by each partner having responsibility for one of the transboundary water systems that constitute major components of the project, namely:

Component 1 UNESCO-IHP for transboundary aquifers and SIDS groundwater systems;

Component 2 ILEC for transboundary lake/reservoir basins;

Component 3 UNEP-DHI for transboundary river basins;

Component 4 IOC-UNESCO for large marine ecosystems (LMEs); and

Component 5 IOC-UNESCO for Open Ocean.

1. ***Component 1: Transboundary Aquifers and SIDS Groundwater Systems.*** The objectives of the transboundary aquifers (TBAs) component of TWAP are to (i) Provide a description of the present conditions of transboundary aquifers, and aquifers in small island developing states (SIDS), that will enable the GEF IW Focal Area to determine priority aquifers/regions for resources allocation; and (ii) bring to global attention the major issues, concerns and hotspots of these transboundary aquifer systems and SIDS aquifers, and to catalyze actions. The results of the TBA component (global assessment of transboundary aquifers, including socioeconomic and governance aspects) will assist GEF and other TWAP users in addressing the following key questions: (i) what human and ecosystem uses of these water resources are currently affected or impaired; (ii) how will water conditions and uses develop during the next decades; and (iii) where will these problems be occurring. It will also include provisional outlook projections to 2030 and 2050 for a limited number of indicators.
2. ***Component 2: Lake and Reservoir Basins.***  The objective of this component is to provide the GEF with a stakeholder-validated assessment of selected transboundary lake basins and ‘lakes at risk’, and linked lentic and lotic water systems, including socioeconomic and governance aspects, for setting science-based priorities for stakeholder attention. Such objectives include (i) identifying selected transboundary lake basins and linked lentic-lotic water systems; (ii) developing a set of relevant lake-basin indicators and data sources; and (iii) creating an evaluation framework to identify high-risk transboundary lake basins. In addition to being useful to the GEF, it is expected that lake basin managers, stakeholders and national governments will be able to use the results in establishing lentic-lotic programmatic priorities. Local basin-level stakeholders are also expected to benefit from the catalytic value provided by this stakeholder-based analysis. Based on available data, provisional outlook projections for a limited number of indicators also will be considered.
3. ***Component 3: River Basins.*** The TWAP river basins component will carry out a global comparison of all transboundary river basins, including selected deltas and lakes, in order to enable the prioritisation of funds for basins that are ‘at-risk’ from a variety of issues, covering water quantity, water quality, ecosystems, governance and socioeconomics. The assessment will be indicator–based, and will allow for an analysis of basins based on risks to societies and ecosystems. It will also include provisional outlook projections to 2030 and 2050 for a limited number of indicators. The TWAP will provide input to the development of the GEF Transboundary Diagnostic Analysis (TDA) and subsequent Strategic Action Programme (SAP) processes. Although the main end-user will be the GEF, other stakeholders, including donors, national governments, international agencies, and transboundary institutions of specific water systems (e.g., river basin organisations), will be encouraged to use the results to obtain an overview of global issues threatening human populations and ecosystems through the water system.
4. ***Component 4: LME.*** The LME assessment will be a global comparative baseline assessment of the current ecosystem state, trends, and stressors (drivers), with future projections and likely impacts to the years 2030 and 2050 where possible, of all 64 LMEs and the Pacific Warm Pool. The assessment will be based on a set of core indicators within the five LME modules (Productivity, Fish and Fisheries, Pollution and Ecosystem Health, Socioeconomics and Governance) and for which data are available globally. In addition, the assessment will include mapping of cumulative human impacts and the Ocean Health Index for LMEs. The comparative assessment, which will be conducted by a number of thematic partners, will enable identification of those LMEs in urgent need of intervention. The UNEP Regional Seas Programme and its network, and other regional (and national bodies where appropriate) will be engaged for verification of the global assessment, based on the regionally available data and information. The conduct of a more detailed (level 2) assessment in the Bay of Bengal LME through the GEF BOBLME project will be explored. Parallel financing will be provided by the BOBLME project. This will be developed under the FSP.
5. ***Component 5: Open Ocean.*** The open ocean assessment will address the identified challenges through a globally scoped assessment that directly addresses four broad themes: climate, ocean ecosystems, fisheries, and pollution. The assessment will take guidance from the human system side and the global governance arrangements already in place for the high seas, and focus on a global thematic assessment. A conceptual framework links human and natural systems, putting human well-being at the centre of concerns, but also allowing a focus where data is available, particularly on indicators of human-related stress on ocean systems. A global mapping approach will focus on indicators of natural and human system vulnerability, including projections where available. Individual expert assessments will complement the mapped indicators in identifying threats related to issues of high uncertainty, but also high potential impacts. The assessment will be done through a set of core and thematic partners.The socioeconomic and governance aspects will be covered in an examination and scenarios of human impact on ocean ecosystem services. This assessment will also include projections to 2030 and 2050 for a limited number of indicators that are key inputs for river and aquifer water systems.
6. ***Component 6: Cross-cutting Issues.*** This component will address governance and socioeconomic aspects as main sub-components of the cross-cutting issues.
* ***Governance.***Governance architecture or arrangements will be addressed as a common issue for all transboundary water system categories. The approach to the governance assessments will comprise two components. The first component will provide a holistic picture of governance arrangements for individual water systems within IW water categories. This will provide a basis for discussion on how to improve governance at the system level as well as on allocation of financial resources to systems within IW categories. It will also provide a baseline for future assessments. The second component will use the common governance assessment methodology to evaluate governance arrangements across selected systems in all five transboundary water system categories. This will explore the extent to which governance arrangements can be harmonized across categories to facilitate integration and address issues arising from linkages between systems in different categories...
* ***Socioeconomic Approaches.*** While embracing the geo-morphological and human-environment interactions that characterize each of the five transboundary water system categories, the cross-cutting social and economic features of these interactions provide a basis for a comparative, synthetic approach for examining common issues across them. Human population distribution, its growth and level of development along the margins of transboundary waters, the water-based livelihoods and the vulnerabilities of human communities to ecological changes and climate-related natural disasters, are critical core cross-cutting indicators for determining the dependencies of humans on transboundary waters, and the impacts of environmental degradation on human communities. When complemented with transboundary water system-specific metrics, these core socioeconomic indicators provide key elements for a thorough, integrated evaluation of human well-being and ecosystem health.
1. ***Component 7: Data and Information Management.*** A common data and information management portal /clearing house mechanism will be established to organize and present data and indicators used in the assessment in a consistent way, tailored for use by the TWAP stakeholders and where possible building on existing infrastructures and systems such as UNEP Environmental Data Explorer (formally GEO Data Portal), UNEPlive, Global Earth Observation System of Systems and others. Common and cross-cutting data sets, authoritative data sources, and key indicators will be identified and made easily accessible, in order to strengthen the science base and transparency of the assessment work, consolidate and archive the data used, and present the assessment results in a meaningful, appealing manner.  Suites of indicators for environmental state and trends, as well as anthropogenic and natural driving forces of changes in these systems, will be made available and presented in order to highlight the baseline conditions and changing states of ecosystems and associated pressures.  The data management component will make use of relevant regional and global databases and indicators to the extent possible, and of available systems and tools connecting other GEF projects and knowledge management system, such as International Waters Learning Exchange and Resource Network (IW:LEARN).
2. ***Component 8 Terminal Evaluation.*** An independent terminal evaluation of the project will be undertaken under the direction of the Evaluation and Oversight Unit of UNEP. Terms of Reference for this evaluation are contained in Appendix 9 of this document.
3. ***Component 9 Project Management.*** As noted elsewhere in this document a Project Coordinating Unit will be established within the Division of Early Warning and Assessment of UNEP charged with overall responsibility for the management of the project including the convening of STAC and PSC meetings, networking and communication with lead organisations and core partners and reporting to UNEP and the GEF.

**3.4 Intervention logic and key assumptions**

1. The proposed project follows a networked partnership approach to the conduct of the global assessment of transboundary waters. Based on the principles of partnership and networking the key international institutions involved in worldwide water assessments have agreed to participate in this project and in the network, in order to produce the first global assessment of transboundary waters. The expected outcomes are therefore the formal establishment of the network as the base for conducting periodic future assessments; and the assessment itself.
2. The potential risks to the project implementation are described in section 3.5 below, the key assumptions for this intervention are:
* Willingness of the core partners to co-operate in producing a global international waters assessment;
* Willingness of the thematic partners and the partners providing data and expertise to co-operate in producing a global international waters assessment;
* Willingness of stakeholders (including governments and regional bodies) to participate;
* Each component coordination unit will maintain regular contact with the Project Coordination Unit (PCU);
* The cross-cutting assessment component has the necessary expertise and access to the required data and information sources to develop their inputs to the global assessment;
* Each component coordination unit will maintain proper coordination among the participating institutions at the level of thematic partners and data providers; and
* Each component coordination unit has sufficient knowledge about the information availability, data/information gaps and realistic capacity to carry out actual assessment in the future.

**3.5 Risk analysis and risk management measures**

1. The potential risks to project implementation can be related in part to the assumptions given in section 3.4 above
2. The first two of these assumptions are deemed to provide a low risk since the partners have already co-operated in producing agreed methodologies during the execution of the medium sized project and have actively participated in the project preparation activities. Whilst a number of the national and regional level stakeholders have and will continue to take part in the regular assessment activities of the core and thematic partners the third assumption poses a somewhat higher (but still rather low risk), compared with the first two assumptions.
3. The assumptions that each component co-ordination unit will maintain regular contact with the PCU (assumption 4) and will maintain proper coordination among the participating institutions at the level of thematic partners and data providers are also considered to pose only low risks to successful project implementation since co-operation and contact during the implementation of the medium sized project was considered generally satisfactory.
4. The assumption that each component working group has knowledge of and access to the data and information required to undertake the global transboundary waters assessment is considered valid consequently this risk is deemed low.
5. To mitigate all these risks, the project will formalise partnerships of institutions that have developed their assessment methodologies and carried out assessments, in order to ensure that the GEF TWAP is built on the existing initiatives and on the data and information available.
6. There is a risk that the five transboundary water system assessment methodologies developed in the GEF TWAP MSP might not be fully implemented, due to the inability of partners to access critical information and data necessary for undertaking the assessment. This reflects the fact that the methodologies had to be adapted to a scaled down assessment resulting from the reduced size of the GEF grant. Data and information, including those involving all five transboundary water systems, as well as climate change effects, which are available through existing assessment activities undertaken by UN and other organisations, are nevertheless scattered among a large number of sources. This significant problem will be mitigated in the proposed project through establishment of strong partnerships with relevant UN and other organisations possessing such data and information. Initial agreements with relevant organisations and institutions were developed in the GEF TWAP MSP, and such agreements will be formalised during the proposed project, as a means of facilitating the global assessment of transboundary water systems, and for establishing sustainable assessment process at the global level. Possible risks and ratings, as well as the management strategy for dealing with each of them, are highlighted in the following table.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Table 1. Risks and Risk Management Strategy**

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| **Risk** | **Rating** | **Risk management strategy** |
| 1. A lack of adequate data/information for some transboundary waterbodies might hinder proper assessment of those waterbodies. | Medium | Through formalized partnerships with relevant organizations and resulting cooperative/joint work, all available data/information will be assessed and existing data gaps minimized. Basing the assessment on indicators for which data are available.Applying a modelling approach also might help resolve some data gaps. |
| 2. Methodologies to be applied in the assessments do not clearly show benefits to major partners (inter-governmental organizations, regional organizations, governments and private sector) for their participation in the assessments. | Low | The partnerships arrangements to be formalized should clearly identify the role of each participant in such a manner that the benefits for each partner/stakeholder in the project will be highlighted. |
| 3. The assessment might be too rapid and succinct and uneven in its assessment of the five systems.  | Medium | Committed partners, and a strong project coordination mechanism are needed to best harness the work done by all entities and ensure a meaningful comprehensive assessment. |
| 4. Participating partners insist on using their own assessment methodologies, without trying to achieve the overall objectives of the proposed project. | Medium | Active involvement of partners from the design phase and the beginning of the project implementation.Linking to ongoing assessment work of: (a) relevant assessment programmes of UN and other international agencies, including other GEF projects; (b) river and lake basin organizations; and (c) Regional Seas Conventions and Action Plans.Active monitoring coordination of implementation by the PCU |
| 5. Limited influence of national and regional stakeholders in promoting and sustaining transboundary waters assessment. | Medium | Cooperation with regional and national organisations to support sustainable transboundary waters assessment.Engagement with regional stakeholders in conducting/validating the assessment to promote their buy-in of the project.Capacity building of influential stakeholders for water system management.Use of media and targeted political messages to encourage the engagement of influential stakeholders. |
| 6. Limited capacity of stakeholders to implement the results of the assessment of transboundary water systems in order to improve water systems management.  | Low | Capacity building of stakeholders for implementing the results of the assessments. |
| 7. Discontinuation of involvement of partners, withdrawal of support by key partners (financial support, data and information, etc.) | Low | Continuous contact, interaction and consultation with partners. |
| 8. Difficulty in securing the multilateral national engagement required to ensure long-term periodic assessments. | High | A successful project that demonstrates benefits to donors and countries, as well as engaging these parties throughout the project. |
| 9. Difficulty in securing long-term incremental funding for periodic assessments. | Medium | A successful project that demonstrates benefits to donors and countries, as well as engaging with these parties throughout the project.  |

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**3.6 Consistency with national priorities or plans**

1. The proposed assessment is global in scope, and is thus meant to guide future GEF interventions in transboundary waterbodies for the ultimate benefit of developing countries, countries in transition, and Small Island Developing States. All potential beneficiary countries are GEF-eligible countries under the GEF IW focal area. While this proposed project is global in scope, it can potentially support existing GEF IW projects and all future GEF IW projects, most being country-driven, by providing feasible assessment methodologies that can be adapted and implemented for all transboundary water systems at multiple scales.
2. The TWAP assessment will also provide a basis for identifying regional and national priorities within the defined assessment units. The assessment will support efforts related to the protection and sustainable development of transboundary waters, by providing a scientific basis for policy interventions. The project will be closely linked with the UNEP Regional Seas Programme (RSP), under which 18 RS Conventions and action plans are in existence around the world, as well as with the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (GPA) and thus will assist member countries in the identification of issues of regional and transboundary significance.
3. The assessments will also support efforts towards achievement of the World Summit on Sustainable Development targets (which countries have endorsed) related to fishery stocks and improved access to freshwater and sanitation, for example, by allowing countries to track their progress towards achieving these targets, and for making required interventions. UNEP, together with other relevant partners, has endeavoured to support governments’ efforts to meet the goals, targets and objectives set out in the Johannesburg Plan of Implementation focusing on: (i) environmental monitoring, assessment and early warning; (ii) implementing the so-called water, energy, health, agriculture, and biological diversity agenda; and (iii) promoting policy integration.
4. Finally, countries have called for assessment of aquatic systems in general, including through the Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects (UNGA 60/30 Regular Process), and the World Water Assessment Programme (WWAP). Developed countries not eligible for GEF funding may also participate in the project. The input from these non-eligible countries is critical to the long-term success and sustainability of the assessment process, since they can contribute available expertise, resources, experiences and technical support, whilst also providing data and information without which any global assessment would be incomplete.

**3.7 Incremental cost reasoning**

1. GEF has invested one billion dollars since 1990 to address transboundary water concerns identified by countries based on system-specific analyses of the transboundary waters and the root causes for degradation of their resources and environment. There is currently no global/regional mechanism that specifically focuses on the assessment of transboundary water systems, although there are a number of global/regional assessment programmes which either focus on specific issues (such as fisheries), or which assess both transboundary and domestic issues together in a limited manner. There is currently no way to utilize the data arising from GEF international waters projects beyond the projects themselves, and there is no global system to track the status of these water systems over time, in order to determine whether they are improving or degrading. Without a framework such as that to be provided through this project, as outlined above, the GEF and international community risk spending scarce financial resources in the wrong places, and will not be able to demonstrate results over time relative to other waterbodies. This project will apply the agreed methodology, and formalise the needed partnerships and implementation arrangements with existing, fragmented programs to serve GEF corporate needs as specified in the International Waters Focal Area Strategy and Strategic Programming for GEF-4 and International Water Strategy for GEF-5 approved by the GEF Council.
2. The TWAP methodologies for the five transboundary water systems and cross-cutting issues are largely based on years of work by numerous world renowned institutions on various aspects of water systems analysis, monitoring, and management. The GEF International Waters focal area has also spent considerable funds to address issues of transboundary concerns identified by countries based on system-specific analyses of the transboundary waters and the root causes of degradation of their living resources and environment.
3. One of the major constraints to the effective management of transboundary waters at the present time is the lack of a systematic, periodic assessment of their changing conditions, and their subsequent impacts on human well-being. This weakens the basis for the GEF and other agencies setting priorities for funding, and for documenting the results of its investments in relation to the changing state of these transboundary systems. Without the assessment framework proposed by this project, the ability of the GEF and international communities to prioritize their interventions would remain limited. Under the business as usual scenario, the efforts to assess transboundary water systems around the world are likely to continue in an unsystematic and inefficient manner.
4. Without a global comparative baseline system assessment to determine priority transboundary concerns, and priorities for investments, and an institutional framework and agreed assessment methodology for tracking the status of these water systems over time to determine whether they are exhibiting improvement or continuing degradation, the GEF and the international community risk spending their scarce financial resources in a manner that is not cost–effective. Such a global, comprehensive assessment has not yet been undertaken, since the existing assessment situation is quite complex, with many agencies collecting some relevant information, and global science organizations undertaking modelling and making projections based on the data collected. Additionally, there is no GEF programme for capturing and analysing the time series of data collected by GEF IW projects, the latter being a valuable addition to a global assessment. The MSP, upon which this proposed project expands, has developed and validated an indicator-based assessment methodologies, and has established a consortium of partners ready to collaborate and share information toward such a global assessment.
5. The proposed project will provide GEF with tools for more effective allocation of GEF financial resources for priority waterbodies. It will also facilitate incorporation of “transboundary” aspects in ongoing and regular global water assessment programmes, as summarised above in “Baseline Projects” and presented in Appendix 2. The proposed projections of the states of the assessed transboundary waters for 2030 and 2050 will be used for policy applications. The project will also contribute to addressing specific data gaps identified during the MSP that are of critical importance for assessing the five water systems at the global level.
6. The project, as appropriate, will identify “high risk” transboundary aquifers, lake basins, river basins, and LMEs, as well as “high risk” issues related to the open ocean that will allow the most cost-effective use of available funds. While seeking to minimize costs, the project will also add value by utilizing: (i) GEF IW projects, ongoing assessment processes, current datasets and information, and (ii) a consortium of partners established during the MSP, and effective coordination among agencies carrying out regular assessments, which will result in a significant cost-effective system for assessment of transboundary waters, as well as helping to secure long-term sustainability of the assessment. Thus, the GEF contribution to this project is both catalytic and incremental. Given that the project will focus on assessing transboundary water concerns, it is wholly incremental to the baseline efforts. The proposed global assessment of transboundary water systems in identifying the most urgent problems, and therefore priorities, and the most cost-effective investments will help maximise global environment benefits.

**3.8 Sustainability**

1. The ultimate goal of the project is to establish a programme for periodic assessment of major transboundary aquatic systems and to provide a platform for the international community to evaluate and monitor the impacts of interventions in international waters. The sustainability of the project benefits and financing are partially addressed by its linkages with existing and planned regional and international research, monitoring, and assessment initiatives and programmes around the globe. Formalising the linkages between the major regional and international institutions and existing frameworks and programmes create a stable institutional basis for the future assessment process thus contributing to its sustainability over the long term. Finalisation of an appropriate and agreed framework, involving all major partners and stakeholders, will contribute further to the sustainability of the process.
2. With its partners, UNEP has made substantial investments over the years in global and regional, as well as thematic state of the environment assessment and reporting processes. It is expected that UNEP as well as other organizations will integrate the methodology, as well as results of the assessments, within other global cooperative assessment processes and programmes such as GEO and the Intergovernmental Panel on Climate Change. The project will strengthen these processes by developing a foundation for providing the required data and information related to transboundary aquatic systems on a regular basis, as well as making available the methodology for use in the assessment of transboundary aquatic systems.
3. Because of the reduced level of expected funding from GEF, targeted capacity building will not be carried out, but it is hoped that capacity would be strengthened through adoption of the methodology and assessment results. The expectation is that involvement of developing countries, SIDS, and countries with economies in transition, as well as Regional Seas Programmes, will become institutionalized in the process over the long-term, thus contributing to sustainability of the TWAP process. Coordination by DEWA, in partnership with established organizations such as IOC will promote the sustainability of TWAP, as these bodies establish TWAP as a mainstream feature of their long-term work programmes. Also, participation of the Regional Seas Programme will include quite a number of developed countries in the process. Sustainability of the project outcomes will also be achieved, in part, through GEF IW projects, especially through the participating countries, which will ultimately be involved in implementation of the methodology and whose capacity to conduct the assessment will be strengthened.
4. Further, the utility of the methodology to the intended users must also be proven. If the assessment is highly valued by its users, this would help in obtaining the financial resources and participation by stakeholders and the scientific community to repeat the process. This will be particularly important in terms of developing a platform for monitoring the impacts of management interventions in international waters by the international community. It is expected that the pilot data and information management system will be subsequently expanded and linked with similar systems, so that data and information could be easily updated as they become available. This will help to ensure the required information for the assessment is available on a sustained basis.
5. Financial sustainability of the assessment process will be sought by linking it with other regional and global assessment activities, particularly of UNEP, and the associated financial mechanisms. Moreover, financial sustainability will be more likely if the major national, regional and international partners and stakeholders are convinced of the value and feasibility of the methodology and assessment process. In adopting the methodology and being part of the assessment process, it is hoped that each of these bodies would take some financial responsibility for the assessment, monitoring and evaluation process itself. Further financing would be required at the global level through commitments from traditional funding and programmatic support. A wider set of financing sources (including private sources) will be identified and approached to support the continuation of the assessments.
6. It is envisaged that sustainability of the assessment process beyond the first GEF funded baseline assessment might be ensured amongst others through incorporation of the TWAP methodological approach into the work of the WWAP, and through improved recognition and use of the TWAP methodology in future regional and national water resources management programmes.

**3.9 Replication**

1. The project is not in itself intended to be replicated, however the global assessment of transboundary waters is expected to be repeated on a regular basis in order to track *inter alia* the impact of GEF and other interventions on the state of the environment and resources of transboundary water systems.
2. The assessment methodology completed during the MSP will be replicable in waterbodies not included in the initial global assessment, based on the results of the pilot assessments. It is intended that the methodology will be adaptable to the specific circumstances of each region, thus facilitating its replicability in different regions.
3. Replication of the assessment will also occur through adoption of the methodology in other regional and global assessment activities (e.g., Global Reporting and Assessment of the State of the Marine Environment, GEO) and programmes (e.g., Regional Seas), and linkage of the process with other assessments. GEF International Waters Learning Exchange and Resource Network (IW:LEARN) will be utilized to help foster the replicability of project outcomes among GEF IW projects. The capability to repeat the TWAP assessment will also exist because it will be founded on a sound conceptual framework. It is also hoped that the methodology would be adaptable and replicable in the assessment of other thematic areas, for example, biodiversity and land.
4. The Open Ocean component of the project and indeed the global assessment of the open ocean is somewhat distinct from the other components and systems in that regular assessments have not been undertaken in the past. The initial baseline assessment will therefore involve a heavy investment from GEF and the partners in this component of the project. This will itself constitute a strong contribution to the developing UN Regular Process, and serve the various thematic governance arrangements in place for the open oceans. Repeat assessments of the open ocean may attempt to assess all themes, or could concentrate on particular areas of concern identified by policymakers. Assessment of the metrics, indicators and indices will be the easiest component to implement again, and this is likely to be done by many of the TWAP open ocean assessment partners on an ongoing basis as the open ocean monitoring system develops.

**3.10 Public awareness, communications and mainstreaming strategy**

1. To raise awareness and promote buy-in for the assessment process by major stakeholders, partner organizations and experts, the opportunities to share data and information will be explored/identified. Opportunities to establish dialogue with these potential stakeholders and partners will also be identified at appropriate regional and global fora and members of the PSC will promote and broadcast information regarding the assessment at every opportunity. Options for an institutional mechanism will be evaluated, including the necessary networks mechanisms and financing. A project website will be established as part of the activities under the component on data and information management and this will be used to disseminate the products of the assessment globally.
2. The individual components will develop public awareness and communication strategies in conjunction with their regular assessment activities. The advice of science communication experts will be utilised in the TWAP as appropriate and all components will develop high quality graphical expressions of the mapping of the metrics, indicators, and indices that are a key part of the assessment. The assessment effort will place significant emphasis on the production of suitable summaries for policymakers, whilst a key target audience will be the GEF, its Council members, and the UN-Oceans family of agencies and their Member State representatives. The web will be used as much as is feasible for transparency in the assessment process and the data upon which it is based.

**3.11 Environmental and social safeguards**

1. The proposed project to conduct a global transboundary waters assessment will not of itself have direct environmental and social impacts; consequently the need for safeguards is limited. In order to ensure that social and economic issues are adequately addressed and included in the assessment in the future, the methodology has been designed to include the necessary social and economic issues.

**Section 4: Institutional Framework and Implementation Arrangements**

1. **Implementing Agency.** The Implementing Agency will be UNEP
2. **Executing Agencies.** DEWA (Nairobi) will be the primary Executing Agency of the project in partnership with UNESCO-IHP (transboundary aquifers and SIDS groundwater systems), IOC-UNESCO (large marine ecosystems and open ocean), ILEC (transboundary lakes and reservoirs), and UNEP-DHI (transboundary rivers) see Figure 1.
3. **Project Steering Committee (PSC).** A Project Steering Committee (PSC) will be established to oversee the implementation of the project. It will consist of representatives from **DEWA, UNEP-DHI, GEF Secretariat, IOC-UNESCO, UNESCO-IHP, ILEC, UNEP/DEWA/GRID-Geneva**. It will meet at least annually during the life of the project, and generally provide policy guidance and advice to the management team regarding the progress and direction of the project; review and approve the overall project work plan against budget allocations; review progress reports; review and approve the overall budget, and project monitoring, evaluation and audit reports; provide general oversight of project implementation; establish the operational agreements with co-executing agencies; and assist with outreach, administration and other tasks. The PSC will also monitor the progress of the project and approve any major changes to the project’s strategic direction and work plan. It will establish timelines and agree baselines for provision of agreed outputs and maintain focus on the project overall goal and objectives. The membership and terms of references of this committee are contained in Appendix 11.

Figure 1. TWAP Organogram

1. **Scientific and Technical Advisory Committee (STAC).** Members of the TWAP Scientific and Technical Advisory Committee will include STAP member together with a selection of independent expert members of high international standing representing each of the five transboundary water systems. The functions of the STAC shall include the provision of advice on scientific and technical matters to all levels of the project, but particularly to the Project Steering Committee. The Lead Agencies for each component will nominate potential members of the STAC who will be appointed by the PSC. Terms of Reference for the STAC are found in appendix 11 of this document,
2. **Project Coordination Unit (PCU) -** The Project Coordination Unit (PCU) will be based in UNEP’s Division of Early Warning and Assessment (DEWA), in Nairobi, Kenya and will serve as the TWAP Project Secretariat. The unit will be headed by a Project Manager (a UNEP staff member), and the team shall consist of technical advisors from DEWA, administrative support staff and consultants as required. The staffing of the PCU and terms of reference for individual members are contained in Appendix 11 of this project document. The PCU will be responsible for project management, organizing meetings of the PSC and STAC, liaison with the component coordinating units, and liaison with UNEP/GEF and GEF.
3. The organisations responsible for each component shall establish component coordination units the functions of which shall include: liaison with the core and thematic partners and data providers within their respective components; provision of a focal point of contact between and among components; liaison with the UNEP PCU on the implementation of the component and execution of activities; coordination of inputs to the data and information systems established under the project and to the integrated global assessment as required.

**Section 5: Stakeholder participation**

1. The proposed project will formalize partnerships and institutional arrangements with various UN agencies, regional organisations (including governments participating in such regional organisations), international/regional NGOs and scientific organizations established during the MSP, in order to carry out the global assessment of the five categories of transboundary water systems, including interlinkages and cross-cutting issues. Periodic, sustainable, global assessment processes will be established through such partnerships, and will engage a wide range of stakeholders. Through these partnerships, detailed processes and procedures for collecting and sharing data and information available for all partners and stakeholders will be established, as well as application of modelling approaches and data and information management.
2. UNEP, other UN organisations and all participating partners will use the results to contribute to the regional and global assessments carried out by their organizations, such as the Global Environment Outlook and the Marine Biodiversity Assessment and Outlooks of UNEP, UNGA led Regular Process and UN-wide World Water Development Report coordinated by UNESCO. Regional organizations might serve as platforms for implementation of assessments, and may use the assessment results as a baseline to track improvement of the environmental and water resources conditions. National governments would use the results to set national programmatic priorities between transboundary and domestic water issues, and will be engaged as key stakeholders through UNEP, UNESCO-IHP and IOC-UNESCO. The project will provide a robust scientific basis to demonstrate results to donors, as well as presenting a common understanding of the issues and concerns in transboundary waters. Principles of transparency, and inclusiveness of national and regional stakeholders and civil society, will be encouraged throughout this project.
3. The main stakeholder or client for the proposed project is nevertheless the GEF. Indeed, the GEF has invested over a billion dollars to date in addressing transboundary water concerns in multi-country water systems, without a global assessment comparable to those of the Intergovernmental Panel on Climate Change, the Global Biodiversity Assessment, or the Stratospheric Ozone Assessment. This situation has proven to be a unique and serious impediment to the International Waters focal area. Further, the GEF needs to document the results of its investments through periodic global assessments. Thus, it is expected that, because of the proposed global baseline system assessment to facilitate the identification of priority transboundary concerns, and hence priorities for investments, the GEF will be able to invest its scarce financial resources in a cost-effective manner.
4. As outlined in section 2.5 of this document, key stakeholders in water assessments have been brought together in a partnership to undertake the global assessment of transboundary waters, the full list of partners is presented in the following table (Table 2).

**Table 2 Lead and Partner Organisations for each of the Components**

|  |  |  |
| --- | --- | --- |
| **LEAD and CORE PARTNERS** | **REGIONAL PARTNERS** | **DATA/ EXPERTISE PROVIDERS** |
| **AQUIFERS** |
| International Hydrological Programme of UNESCO - Lead | UN Economic and Social Commission for Western Asia | German Federal Institute for Geosciences and Natural Resources |
| International Groundwater Resources Assessment Centre | UN Economic and Social Commission for Africa | International Atomic Energy Agency |
| World Water Assessment Programme | UN Economic and Social Commission for Europe | Goethe University of Frankfurt |
| Internationally Shared AquiferResources Management | Organization of American States  | University of Western Cape & UNESCO Chair |
| Food and Agriculture Organisation of the United Nations | Economic Community Of West African States  | International Association for Water Law |
| Swiss Agency for Development and Cooperation  | Southern African Development Community  | UNESCO Chair and Network / International Network of Water-Environment Centres for the Balkans (INWEB) at the Aristotle University of Thessaloniki, Greece |
| World-wide Hydrogeological Mapping and Assessment Programme  | Economic Community of Central African States  | University of Arizona |
|  | Intergovernmental Authority on Development  | Research Institute for Humanity and Nature (Kyoto, Japan) |
|  | Sahara and Sahel Observatory | China University of Geosciences |
|  |  | International Association of Hydrogeologists |
|  |  | Simon Fraser University  |
|  |  | San Francisco State University  |
| **LEAD and CORE PARTNERS** | **THEMATIC PARTNERS** | **DATA/ EXPERTISE PROVIDERS** |
| **LAKE AND RESERVOIR BASINS** |
| International Lake EnvironmentCommittee - Lead | Research Institute for Humanity and Nature Inter-University Research Institute Corporation, Japan | National Aeronautics and SpaceAdministration (USA) |
| UNEP-Division of Early Warning and Assessment  | Russian Academy of Sciences | United States Geological Survey |
| Research Center for Sustainability and Environment, Shiga University | Chinese Academy of Sciences | European Space Agency  |
| International Center for Watershed Studies, Texas State University | Lake Laguna Development Authority Philippines | Center for International Earth Science Information Network  |
|  | Chilika Development Authority, India | Global Mapping International |
|  | Federal University of Rio De Janeiro Brazil | Global Water System Project |
|  | Indian Association of Aquatic Biologists | International Commission on Large Dams |
|  | University of Palermo, Italy | United States Department of Agriculture |
|  | University of Nairobi, Kenya | United Nations Development Programme |
|  | UNEP-GEMS/Water | Oregon State University |
|  | PRO-LAGO Atitlan, Guatamala | World Bank |
|  |  | National Geospatial-Intelligence Agency |
|  |  | Global Water Partnership |
|  |  | Global Climate Data (WORLDCLIM) |
|  |  | Oak Ridge National Laboratory global population distribution data (LandScan )  |
|  |  | Meadows Center for Water and the Environment, Texas State University |
|  |  | International Environmental Management Services, Wisconsin, USA |

**Table 2 cont. Lead and Partner Organisations for each of the Components**

|  |  |  |
| --- | --- | --- |
| **LEAD and CORE PARTNERS** | **THEMATIC PARTNERS** | **DATA/ EXPERTISE PROVIDERS** |
| **LAKE AND RESERVOIR BASINS** |
|  |  | United Nations Population Fund |
|  |  | University of New Hampshire |
|  |  | Global Administrative Areas Database |
|  |  | Ministry of Environment (Japan) |
|  |  | Japan International Cooperation Agency |
|  |  | Government of Shiga Prefecture, Japan |
| **RIVER BASINS** |
| UNEP- DHI - Lead | City University of New York | Food and Agriculture Organisation of the United Nations (FAO) |
| International Union for the Conservation of Nature (IUCN) | University of Kassel | United Nations Children’s Fund |
| Stockholm International Water Institute | University of Frankfurt | World Health Organization |
|  | Oregon State University | World Bank |
|  | International Geosphere-Biosphere Programme | International Water ManagementInstitute |
|  | Center for International Earth Science Information Network | Global Water System Project |
|  |  | International Commission on Large Dams |
|  |  | World Fish Centre |
|  |  | Rotterdam and Stockholm Convention Secretariats |
| **LARGE MARINE ECOSYSTEMS** |
| Intergovernmental Oceanographic Commission of UNESCO - Lead | UNEP-Division of Environmental Policy Implementation  | Community Surface Dynamics Modelling System Facility, Univ. Colorado |
| National Oceanic andAtmospheric Agency (USA) | Univ. of West Indies -Centre for Resource Management and Environmental Studies  | Food and Agriculture Organisation of the United Nations (FAO) |
| UNEP Division of Early Warning and Assessment | Univ. British Columbia Fisheries Centre  | Global Resource Information Database Arendal  |
|  | Joint Group of Experts on TheScientific Aspects of MarineEnvironmental Protection | Global Resource Information Database -Geneva  |
|  | International Geosphere-BiosphereProgramme | National Oceanic and Atmospheric Administration (USA) |
|  | Center for Marine Assessment andPlanning | Land Ocean Interactions in the Coastal Zone  |
|  | World ConservationMonitoring Centre (of UNEP) | International Union for the Conservation of Nature  |
|  |  | International Union for the Conservation of Nature World Commission on Protected Areas  |
|  |  | Regional Seas Programmes  |
|  |  | University of Rhode Island  |
|  |  | UNEP-Division of Early Warning and Assessment |
|  |  | International Pellet Watch Programme(Laboratory of Organic Geochemistry, Tokyo University of Agriculture and Technology, Tokyo, Japan). |
|  |  | World Bank |

Table 2 cont. Lead and Partner Organisations for each of the Components

|  |  |  |
| --- | --- | --- |
| **CORE PARTNERS** | **THEMATIC PARTNERS** | **DATA/ EXPERTISE PROVIDERS** |
| **LARGE MARINE ECOSYSTEMS** |
|  |  | National Geographic Society  |
|  |  | National Aeronautic And Space Agency (USA) |
|  |  | The Nature Conservancy  |
|  |  | UNEP Division for Technology, Industry and Economics Chemicals UNEP Global Mercury Partnership |
|  |  | WorldFish Center  |
|  |  | University of Kiel  |
|  |  | World Resources Institute |
|  |  | Dalhousie University |
|  |  | International Society for Mangrove Ecosystems; International Tropical Timber Organization; United Nations University Institute for Water, Environment, and Health |
| **OPEN OCEAN** |
| Intergovernmental Oceanographic Commission of UNESCO - Lead | Center for Marine Assessment and Planning | National Oceanic and Atmospheric Agency, National Oceanographic Data Center (USA) |
| European Commission -Global Earth Observation System of Systems interoperability for Weather, Ocean and Water | World Climate Research Programme | NOAA-AOML |
| UNEP-Division of Early Warning and Assessment (DEWA) | International Ocean CarbonCoordination Project | Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology |
| Global Ocean Observing System | University of British Columbia – Fisheries Centre | Univ. Plymouth- European Space Agency Climate Change Initiative |
|  | Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) | Dalhousie University |
|  | Univ. of West Indies -Centre for Resource Management and Environmental Studies | Food and Agriculture Organisationof United Nations |
|  | Plymouth Marine Lab | International Seabed Authority |
|  | Global Alliance of Continuous Plankton Recorder Surveys -Sir Alister Hardy Foundation for Ocean Science | IUCN- Global Ocean Biodiversity Initiative |
| **DATA AND INFORMATION MANAGEMENT** |
| UNEP/DEWA/GRID-Geneva (lead) |  |  |
| Government of Switzerland (CH-FOEN) and University of Geneva (UniGe) |  |  |

1. The modes of operation of these primary stakeholders (core partners) are briefly introduced in the following sections that reflect the five major components of the project.

**Transboundary Aquifers**

1. The UNESCO-IHP National Committees will play an important role in the Project’s implementation by organising regional meetings and producing national reports. Often being attached to Ministries (such as Ministry of Water; Ministry of Environment; Ministry of Foreign Affairs; etc.) or National Authorities (such as Water Authorities, Geological Surveys, etc.) the National Committees provide an opportunity to connect to the national and regional policy framework. The Organization of ad hoc TWAP sessions in UNESCO ISARM regional workshops will further enhance stakeholder participation on local, national and regional level.

**Transboundary Lake/Reservoir Basins**

1. The sustainability of the lake/reservoir Assessment Methodology will rest on its acceptability and utilization by relevant transboundary lake basin authority activities and/or donors/funding agencies. ILEC will forge links for the assessment process with transboundary lake authorities including but not limited to: (i) Lake Titicaca Binational Authority; (ii) Lake Victoria Basin Commission; (iii) Lake Chad Basin Commission; (iv) International Commission for Protection of Lake Constance; (v) Zambezi Watercourse Commission; (vi) Lake Malawi Basin Commission; (vii) Estonia-Russia Transboundary Water Commission; (viii) Lake Tanganyika Lake Management Authority; and (ix) Lake Laguna Development Authority, and (x) International Joint Commission. Some of the river basin commissions include important transboundary lake basins, such as the la Plata Commission, and Central Asia Water Commission,

**Transboundary River Basins**

1. The primary target groups for participation in the transboundary river basins assessment are the national governments, basin administrations, communities and private sector representatives in countries with transboundary river basin concerns. The assessment will target supporting stakeholders such as international NGO’s, environmental media frameworks and the media itself and the academic community. Of particular importance to the work of the group are transboundary river basin commissions and regional and sub-regional organizations focussing on transboundary water resources..

**Large Marine Ecosystems**

1. Primary stakeholders include GEF, LME Commissions (e.g. Benguela Current LME), LME projects, agencies implementing/executing GEF LME Projects, LME Consultative Committee, UNGA Regular Process, and Regional Seas programmes. Among the other stakeholders are LOICZ, Helsinki Commission, other regional agencies/organizations, bordering countries, United Nations Convention on the Law of the Sea and other Conventions, Regional Fisheries Management Organizations, Regional economic groups (e.g. *Mercado Común del Sur* (Mercosur), Southern African Development Community, North American Free Trade Agreement, the Commission of the European Union, Asia-Pacific Economic Cooperation), NGOs, academic communities, donors and international financial institutions. A large number of national and regional political frameworks are already engaged in activities that are relevant to LME assessment and management.

**Open Ocean**

1. Since the open ocean falls largely within the “global commons” the primary stakeholder is United Nations Convention on the Law of the Sea closely followed by the GEF, and UNGA. The Regional Seas, Arctic Council, IWC, fisheries commissions, regional fisheries management organizations, International Seabed Authority, and other Conventions, regional economic groups (e.g. *Mercado Común del Sur* (Mercosur), Economic Community of West A*frican States, Southe*rn African Development Community, North American Free Trade Agreement, the Commission of the European Union, Asia-Pacific Economic Cooperation), private sector (shipping, oil and gas industries), NGOs, academic communities, donor and international financial institutions, all have an interest in the outcomes of the assessment and many will also contribute to it. Currently, the open ocean is of interest primarily to developed countries, which will also be among the primary stakeholders. Consideration should be given to developing an engagement and outreach plan, given the wide range of stakeholders and relatively low awareness of the open ocean.

**Section 6: Monitoring and evaluation Plan**

1. The project will follow UNEP standard monitoring, reporting and evaluation processes and procedures. Substantive and financial project reporting requirements are summarized in Appendix 8. Reporting requirements and templates are an integral part of the UNEP legal instruments to be signed by the executing agencies and UNEP.

1. The project M&E plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework presented in Appendix 4 includes Self-Monitoring, Analysis and Reporting Technology (SMART) indicators for each expected outcome as well as mid-term and end-of-project targets. These indicators along with the key deliverables and benchmarks included in Appendix 6 will be the main tools for assessing project implementation progress and whether project results are being achieved. The means of verification and the costs associated with obtaining the information to track the indicators are summarized in Appendix 2. Other M&E related costs are also presented in the Costed M&E Plan and are fully integrated in the overall project budget.
2. The M&E plan will be presented to the first meeting of the PSC to ensure project stakeholders understand their roles and responsibilities vis-à-vis project monitoring and evaluation. The PSC will be responsible for proposing to UNEP management any necessary amendments to the M&E plan during project implementation. Indicators and their means of verification may also be fine-tuned by the PSC. Day-to-day project monitoring is the responsibility of the PCU but other project partners will have responsibilities to collect specific information to track the indicators. It is the responsibility of the Project Manager to inform UNEP of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.
3. The Project Steering Committee will receive periodic reports on progress and will make recommendations to UNEP concerning the need to revise any aspects of the Results Framework or the M&E plan. Project oversight to ensure that the project meets UNEP and GEF policies and procedures is the responsibility to the Task Manager in UNEP-GEF. The Task Manager will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.
4. Project supervision will take an adaptive management approach. The Project Manager will develop a project supervision plan at the inception of the project which will be communicated to the project partners during the first meeting of the PSC. The Project Manager will also be responsible for initial screening of the financial and administrative reports from the core partners prior to their submission to the Finance and Management Divisions of the United Nations Office at Nairobi. Progress vis-à-vis the delivery of agreed project outputs will be assessed by the PSC at least annually. Project risks and assumptions will be regularly reviewed both by project partners and the PCU on behalf of UNEP. Risk assessment and rating is an integral part of the annual Project Implementation Review (PIR), preparation of which will be the responsibility of the Project Manager. The quality of project monitoring and evaluation will also be reviewed and rated as part of the PIR and the PSC shall clear the PIR prior to its final submission. Key financial parameters will be monitored quarterly to ensure cost-effective use of financial resources.
5. A mid-term management review will be conducted by the Task Manager in consultation with the Project Manager and the outcomes reported to the Project Steering Committee. An independent terminal evaluation will take place at the end of project implementation. The Evaluation and Oversight Unit of UNEP will manage both the mid-term and terminal evaluation processes.
6. An independent terminal evaluation will take place at the end of project implementation. The Evaluation and Oversight Unit of UNEP will manage the terminal evaluation process. A review of the quality of the evaluation report will be done by the Evaluation and Oversight Unit and submitted along with the report to the GEF Evaluation Office not later than 6 months after the completion of the evaluation. The standard terms of reference for the terminal evaluation are included in Appendix 9. These will be adjusted to the special needs of the project.
7. The GEF tracking tools are attached as Appendix 15. These will be updated at mid-term and at the end of the project and will be made available to the GEF Secretariat along with the project PIR report. As mentioned above the mid-term review and terminal evaluation will verify the information of the tracking tool.

**Section 7: Project Financing and Budget**

* 1. **Overall project budget**
1. The following table provides a summary by component of the project budget, full details of which are provided in Appendix 1 of Annex 1 of this document.

|  |
| --- |
| **Budget per Component - Summary Table - TWAP FSP**  |
| **Component** |
| **Project Sub-components/Activities/Sub-activities** | **GEF Funding**  | **Co-Financing**  | **Total Project Cost**  |
| **Component I: A global comparative baseline assessment of Transboundary Aquifers (TBAs) and SIDS groundwater systems** | **1,500,000** | **11,114,000** | **12,614,000** |
| **Sub-component I.1: Assessment of TBAs and SIDS groundwater systems** | **1,370,000** | **10,524,000** | **11,894,000** |
| **Activity I.1.1: Data and Information Gathering** | 490,000 | 4,650,000 | 5,140,000 |
| Sub-activity 1: For major TBAs | 270,000 | 3,600,000 | 3,870,000 |
| Sub-activity 2: For SIDS groundwater systems | 70,000 | 950,000 | 1,020,000 |
| Sub-activity 3: Modeling and remote sensing | 150,000 | 100,000 | 250,000 |
| **Activity I.1.2: Assessment of TBAs and SIDS groundwater systems** | 600,000 | 5,024,000 | 5,624,000 |
| Sub-activity 1: Assessment for major TBAs | 350,000 | 4,059,400 | 4,409,400 |
| Sub-activity 2: Assessment for SIDS | 110,000 | 804,600 | 914,600 |
| Sub-activity 3: Determine priority aquifers/regions | 23,000 | 60,000 | 83,000 |
| Sub-activity 4: Outlook projections for 2030 and 2050 | 117,000 | 100,000 | 217,000 |
| **Activity I.1.3: Assessment Reporting**  | 80,000 | 100,000 | 180,000 |
| Sub-activity 1: Comprehensive Report on major issues for TBA & SIDS | 80,000 | 100,000 | 180,000 |
| **Activity I.1.4: Data and information management system** | 200,000 | 750,000 | 950,000 |
| **Sub-component I.2: Sustainability of the TBA assessment** | **50,000** | **290,000** | **340,000** |
| **Activity I.2.1: Establishment of a periodic assessment system** | 50,000 | 290,000 | 340,000 |
| Sub-activity 1: Sustainability of consortium of partners | 15,000 | 70,000 | 85,000 |
| Sub-activity 2: Sustainability of the assessment process | 15,000 | 70,000 | 85,000 |
| Sub-activity 3: Sustainability of the TBA data and information management system | 20,000 | 150,000 | 170,000 |
| **Sub-component I.3: Coordination of the assessment process**  | **80,000** | **300,000** | **380,000** |
| **Activity I.3.1: Coordination of the assessment process**  | 80,000 | 300,000 | 380,000 |
|  |
| **Component II: A global comparative baseline assessment of Transboundary Lake Basins and Lake Basins at risk** | **300,000** | **1,222,000** | **1,522,000** |
| **Sub-component II.1: Assessment of Lake Basins** | **275,000** | **877,000** | **1,152,000** |
| **Activity II.1.1: Data and Information Gathering** | 68,750 | 425,500 | 494,250 |
| Sub-activity 1: For transboundary lake basins  | 34,375 | 212,750 | 247,125 |
| Sub-activity 2: For lake basins at risk | 24,063 | 148,925 | 172,988 |
| Sub-activity 3: For linked lentic and lotic water systems | 10,313 | 63,825 | 74,138 |
| **Activity II.1.2: Transboundary Lake Basins assessment** | 178,750 | 401,500 | 580,250 |
| Sub-activity 1: Assessment for transboundary lake basins  | 44,688 | 120,450 | 165,138 |
| Sub-activity 2: Assessment for lake basins at risk | 53,625 | 100,375 | 154,000 |
| Sub-activity 3: Assessment for linked lentic and lotic water systems | 17,875 | 40,150 | 58,025 |
| Sub-activity 4: Assessment of cross-cutting issues (socioeconomic issues, governance)  | 17,875 | 40,150 | 58,025 |
| Sub-activity 5: Validation process | 8,938 | 20,075 | 29,013 |
| Sub-activity 6: Determine priority Lake Basins | 17,875 | 40,150 | 58,025 |
| Sub-activity 7: Outlook projections for 2030 and 2050 | 17,875 | 40,150 | 58,025 |
| **Activity II.1.3: Assessment Reporting**  | 27,500 | 50,000 | 77,500 |
| Sub-activity 1: Report on major issues for transboundary lake basins and lakes at risk + linked lentic and lotic water systems | 11,000 | 20,000 | 31,000 |
| Sub-activity 2: Report on priority transboundary lake basins and lakes at risk + linked lentic and lotic water systems | 11,000 | 20,000 | 31,000 |
| Sub-activity 3: Report on needed responses | 5,500 | 10,000 | 15,500 |
| **Sub-component II.2: Sustainability of the Transboundary Lake Basins Assessment** | **20,000** | **198,000** | **218,000** |
| **Activity II.2.1: Establishment of a periodic assessment system** | 20,000 | 198,000 | 218,000 |
| Sub-activity 1: Sustainability of consortium of partners | 8,500 | 84,150 | 92,650 |
| Sub-activity 2: Sustainability of the assessment process - an evaluation framework to identify high risks transboundary lake basins | 8,500 | 84,150 | 92,650 |
| Sub-activity 3: Data and information management system | 3,000 | 29,700 | 32,700 |
| **Sub-component II.3: Assessment Coordination** | **5,000** | **147,000** | **152,000** |
| **Activity II.3.1: Lakes Subproject Management** | 5,000 | 147,000 | 152,000 |
|  |
| **Component III: A global comparative baseline assessment of Transboundary River Basins** | **1,500,000** | **6,191,731** | **7,691,731** |
| **Sub-component III.1: Water quantity & quality** | **385,000** | **1,778,000** | **2,163,000** |
| **Activity III.1.1: Environmental water stress - current** | 85,000 | 303,000 | 388,000 |
| **Activity III.1.2: Environmental water stress - projected** | 35,000 | 100,000 | 135,000 |
| **Activity III.1.3: Agricultural water stress** | 30,000 | 350,000 | 380,000 |
| **Activity III.1.4: Urban water quality** | 30,000 | 200,000 | 230,000 |
| **Activity III.1.5: Lake Influence** | 30,000 | 0 | 30,000 |
| **Activity III.1.6: Human water stress - current** | 60,000 | 150,000 | 210,000 |
| **Activity III.1.7: Human water stress - projected**  | 35,000 | 50,000 | 85,000 |
| **Activity III.1.8: Nutrients - current** | 50,000 | 450,000 | 500,000 |
| **Activity III.1.9: Nutrients - projected** | 30,000 | 175,000 | 205,000 |
| **Activity III.1.10: Water quantity & quality reporting** | - | - | - |
| **Sub-component III.2: Ecosystems**  | **185,000** | **1,410,231** | **1,595,231** |
| **Activity III.2.1: Biodiversity & habitat loss** | 120,000 | 815,231 | 935,231 |
| **Activity III.2.2: Ecosystem integrity** | 35,000 | 550,000 | 585,000 |
| **Activity III.2.3: Threats to fish** | 30,000 | 45,000 | 75,000 |
| **Activity III.2.4: Ecosystems reporting**  | - | - | - |
| **Sub-component III.3: Governance** | **225,000** | **1,280,000** | **1,505,000** |
| **Activity III.3.1: Governance architecture** | 85,000 | 150,000 | 235,000 |
| **Activity III.3.2: Institutional resilience - current** | 30,000 | 223,000 | 253,000 |
| **Activity III.3.3: Institutional resilience - projected** | 60,000 | 227,000 | 287,000 |
| **Activity III.3.4: Enabling environment** | 50,000 | 680,000 | 730,000 |
| **Activity III.3.5: Governance reporting** | - | - | - |
| **Sub-component III.4: Socioeconomics** | **140,000** | **1,200,000** | **1,340,000** |
| **Activity III.4.1: Economic dependence on water resources** | 40,000 | 375,000 | 415,000 |
| **Activity III.4.2: Societal well-being** | 35,000 | 275,000 | 310,000 |
| **Activity III.4.3: Vulnerability to climate-related natural disasters** | 35,000 | 275,000 | 310,000 |
| **Activity III.4.4: Population density - projected** | 30,000 | 275,000 | 305,000 |
| **Activity III.4.5: Socioeconomics reporting** | - | - | - |
| **Sub-component III.5: Deltas** | **60,000** | **400,000** | **460,000** |
| **Activity III.5.1: Deltas assessment** | 40,000 | 350,000 | 390,000 |
| **Activity III.5.2: Deltas reporting** | 20,000 | 50,000 | 70,000 |
| **Sub-component III.6: Analysis & reporting** | **365,000** | **48,500** | **413,500** |
| **Activity III.6.1: River basin factsheets** | 30,000 |   | 30,000 |
| **Activity III.6.2: Data & information management** | 65,000 | 0 | 65,000 |
| **Activity III.6.3: Cross-cutting analysis** | 50,000 | 0 | 50,000 |
| **Activity III.6.4: Integrated assessment** | 220,000 | 48,500 | 268,500 |
| **Sub-component III.7: Sustainability**  | **65,000** | **0** | **65,000** |
| **Activity III.7.1: Design and establish periodic assessment framework** | 65,000 | 0 | 65,000 |
| **Sub-component III.8: Component coordination** | **75,000** | **75,000** | **150,000** |
| **Activity III.8.1: Contract management** | 30,000 | 60,000 | 90,000 |
| **Activity III.8.2: Meeting arrangement** | 10,000 |   | 10,000 |
| **Activity III.8.3: Component communication** | 5,000 | 15,000 | 20,000 |
| **Activity III.8.4: Progress / financial reporting** | 30,000 |   | 30,000 |
|   |
| **Component IV: A global comparative baseline assessment of LMEs** | **400,000** | **4,325,000** | **4,725,000** |
| **Sub-component IV.1: Assessment of LMEs and the Pacific Warm Pool** | **293,000** | **4,159,000** | **4,452,000** |
| **Activity IV.1.1: LME Thematic assessment** | **268,000** | **4,109,000** | **4,377,000** |
| Sub-Activity IV.1.1.1 Habitats  | 37,500 | 90,000 | 127,500 |
| Sub-Activity IV.1.1.2 Pollution | 30,000 | 117,000 | 147,000 |
| Sub-Activity IV.1.1.3 Fisheries | 60,000 | 1,400,000 | 1,460,000 |
| Sub-Activity IV.1.1.4 Nutrients (with River group) | 30,000 | 50,000 | 80,000 |
| Sub-Activity IV.1.1.5 Productivity/SST | 37,500 | 226,000 | 263,500 |
| Sub-Activity IV.1.1.6 Socioeconomics | 20,000 | 0 | 20,000 |
| Sub-Activity IV.1.1.7 Governance | 23,000 | 11,000 | 34,000 |
| Sub-Activity IV.1.1.8 Cumulative impact mapping/Ocean Health Index | 20,000 | 2,215,000 | 2,235,000 |
| Sub-Activity IV.1.1.9 Ranking of LMEs | 10,000 | 0 | 10,000 |
| Sub-Activity IV.1.1.10 Pilot Level 2 assessment- Bay of Bengal LME (parallel co-financing) | 0 | 0 | 0 |
| **Activity IV.1.2 Preparation of assessment products** | **25,000** | **50,000** | **75,000** |
| Sub-Activity IV.1.2.1 Validation and peer review | 10,000 | 20,000 | 30,000 |
| Sub-Activity IV.1.2.2 TWAP LME Assessment report | 15,000 | 30,000 | 45,000 |
| **Sub-component IV.2: Sustainability of the LME assessment** | **62,000** | **60,000** | **122,000** |
| **Activity IV.2.1: Establishment of a sustainable consortium of partners** | **35,000** | **30,000** | **65,000** |
| Sub-activity IV.2.1.1: Working Group Coordination (Meetings) | 35,000 | 30,000 | 65,000 |
| **Activity IV.2.2: Development of a framework for sustainability of the assessment process** | **27,000** | **30,000** | **57,000** |
| Sub-activity IV.2.2.1: Participation in stakeholders meetings (Regional Seas, Regular Process, LME Consultation, etc)  | 15,000 | 20,000 | 35,000 |
| Sub-activity IV.2.2.2: Post-TWAP Strategy for sustaining periodic assessment | 12,000 | 10,000 | 22,000 |
| **Sub-component IV.3: Assessment Coordination** | **45,000** | **106,000** | **151,000** |
| **Activity IV.3.1 Communication and information dissemination** | **10,000** | **30,000** | **40,000** |
| **Activity IV.3.2 Data and information management system** | **15,000** | **20,000** | **35,000** |
| **Activity IV.3.3 Project Management** | **20,000** | **56,000** | **76,000** |
|   |
| **Component V: A global baseline assessment of Open Ocean** | **600,000** | **6,201,582** | **6,801,582** |
| **Sub-component V.1: Assessment of OO**  | **495,000** | **6,033,040** | **6,528,040** |
| **Activity V.1.1: Assembly of metrics and indices by theme** | **230,000** | **5,457,040** | **5,687,040** |
| Sub-activity 1: Climate indices | 60,000 | 60,000 | 120,000 |
| Sub-activity 2: Ecosystem indices | 20,000 | 824,040 | 844,040 |
| Sub-activity 3: Fisheries indices | 20,000 | 1,000,000 | 1,020,000 |
| Sub-activity 4: Socioeconomic indices | 20,000 | 0 | 20,000 |
| Sub-activity 5: Cumulative mapping/OHI | 110,000 | 2,215,000 | 2,325,000 |
| Sub-activity 6: Data and information management and interactive display system | 0 | 1,358,000 | 1,358,000 |
| **Activity V.1.2: Expert assessment by theme** | **195,000** | **576,000** | **771,000** |
| Sub-activity 1: Climate assessment  | 37,500 | 0 | 37,500 |
| Sub-activity 2: Ecosystems assessment | 37,500 | 0 | 37,500 |
| Sub-activity 3: Fisheries assessment | 30,000 | 400,000 | 430,000 |
| Sub-activity 4: Pollution assessment | 40,000 | 153,000 | 193,000 |
| Sub-activity 5: Governance assessment | 50,000 | 23,000 | 73,000 |
| **Activity V.1.3: Assessment reporting and communication** | **70,000** | **0** | **70,000** |
| Sub-activity 1: Report and communication | 70,000 | 0 | 70,000 |
| **Sub-component V.2: Establishment of a framework for periodic OO assessment** | **75,000** | **84,271** | **159,271** |
| **Activity V.2.1: Establishment of a consortium of partners** | **65,000** | **42,135** | **107,135** |
| Sub-activity 1: Working group coordination (meetings) | 65,000 | 42,135 | 107,135 |
| **Activity V.2.2: Development of a strategy for linking TWAP with the ongoing Regular Process** | **10,000** | **42,136** | **52,136** |
| Sub-activity 1: Engagement with Regular Process and strategy for sustaining periodic assessment | 10,000 | 42,136 | 52,136 |
| **Sub-component V.3: Assessment coordination** | **30,000** | **84,271** | **114,271** |
| **Activity V.3. 1: Assessment coordination**  | **30,000** | **84,271** | **114,271** |
|   |
| **Component VI: Cross-cutting issues assessment** | **100,000** | **100,000** | **200,000** |
| **Sub-component VI.1: Governance assessment**  | **60,000** | **50,000** | **110,000** |
| **Activity VI.1.1: Assess governance architecture in IW systems** | **60,000** | **50,000** | **110,000** |
| Sub-activity 1: Establish/coordinate correspondence WG | 5,000 | 20,000 | 25,000 |
| Sub-activity 2: Support WG collection of governance data | 20,000 | 0 | 20,000 |
| Sub-activity 3: Support WG governance analysis | 12,000 | 0 | 12,000 |
| Sub-activity 4: Select linked water systems | 2,500 | 0 | 2,500 |
| Sub-activity 5: Acquire governance data on linked systems | 8,000 | 0 | 8,000 |
| Sub-activity 6: Analyse governance data on linked systems | 5,000 | 0 | 5,000 |
| Sub-activity 7: Revise governance architecture methodology | 2,500 | 0 | 2,500 |
| Sub-activity 8: Cross-cutting governance assessment report | 5,000 | 30,000 | 35,000 |
| **Sub-component VI.2: Socioeconomic issue assessment**  | **37,500** | **40,000** | **77,500** |
| **Activity VI.2.1: Assessment of crosscutting social and economic features of human populations dependent on transboundary waters** | **37,500** | **40,000** | **77,500** |
| Sub-activity 1:Establishment of a Crosscutting Socioeconomics Correspondence Group | 2,500 | 10,000 | 12,500 |
| Sub-activity 2: Identification of input data products  | 2,500 |   | 2,500 |
| Sub-activity 3: Identification of core crosscutting socioeconomic indicators | 2,500 |   | 2,500 |
| Sub-activity 4: Assessment of core crosscutting socioeconomic indicators for baseline conditions | 15,000 |   | 15,000 |
| Sub-activity 5: Assessment of core crosscutting socioeconomic indicators for projected scenarios | 7,500 |   | 7,500 |
| Sub-activity 6: Crosscutting Socioeconomics Assessment Report | 7,500 | 30,000 | 37,500 |
| **Sub-component VI.3: Other cross cutting/common issue assessments**  | **2,500** | **10,000** | **12,500** |
| **Activity VI.3.1: Assessment of selected crosscutting/common issues** | **2,500** | **10,000** | **12,500** |
| Sub-activity 1: Identification and assessment of selected issues | 2,500 | 10,000 | 12,500 |
|   |
| **Component VII: Data & information management - Assessment reporting** | **180,000** | **1,189,000** | **1,369,000** |
| **Sub-component VII.1 - Data and Information Management System**  | **180,000** | **764,000** | **944,000** |
| **Activity VII.1.1** Data and Information management platform | 130,000 | 434,000 | 564,000 |
| Sub-activity 1: Define a consolidated a strategy for managing TWAP data and information | 20,000 | 132,000 | 152,000 |
| Sub-activity 2: Review and harmonize data standards to facilitate data sharing | 25,000 | 79,200 | 104,200 |
| Sub-activity 3: Build, upgrade and integrate TWAP Data Platform/Portal | 50,000 | 52,800 | 102,800 |
| Sub-activity 4: Development of additional technical functionalities and services | 20,000 | 33,000 | 53,000 |
| Sub-activity 5: Ensure compatibility with other relevant data and information systems | 15,000 | 137,000 | 152,000 |
| **Activity VII.1.2** Project website - Interactions with IW:LEARN  | 50,000 | 330,000 | 380,000 |
| Sub-activity 1: Development of project website | 10,000 | 66,000 | 76,000 |
| Sub-activity 2: Training and technical support | 10,000 | 66,000 | 76,000 |
| Sub-activity 3: Ensure compatibility and linking of TWAP Data Portal and IW:LEARN | 10,000 | 66,000 | 76,000 |
| Sub-activity 4: Content development for TWAP Project Website | 20,000 | 132,000 | 152,000 |
| **Sub-component VII.2 - Assessment reporting - communication and outreach** | **0** | **425,000** | **425,000** |
| **Activity VII.2.1** Publication and outreach | 0 | 425,000 | 425,000 |
| Sub-activity 1: Publication of reports | 0 | 250,000 | 250,000 |
| Sub-activity 2: Preparation of outreach material | 0 | 75,000 | 75,000 |
| Sub-activity 3: Communication and launches | 0 | 100,000 | 100,000 |
|   |
| **Component VIII: Evaluation**  | **70,000** | **50,000** | **120,000** |
| **Sub-component VIII.1: Terminal evaluation (TE)** | **70,000** | **50,000** | **120,000** |
| **Activity VIII.1.1: Terminal evaluation (TE)**  | 70,000 | 50,000 | 120,000 |
|  |
| **Component IX: Project Management**  | **350,000** | **1,470,500** | **1,820,500** |
| **Sub-component IX.1: Day-to-day Project Management (through the PCU including Project Manager, a Technical Assistant, a Financial and Administrative Assistant from DEWA staff and consultants)** | **350,000** | **1,470,500** | **1,820,500** |
| **Activity IX.1.1: Networking and communication on substantive matters with partner agencies** | 100,000 | 413,500 | 513,500 |
| **Activity IX.1.2: Preparation and processing of contracts and agreements** | 100,000 | 413,500 | 513,500 |
| **Activity IX.1.3: PSC and STAC meetings** | 50,000 | 413,500 | 463,500 |
| Sub-activity 1: PCU participation and support to PSC | 50,000 | 363,500 | 413,500 |
| Sub-activity 2: STAC meetings (virtual, as part of PSC, or called upon by Components) |   | 50,000 | 50,000 |
| **Activity IX.1.4: Periodical financial and substantive Reporting**  | 100,000 | 230,000 | 330,000 |
| Sub-activity 1: Reporting to UNEP and GEF (inception report, QERs, QORs, PIRs & Mid-term Management Review, etc.) | 100,000 | 230,000 | 330,000 |
| **TOTAL PROJECT COST ($)** | **5,000,000** | **31,863,813** | **36,863,813** |

* 1. **Project co-financing**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sources of Co-financing**  | **Name of Co-financier** | **Type of Co-financing** | **Amount ($)** |
|  | **UNEP-DEWA** |  | **1,790,500** |
| Rivers |
|  | DHI Center, SIWI and IUCN |  | 126,500 |
|  | DHI Center, SIWI, IUCN, Kassel Univ., City University of New York, Oregon State Univ., IGBP, CIESIN & Delta Alliance   |  | 6,065,231 |
| TBA |
|  | Swiss Agency for Development andCooperation (SOC) |  | 4,800,000 |
|  | BGR |  | 378,000 |
| Multilateral Agency(ies), NGOs and others | UNESCO-IHP, IGRAC, UN WWAP, FAO, UNESCWA, UNECE, OAS, ECOWAS, SADC, ECCAS, International Association for Water Law, Research Institute for Humanity and Nature (Kyoto, Japan), University of Frankfurt, University of Western Cape, University of Arizona, Simon Fraser University (Canada) | In-kind | 5,936,000 |
| Lakes |
| National Government, NGO, and private sector  | ILEC, Texas States University, Corazon de la Tierra (Mexico), International Environmental Management Services (IEMS: USA) |  | 418,000 |
| National Government, NGO and others | ILEC, Texas States University, Corazon de la Tierra, Shiga University |  | 804,000 |
| LMEs |  |  |  |
| Multilateral Agency(ies), private sector, NGOs and others | Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), PlasticsEurope, PEW Foundation, NOAA, UNESCO-IOC, Center for Marine Assessment and Planning (CMAP) University of California, Univ. British Columbia (UBC) Fisheries Centre | Grant | 1,969,000 |
| Multilateral Agency(ies), National Government and others | Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), UNESCO-IOC, NOAA, Center for Marine Assessment and Planning (CMAP) University of California, UNEP-World Conservation Monitoring Centre, University of the West Indies, Centre for Resource Management and Environmental Studies (CERMES), Int’l Geosphere Biosphere Programme | In-kind | 2,356,000 |
| OO |
| Multilateral Agency(ies), Private sector, National Government and NGO | UNESCO-IOC, European Commission Seventh Framework Programme (EU FP7) GEOWOW project, Center for Marine Assessment and Planning (CMAP) University of California, Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), Plymouth Marine Lab (PML), SAHFOS/Global Alliance of Continuous Plankton Recorder Surveys Global Assessment (GACS), Univ. British Columbia Sea Around Us project (supported by Pew Charitable Trusts), WMO-ICSU-IOC World Climate Research Programme (WCRP), American Chemistry Council |  | 2,993,416 |
| Multilateral Agency(ies), National Government and NGO | UNESCO-IOC, Center for Marine Assessment and Planning (CMAP) University of California, Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP), Plymouth Marine Lab (PML), SAHFOS/Global Alliance of Continuous Plankton Recorder Surveys Global Assessment (GACS), Univ. British Columbia Sea Around Us project (supported by Pew Charitable Trusts), University of the West Indies, Centre for Resource Management and Environmental Studies (CERMES) |  | 3,208,166 |
|  | Finland |  | 1,019,000 |
|  |       |  |       |
|  |       |  |       |
| **Total Co-financing** |  |  | **31,863,813** |

* 1. **Project cost-effectiveness**
1. The project seeks to minimize costs and add value in the following ways:

(i) building on the foundation of ongoing assessment processes, GEF IW projects, and established partnerships among agencies carrying out regular water related assessments and the gathering of relevant data and information, will result in **significant cost-effectiveness,** compared to a situation where the project is initiated *de novo* without this foundation;

(ii) effective coordination at regional and global level will help to avoid duplication of effort, and, hence, increase cost-effectiveness; and

(iii) cost-effectiveness is further enhanced through: focusing the assessment process on data and information management; capturing data from existing related initiatives and programmes; facilitating new assessment results being widely available in a timely and cost-effective manner through regular updating of data and information stored on the Geographic Information System.

**Appendices**

**Appendix 1: Budget by project components and UNEP budget lines**

**Appendix 2: Co-financing by source and UNEP budget lines**

**Appendix 3: Incremental cost analysis**

**Appendix 4: Results Framework**

**Appendix 5: Work plan and timetable**

**Appendix 6: Key deliverables and benchmarks**

**Appendix 7: Costed M&E plan**

**Appendix 8: Summary of reporting requirements and responsibilities**

**Appendix 9: Standard Terminal Evaluation TOR**

**Appendix 10: Decision-making flowchart and organizational chart**

**Appendix 11: Terms of Reference**

**Appendix 12: Co-financing commitment letters from project partners**

**Appendix 13: Draft procurement plan**

**Appendix 14: Tracking Tools**

**Appendix 15: Sub-project Transboundary Aquifers and SIDS Groundwater Assessment**

**Appendix 16: Sub-project Transboundary Lake/Reservoir Basins Assessment**

**Appendix 17: Sub-project Transboundary River Basins Assessment**

**Appendix 18: Sub-project Transboundary Large Marine Ecosystems Assessment**

**Appendix 19: Sub-project Open Ocean Areas Assessment**

**Appendix 20: Sub-project Data and Information Management**

1. The IOC of UNESCO is responsible for two components, the LMS and the Open Ocean, [↑](#footnote-ref-1)
2. ***Provisioning services****: The products obtained from ecosystems, such as food, fiber, fresh water, and genetic resources.* ***Regulating services****: The benefits obtained from the regulation of ecosystem processes, including air quality maintenance, climate regulation, erosion control, water purification, and protection from extreme events such as storms and tidal surges.* ***Cultural services****: The non-material benefits obtained from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences.* ***Supporting services****: Services that are necessary for the production of all other ecosystem services, such as primary production and production of oxygen.* [↑](#footnote-ref-2)
3. *Vörösmarty C. J., McIntyre, P. B., Gessner, M. O., Dudgeon, D., Prusevich, A., Green, P., Glidden, S., Bunn, S. E., Sullivan, C. A., Reidy Liermann, C., and Davies, P. M., 2010. Global threats to human water security and river biodiversity. Nature, Vol. 467: pp. 555-561.* [↑](#footnote-ref-3)
4. *Yoffe, S. B., Fiske, G., Giordano, M., Larson, K., Stahl, K., and Wolf, A. T., 2004. Geography of international water conflict and cooperation: Data sets and applications. Water Resources Research, Vol. 40(5): pp. 1-12.* [↑](#footnote-ref-4)
5. *Wester, Ph. and Warner, J., 2002. River basin management reconsidered. Chapter 4 in: Hydropolitics in the developing world: A Southern African perspective, pp. 61–71. African Water Issues Research Unit, 15 Centre for International Political Studies (CIPS), Pretoria, South Africa.* [↑](#footnote-ref-5)
6. For the purposes of the GEF the Open Oceans are included within the definition of “transboundary” but in reality the Open Ocean by definition lies outside the national boundaries of the Exclusive Economic Zone and hence is considered as part of the common heritage of mankind. In contrast all other GEF defined transboundary water systems cross national boundaries such that the aquatic system is shared between adjacent countries. [↑](#footnote-ref-6)