



# PROJECT IDENTIFICATION FORM (PIF).

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

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## PART I: PROJECT INFORMATION

Project Title:	Implementation of the Strategic Action Program of the Gulf of Mexico Large Marine Ecosystem		
Country(ies):	Mexico	GEF Project ID: <sup>1</sup>	6952
GEF Agency(ies):	UNIDO (select) (select)	GEF Agency Project ID:	130285
Other Executing Partner(s):	The Secretariat of Environment and Natural Resources of Mexico (SEMARNAT), U.S. National Oceanic and Atmospheric Administration (NOAA), Mexico's National Aquaculture and Fishing Commission (CONAPESCA), Mexico's National Commission of Natural Protected Areas (CONANP), National Cleaner Production Center (NCPC) Mexico, National Water Commission (CONAGUA), National Fisheries Institute (INAPESCA), National Forest Commission (CONAFOR), National Institute of Ecology and Climate Change (INECC)	Submission Date:	08/08/2014
		Resubmission Date:	08/22/2014
GEF Focal Area(s):	International Waters	Project Duration (Months)	60
Integrated Approach Pilot	IAP-Cities <input type="checkbox"/> IAP-Commodities <input type="checkbox"/> IAP-Food Security <input type="checkbox"/> Corporate Program: SGP <input type="checkbox"/>		
Name of parent program:	[if applicable]	Agency Fee (\$)	

## A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES<sup>2</sup>

Objectives/Programs (Focal Areas, Integrated Approach Pilot, Corporate Programs)	Trust Fund	(in \$)	
		GEF Project Financing	Co-financing
IW-3 Program 6 (select) (select)	GEFTF	7,400,000	67,000,000
IW-3 Program 5 (select) (select)	GEFTF	2,750,000	12,000,000
IW-3 Program 7 (select) (select)	GEFTF	2,750,000	45,000,000
(select) (select) (select)	(select)		
(select) (select) (select)	(select)		
(select) (select) (select)	(select)		
(select) (select) (select)	(select)		
(select) (select) (select)	(select)		
(select) (select) (select)	(select)		
(select) (select) (select)	(select)		
Total Project Cost		12,900,000	124,000,000

## B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: Improve water quality, rehabilitate the coastal and marine ecosystems, and avoid depletion of marine resources of the Gulf of Mexico Large Marine Ecosystem					
Project Component	Financing Type <sup>3</sup>	Project Outcomes	Trust Fund	(in \$)	
				GEF Project Financing	Co-financing
1. Improve water quality	TA	Water quality improved using pollution reduction measures through ecosystem-based management approach	GEFTF	4,840,000	19,356,660
2. Avoid depletion and recover living marine resources	TA	The rebuilding of targeted fish stocks is achieved through the implementation of measures, such as the update of the regulatory framework and enforcement, the capacity development, and the monitoring	GEFTF	4,835,715	90,454,583
3. Conserve and restore	TA	Improved coastal and marine ecosystem	GEFTF	1,500,000	13,387,98

<sup>1</sup> Project ID number will be assigned by GEFSEC and to be entered by Agency in subsequent document submissions.

<sup>2</sup> When completing Table A, refer to the GEF Website, [Focal Area Results Framework](#), which is an Excerpt from [GEF-6 Programming Directions](#).

<sup>3</sup> Financing type can be either investment or technical assistance.

the quality of coastal and marine ecosystems through community involvement		health through the use of the ecosystem-based management approach			8
4. Dissemination of lessons learned and results	TA	Assessment of project implementation on a results-based model, taking into account lessons learned during both the inception and implementation phases.	GEFTF	1,110,000	500,000
	(select)		(select)		
	(select)		(select)		
	(select)		(select)		
	(select)		(select)		
	(select)		(select)		
	(select)		(select)		
	(select)		(select)		
		Subtotal		12,285,715	123,699,231
		Project Management Cost (PMC) <sup>4</sup>	GEFTF	614,285	300,769
		<b>Total Project Cost</b>		12,900,000	124,000,000

If Multi-Trust Fund project :PMC in this table should be the total and enter trust fund PMC breakdown here ( )

<sup>4</sup> For GEF Project Financing up to \$2 million, PMC could be up to 10% of the subtotal; above \$2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

**C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE**

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (\$)
Recipient Government	SEMARNAT	In-kind	38,000,000
Recipient Government	SEMARNAT	Grants	150,000
Recipient Government	NOAA	In-kind	85,000,000
Recipient Government	NOAA	Grants	250,000
GEF Agency	UNIDO	In-kind	350,000
GEF Agency	UNIDO	Grants	250,000
<b>Total Co-financing</b>			<b>124,000,000</b>

**D. INDICATIVE TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS <sup>A)</sup>**

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee (b) <sup>b)</sup>	Total (c)=a+b
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
<b>Total GEF Resources</b>					<b>0</b>	<b>0</b>	<b>0</b>

a) No need to fill this table if it is a single agency, single trust fund, single focal area and single country project

b) Refer to the [Fee Policy for GEF Partner Agencies](#).

**E. PROJECT PREPARATION GRANT (PPG)<sup>5</sup>**

Is Project Preparation Grant requested? Yes  No  If no, skip item E.

**PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS**

Project Preparation Grant amount requested: \$					PPG Agency Fee:		
GEF Agency	Trust Fund	Country/ Regional/Global	Focal Area	Programming of Funds	(in \$)		
					PPG (a)	Agency Fee <sup>6</sup> (b)	Total c = a + b
(select)	(select)		(select)	(select as applicable)	300,000	27,000	327,000
(select)	(select)		(select)	(select as applicable)			0
(select)	(select)		(select)	(select as applicable)			0
<b>Total PPG Amount</b>					<b>300,000</b>	<b>0</b>	<b>327,000</b>

<sup>5</sup> PPG requested amount is determined by the size of the GEF Project Financing (PF) as follows: Up to \$50k for PF up to \$1 mil; \$100k for PF up to \$3 mil; \$150k for PF up to \$6 mil; \$200k for PF up to \$10 mil; and \$300k for PF above \$10m. On an exceptional basis, PPG amount may differ upon detailed discussion and justification with the GEFSEC.

<sup>6</sup> PPG fee percentage follows the percentage of the Agency fee over the GEF Project Financing amount requested.

## F. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS<sup>7</sup>

Provide the expected project targets as appropriate.

Corporate Results	Replenishment Targets	Project Targets
1. Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectares	<i>ha</i>
2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	<i>ha</i>
3. Promotion of collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services	20% of globally over-exploited fisheries (by volume) moved to more sustainable levels	Percent of fisheries, by volume <i>0.6% (to be confirmed during the PPG phase)</i>
4. Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO <sub>2e</sub> mitigated (include both direct and indirect)	metric tons
5. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern	Disposal of 80,000 tons of POPs (PCB, obsolete pesticides)	<i>metric tons</i>
	Reduction of 1000 tons of Mercury	<i>metric tons</i>
	Phase-out of 303.44 tons of ODP (HCFC)	<i>ODP tons</i>
6. Enhance capacity of countries to implement MEAs (multilateral environmental agreements) and mainstream into national and sub-national policy, planning financial and legal frameworks	Development and sectoral planning frameworks integrate measurable targets drawn from the MEAs in at least 10 countries	Number of Countries:
	Functional environmental information systems are established to support decision-making in at least 10 countries	Number of Countries:

## PART II: PROJECT JUSTIFICATION

### Project Overview

A.1. Project Description. Briefly describe: 1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed; 2) the baseline scenario or any associated baseline projects, 3) the proposed alternative scenario, with a brief description of expected outcomes and components of the project, 4) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing; 5) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF); and 6) innovativeness, sustainability and potential for scaling up.

#### 1. The global environmental problems, root causes and barriers that need to be addressed

All activities envisioned by the PIF are to be undertaken in a manner consistent with applicable U.S. and Mexican domestic laws and regulations and are subject to the availability of funds, personnel and other resources.

Due to its distinctive biophysical characteristics the Gulf of Mexico Large Marine Ecosystem (GoM LME) is an important global reservoir of biodiversity and one of the most productive LMEs in the world providing bordering nations with economic wealth, products, food, services, cultural heritage and valuable energy resources - 85 % of Mexico's oil extraction as well as 19 % of the U.S. offshore oil production are originated within its boundaries. River basins draining into the Gulf waters cover a large proportion of the both countries' productive regions. Whilst oil production is one of the most important factors in the region in economic and environmental terms, it is not included in the scope of the present project as the Mexican and US Governments address it separately following the Deep Water Horizon oil spill.

<sup>7</sup> Provide those indicator values in this table to the extent applicable to your proposed project. Progress in programming against these targets for the projects per the *Corporate Results Framework* in the [GEF-6 Programming Directions](#), will be aggregated and reported during mid-term and at the conclusion of the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and/or SCCF.

The high productivity of the GoM LME is at risk from a suite of anthropogenic threats that include pollution, excessive fishing, destruction of critical coastal and marine habitats, nutrient-enrichment, extensive oil and gas production as well as a rapidly increasing tourism industry. In addition, illegal, unreported or unregulated fishing activities cause dramatic shifts throughout ocean ecosystems, slowing or even preventing restoration of depleted fish populations and their habitat. The GoM fishing catches is approximately 1.2 million tons per year, representing 15% and 25% of national commercial landings of US and Mexico, respectively. Both countries and their economies are strongly dependent on the GoM LME, yet they share fishing management problems such as non-optimal harvesting by commercial fisheries, by-catch, over capitalization and economic inefficiencies, weaknesses in institutions and governance overseeing commercial and recreational harvesting, heterogeneous management strategies and capabilities between countries, limited inter-country exchanges of knowledge and experiences, and incomplete information and understanding of ecosystem functioning. A lack of knowledge leading to poorly informed decision-making among the communities engaged in commercial activities directly linked to the GoM is evident, increasing pressure on the local communities to further exploit the ecosystem beyond its sustainability borders in order to maintain their livelihoods. Due to the connectivity between the oceans and currents, mismanagement of a large marine and coastal ecosystem such as the GoM also has negative impacts on the global environment and climate change.

One of the most serious consequences of these threats experienced by both countries are low oxygen extended events or hypoxia. The extent of hypoxia on the Gulf's northern continental shelf turn its "dead zone" in the second-largest manifestation of anthropogenic coastal eutrophication in the world. Unfortunately in recent years Mexican scientists have shown results of other similar zones in the Southern Gulf around the Campeche Sound. Since the systematic mapping and monitoring of the hypoxia area in bottom waters began in 1985 the dead zone size has ranged between 40 to 22,000 km<sup>2</sup> and averaged 16,700 km<sup>2</sup> from 2000 to 2007. Both countries need to focus not only in the locally identified impacts but also in its transboundary effects. Mexico and the US need to agree and prepare joint actions to reduce significantly the hypoxic conditions along the Gulf of Mexico. There is a particularly strong need in Mexico to establish robust, long-term monitoring programs, allocate tools, and enhance capacity-building to ensure the reduction of hypoxia impacts, as well as the need for bi-national efforts to develop regional environmental indicators.

Other consequences include eutrophication, harmful algal blooms (HABs) and red tide events; increase of vulnerability to climate change conditions; changes in the biomass driven mainly by intensive fishing and habitat modification, including loss of critical habitats and connectivity resulting from poorly planned growth in coastal and urban areas along the region and consequently changes on the life cycles of coastal and marine species. The ecosystem-based fishery management approach recognizes the physical, biological, economic and social interactions among the affected components of the ecosystem and attempts to manage fisheries to achieve a stipulated spectrum of societal goals, some of which may be in competition (NOAA fisheries). It aims to ensure long-term sustainable delivery of services and define an ecosystem's ability to recover from acute and chronic impacts. This approach encompasses the array of factors that interact in the GoM and provides a comprehensive management tool. So far, the existing ecosystem-based management approaches required to mitigate the growing anthropogenic threats have been insufficient to address the environmental issues in the Gulf and inconsistent with, as well as between, the national policies and programs of the United States and Mexico. As outlined in the SAP, the basis for the application of the ecosystem approach in the management of the GoM LME and its resources has been set during the first phase of the project and now requires practical application by addressing the identified gaps, barriers, and constraints in order to promote reforms, investments and development of common mechanisms and tools. Upon successful completion of the inception phase of the GoM LME project, UNIDO is now able to undertake the implementation phase.

#### Root Causes

The Transboundary Diagnostic Analysis (TDA) undertaken in the recent years allowed the identification of the following root causes for the GoM LME's major environmental issues:

- (i) insufficient water processing infrastructure included in sectorial planning;
- (ii) incomplete pollution control;
- (iii) ecosystem concerns not sufficiently considered in planning and management ;
- (iv) planning and management carried out on a per-sector basis without properly accounting for externalities and natural limits of resources;
- (v) capacity building not in pace with the need to address ecosystem, social or economic concerns;
- (vi) insufficient control of traded or cultured species;
- (vii) insufficient control of involuntary invasive species transport;

- (viii) more precise legal and technical definitions would facilitate the adoption of the ecosystem-based management approach as a common strategy and
- (ix) fishing effort entry controls not effective enough.

The project will cover most of the root causes identified in the TDA. Component 1 will address the water processing needs and strengthen pollution control, as well as capacity building, and contribute to alleviate the hypoxic zone; Component 2 will strengthen the legal framework to promote ecosystem-based management for the fishery sector; and Component 3 will support capacity building, awareness raising, and dialogue with key stakeholders to ensure that ecosystem concerns and externalities beyond a certain sector are taken into consideration in planning and management, for example at a municipal level. In annex 2 of the SAP, there is a detailed explanation, including a table, of the linkages between project actions and root causes.

#### Barriers to be addressed

The political complexity of the GoM LME region and the economical differences between the bordering nations are significant barriers to be addressed. Changes of federal administrations are rarely in synchrony, requiring strong efforts from within the federal staff to maintain productive partnerships after each election. The institutional arrangements for each country differ greatly. The legal scheme in Mexico gives full jurisdiction to the Federal Government in matters related to the coastal zone, sea, oil, seabed, subsoil, natural protected areas, national waters (rivers, lagoons, etc.), wildlife, sea life, and fisheries. However, coastal states have limited jurisdiction to regulate over land use and some type of permits in the coastal zone. In the U.S., the Federal Government has jurisdiction over the U.S. Exclusive Economic Zone (EEZ), which extends 200 nm. The five States bordering the Gulf of Mexico have jurisdiction over state waters inside of the U.S. EEZ.

The limited awareness of the decision makers and the general population regarding the impacts of economic activities on the sustainability of the GoM LME is one of the greatest barriers to the introduction of the necessary management changes. Poor entrepreneurial culture among fisheries, especially artisanal fisheries non-compliant with set quotas and limitations, is particularly endangering the ecosystem through overfishing of fish stocks. In order to increase the chances of project replication and thereby increasing the pool of target beneficiaries from the project, the approach based on demonstration and awareness raising of best environmental practices is to be applied.

Finally, a limited dialogue between the government and the private sector, as well as other key stakeholders such as the policy makers and the local communities, hinder the effective implementation of an ecosystem-based management approach. Industries, in particular the fishing industry – directly responsible for fish stock depletion; as well as the oil, tourism, and shipping industries responsible for wastewater discharges into the GoM marine ecosystem, have to take part in the dialogue. Representatives of the key industries in the GoM LME will be engaged in the dialogue.

## 2. Baseline Scenario and associated projects

The baseline for this project was identified as a result of the SAP development, which was negotiated by the governments of the United Mexican States (Mexico) and the United States of America (U.S.) through the coordination of the appointed Technical National Focal Points to the Gulf of Mexico Large Marine Ecosystem Project (GoM LME), the Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT) of Mexico and the National Oceanic and Atmospheric Administration (NOAA) of the United States of America, and points out the need to reduce the stress on water pollution and fish stocks. Both countries are fully committed to the implementation of planned activities.

As described below and supported in the endorsement letters enclosed with this document, both the governments of Mexico and the United States are already implementing many projects, which aim at monitoring and reducing the impact of anthropogenic activities on the Gulf of Mexico LME.

Regarding pollution prevention, CONAGUA has an extensive network of monitoring stations detailed in their commitment letter which collect data on the following SAP key indicators: BOD, TSS, nutrients, and heavy metals. Of these key indicators, only BOD is not currently monitored and the project will introduce this parameter.

The SAP identified the 3 major hot spots, namely the Papaloapan, Panuco and Grijalva-Usumacinta rivers, in which to target pollution reduction; with the key parameters being BOD, TSS, nutrients and heavy metals. A special hot spot to be addressed will be the lower part of the Coatzacoalcos river, in which Latin America's second largest chlor-alkali plant is located. These four river basins are among the largest in Mexico.

From 2008 to 2012, UNIDO implemented a pollution reduction project in the states of Tabasco, Chiapas and Veracruz as part of a Millennium Development Goals Fund multi-agency program. In UNIDO's component, the National Cleaner Production Center (NCPC) was introduced to the Transfer of Environmentally Sound Technologies (TEST) methodology which in turn was applied in key polluting industrial sites in the municipalities covered by the project. The project resulted in reduced water consumption, pollution reduction and economic gains for each of the participating industries. The experience gained with the application of the TEST methodology, especially in Tabasco and Veracruz will be essential to fully engage the private sector in the project. This project also allowed the identification of key industrial sectors in the region: agro-industries (including sugar industry in Veracruz), cattle transformation (slaughter houses and tanneries), oil extraction, and textile industries. The typical effluents of these sectors fully corroborate the priority parameters identified, and although the SAP does not identify the industrial sectors that cause pollution, the experience gained in the inception phase has provided an indication of their characteristics.

Following two major oil spills in the GoM (Ixtoc in 1979 and Deepwater Horizon in 2010) the Governments of both countries, with assistance by the Gulf of Mexico LME project during the 2010 event, reinforced and formalized their cooperation in managing the ecosystem. One example on which the project will build upon is the recently created Consortium of Marine Research Institutions of the Gulf of Mexico and the Caribbean (CiiMar-GoMC), which contributes to adopting the best management practices and achieving sustainable development of the region by providing sound scientific knowledge to decision-makers. CiiMar-GoMC gathers 13 Mexican and U.S. scientific research institutions, which aim at developing joint projects with the public and private institutions of the Gulf of Mexico University Research Collaborative (GOMURC). CiiMar-GoMC will be a key stakeholder to help identify, validate and disseminate solutions.

Other activities undertaken in the region such as SEMARNAT's project on conservation of coastal watersheds in the context of climate change; the World Bank project on adaptation of the Gulf of Mexico's coastal mangroves to the impacts of climate change, and the IADB project on adaptation, land use, and integrated management planning for the Grijalva and Usumacinta watersheds will provide essential inputs to the project.

In turn, NOAA handles an extensive monitoring network of fish species in the Gulf and this information will be key to help identify species of interest and monitor their recovery. This is reflected in the large contribution of the US Government in their endorsement letter covering outcome 2.

At the political level, the US Gulf of Mexico Governors Alliance (GOMA), gathering 40 state government agencies, 13 federal agencies, and 36 CSOs is a key example of what the project will seek to achieve in Mexico.

### 3. Proposed alternative scenario

The GoM LME SAP implementation project will work to generate the necessary support to make pertinent changes in the human activities developed in different sectors. It will promote the sustainability of the Gulf of Mexico LME and address new sectorial policies designed to deal with the main transboundary environmental issues and their socio-economic consequences in the long-term. It will also strengthen coherence among the existing governance mechanisms in the GoM LME.

The SAP implementation will be organized along the three major components covering aspects related to water pollution reduction, protection and recovery of marine resources, and conservation of the local environment, as well as project monitoring, as described below.

#### Project Component 1. Improve water quality

The SAP identified water quality as the major issue to be addressed. Indeed, the health of the eco-system depends first and foremost on the quality of its waters.

Pollution in the GoM LME is one of the top transboundary issues identified in the TDA, particularly nutrients, petroleum hydrocarbons, metals and emergent pollutants. The Gulf of Mexico Alliance (GOMA) considers nutrient input and mercury amongst their top priorities. According to the latest UNEP Caribbean Environmental Program report on land-based sources of pollution to the Wider Caribbean Region (WCR), the Gulf of Mexico accounts for almost half (49%) of domestic wastewater inputs to the WCR. There are differences between the two coastal countries; while the United States treats 100% of its domestic effluents to the gulf, Mexico treats only 15.4%. Sewage effluents to the gulf include 16,700 metric tons of nitrogen and 8,349 metric tons of phosphorous per year from the United States, and 4,279 metric tons of nitrogen and 1,471 metric tons of phosphorous from Mexico. These figures do not include nutrient inputs from agriculture and other sources. As mentioned earlier, nutrient overload is the main cause of hypoxic zones in the gulf, the most notorious being the hypoxic zone at the

mouth of the Mississippi river, but there is at least another one at the mouth of the Grijalva-Usumacinta watershed in Mexico. Through pollution control this component can contribute to the amelioration of this problem.

According to data from CONAGUA (Atlas del Agua en Mexico 2013) water treatment for industrial waste water is 40% lower than for domestic waste water, even though the levels of BOD for industrial discharges were five times higher (9.92 vs. 1.96 million ton BOD5/year). This data is in agreement with previous UNIDO TEST methodology projects in the GoM region, which found the agroindustry sector was the most prevalent pointing towards most of the pollution being organic. For these reasons, this project will address industrial water pollution in particular, contributing to the improvement in water quality as well as impacting hypoxic zones.

Output 1 of this component will assess and reinforce the water quality monitoring mechanisms in place.

SEMARNAT and CONAGUA are accountable for this issue and therefore this output will be implemented through their co-financing. CONAGUA already collects a large amount of data in the area according to the Official Mexican Standards and the project will ensure that the necessary parameters identified in the SAP – BOD, TSS, heavy metals (including mercury) and nutrients, are monitored in key locations. In parallel, a warning system to inform the population will be designed as part of this monitoring program. The warning system will be designed to identify pollution peaks resulting from malfunction and/or overflow of waste water treatment plants (e.g. coliforms), oil spills, agrochemical waste or other key pollutants affecting the water quality.

Output 2 –strengthening the dialogue with the industry, aims at enabling the dialogue between stakeholders, particularly between government and industry. Enabling the public-private sector dialogue will result in a more proactive involvement of key industries in the quest for reducing pollution and creating the conditions necessary to implement the TEST methodology, and for the active participation of industries in output 3. Pollution reduction will be achieved through the implementation of the TEST methodology in key sectors. Furthermore, involving key industries from the private sector operating in the Gulf region will bring innovative approaches to improving water quality through ecosystem based management. The involvement of other key stakeholders including civil society, local communities, as well as scientific and research institutes, will contribute to having an enriched dialogue on the prevention and control of pollution in the Gulf.

Output 3 addresses the introduction of the UNIDO TEST methodology in the three priority hot spots identified in the SAP (Papaloapan, Coatzacoalcos, Panuco, and Grijalva-Usumacinta rivers–the latter including Laguna de Terminos). This output will contribute to developing a more comprehensive approach in relation to other components (fisheries and habitats). These watersheds were selected due to their size and importance in terms of discharge into the Gulf; for example the Grijalva-Usumacinta River accounts for 30% of Mexico's freshwater runoff, catchment area, population and economic activities. A reconciliation of the major issues identified in the SAP for these watersheds (high organic pollution, agrochemicals, suspended solids, heavy metals) and the type of industries operating in the region will lead to the identification of the sectors to be targeted primarily (agro-food industry, including sugar which is important in Veracruz, textile plants, cattle processing and oil extraction) during the PPG phase. Industrial water pollution is addressed as data shows its waste water is less treated and more polluting compared to domestic discharges. Key pollutants targeted for reduction would be BOD, inorganic Nitrogen, Phosphorous, and Mercury. This work will be undertaken in close coordination with the Ministries of Economy of the states involved in order to obtain the most up-to-date data on economic activities for each state. The specific sites will be selected in close consultation with key authorities, using the UNIDO Hot-Spot methodology. Actions in this component will be coordinated with those in component two and three by developing them within the same geographical locations in order to optimize resources, promote synergies and enhance integrated management.

Over the last decade, UNIDO has developed and implemented TEST methodology programs to address water pollution caused by productive activities. As a preliminary step to TEST, UNIDO applies its Hot-Spot methodology for the identification, prioritization and assessment of key sources of industrial pollution. This methodology was developed by UNIDO for the GEF Danube-TEST project and will be used to prioritize industrial hot spots along the watershed. The Hot-Spot methodology makes it possible to identify the main sources of pollution, based either on pollution load, toxicity and location (could be proximity to delicate ecosystems or urban centers). In addition to these considerations, the selection of the demonstration industries also takes into account the company's financial stability, commitment from upper management and/or sectors identified by the government as priority.

TEST activities on the ground consist of working closely with each selected industry to introduce management tools which allow them to monitor and quantify the economic losses resulting from poor practices. Low cost investment options are then developed with the companies to transform them into cleaner, more efficient operations. The project provides the technical expertise to identify and apply these improvements and closely

monitor progress. At the beginning of the work with the industries a baseline of their production operations is established (quantity of water, energy and raw material utilized, as well as emissions produced), so that after the improvements have been applied these parameters can be reassessed and an exact value for reduction in contaminants emitted and water (and other resources) consumed can be determined.

Possible industries to be involved in this output include the food and textile sectors, agroindustries, and other enterprises, such as oil extraction, having a significant environmental impact in the priority watersheds and on coastal and marine ecosystems. For example, TEST can be applied to fish processing centers to make operations more efficient and reduce post-harvest loss. The TEST methodology is also a tool to bring industries, fisheries, communities and other stakeholders together to enable dialogue. The TEST project results in reduced pollution and increased productivity, reinforcing economic growth while reducing the impact on the environment. It has also been a very effective tool to promote private investment in cleaner technologies. Following the example of the previous TEST experience in Mexico, the National Cleaner Production Center will be the key to executing demonstration TEST projects in the three most important hotspots of each watershed. The experience of UNIDO and NCPC in TEST implementation will be crucial to guaranteeing the involvement of the private sector in the project. The step approach of the methodology allows a constant dialogue with the management of the concerned industries and the tools allow for the economic quantification of the savings ensured through the changes implemented. In the previous TEST implementation in Mexico, this constant dialogue meant that the changes implemented were sustained and the investment identified materialized by the private sector itself.

The implementation of TEST will lead to a reduction in water extraction for the participating industries and reduced concentration of the key pollutants identified in the SAP for their effluents –BOD, TSS, heavy metals (including Mercury) and nutrients. The project will achieve a reduction of the identified parameters in the participating industries.

Results will be documented and widely disseminated during a series of workshops in order to promote replication in other areas responsible for the Gulf's contamination. Follow-up activities to replicate TEST in additional watershed hot-spots of the Gulf of Mexico will be facilitated by the collaboration with the industry associations representing the sectors of the pilot sites. Through these national associations, country-wide dissemination will be ensured. The participation of the NCPC will also facilitate the dissemination at the national level. For this component, the project will support the introduction of TEST while the co-financing will support the sustainable monitoring mechanisms as well as the larger investments options identified in the implementation. In a previous TEST project in Mexico, results dissemination led to follow-up TEST activities outside the original project sites that were implemented with private sector investment.

The project will identify low cost measures which will help the industries obtain improvements in efficiency and environmental performance in the short term. The investments necessary to apply these measures will be made by the industries as part of their participation in the project. The project will also identify high cost investments, where appropriate (for example installation of a water treatment system, new machinery, new or adapted production lines, etc.). Although it is not expected that the industries make these high cost investments during the project, the project will help the industries develop an investment plan and identify potential sources to finance the high cost investments on a longer term.

Cooperation agreements will be developed among key farmer and livestock associations, oil industry, watershed regulatory commissions and the chlor-alkali plant in Coatzacoalcos, Veracruz, to decrease or eliminate the use of Mercury. Outcomes are improved water use efficiency, the decrease in kg/year of mercury emissions, tons/year of N/year and P/year, and tons/year of oil/grease discharged into the Gulf.

Output 4. Environmental monitoring program. Based on the experience of the Environmental Monitoring and Assessment pilot project of the inception phase, an environmental monitoring program will be established, based on the same five modules used before: Water Quality, Sediment Quality, Fish Quality, Habitat Degradation and Benthic Quality, with the adaptations adopted in the pilot project to make the criteria relevant to tropical ecosystems. The use of color-coded maps to represent results stratified probabilistic sampling and a strong emphasis on quality control and assurance (QA/QC) for all modules will be essential parts of this monitoring program. The sites will be the same as for other components, and particular care will be taken to coordinate the monitoring to mangrove restoration activities so that their success can be assessed. Replicability of the pilot project to other sites, and particularly to monitor several sites at the same time, as well as a strong capacity building component are essential to ensure that all sites are monitored at the same level of quality control and detail. Sampling frequency and other details will be agreed on in the PPG phase. Results will be delivered to appropriate environmental managers, and other stakeholders. Indicators are the number of sites monitored, reports delivered to stakeholders, result and type of investments and reforms for nutrient reduction.

## Project Component 2. Avoid depletion and recover living marine resources (LMR) (fish and shellfish)

Improvements to the status of LME require sustainable management and protection of its living resources. Overfishing, lack of ecosystem-based approaches and poor practices for the industrialization of the fishery products have led to depletion of resources. Under the ecosystem based management approach, this component will address the issues of depletion of fish stocks and establish priority actions coordinated by the participating countries according to the Strategic Action Program. Cross-cutting priority actions that provide a general framework for activities in this component are as follows:

- Binational sharing of best practices in the use of no-fishing zones and protected areas as a tool to promote sustainable fisheries to strengthen these programs.
- Coordinated work with the proper authorities and fishermen to recover populations of depleted transboundary fish and other living marine resources
- Promote bilateral cooperation for fishing adaptation and management of fisheries to climate change based on information, maps and models on its possible effects to marine productivity and ecosystems.

Activities in this component will be carried out in two different scales: industrial and small-scale, which will enable the establishment of ecosystem-based management strategies according to each level's characteristics. In the coastal zone work will take place with mainly small scale fishermen, and in the marine zone, with the industrial fleet.

Actions in this component will be coordinated with those in component one and three by developing them within the same geographical locations (and the previous site, Laguna de Terminos) in order to optimize resources, promote synergies and enhance integrated management.

During the project's first phase the pilot project demonstrated that the rise of sea surface temperature, is one factor contributing to the depletion of shrimp stocks that must be taken into account to ensure a sustainable fisheries management. Therefore, a robust monitoring system is required to take accurate measures in order to alert key stakeholders so that actions are taken to ensure the sustainability of fishing stocks in the face of climate change events.

While the methodology used was originally developed for the shrimp fishery pilot project, it has also been applied to other resources and ecosystems. These experiences were successful and will facilitate the replication in other regions of the Gulf of Mexico. In order to achieve this, cooperation in the exchange of information and assessment of populations is required through the review of existing historical databases in each country's institutions. NOAA in the U.S.A has an extensive database of information on the fish stocks in the gulf's water, which will be essential for this component. In Mexico, CONAPESCA (and INAPESCA) is the national commission in charge of fishery and therefore will be responsible for the information to be collected on fish stock under output 2.

FAO's guidelines for Securing Sustainable Small-Scale Fisheries will be implemented in this component and FAO will provide technical advice on this area. Initial contacts and consultation have been established with FAO. The exact technical advisory role will be defined during the PPG stage.

Output 1. The local population (fishermen) follows the ecosystem-based approach to managing natural resources, as well as programs derived from the models promoted and implemented by the project. The indicators for this output are: fishing effort assigned, and number of fishing vessels allocated, according to ecosystem capacity.

### Industrial Fisheries (Marine Zone)

Ecosystem-based management of fishery stocks was one of the priority transboundary problems identified in the Transboundary Diagnostic Analysis. In order to continue with the development of marine fisheries management under this approach in the Gulf of Mexico and take advantage of the lessons learned in the fisheries pilot project, this model will be promoted and applied to the management of two commercially and socially important species in two zones of the southern Gulf is proposed: 1) grouper (*Epinephelus morio*) in the continental shelf of Yucatan and 2) brown shrimp (*Farfantepenaeus aztecus*) off the coast of Tamaulipas.

Case 1. Continental shelf of Yucatan. Historically, the grouper fishery is the second most important fishery in the southern Gulf of Mexico following the shrimp fishery. Three main fleets are involved: industrial under the quota allocation scheme, semi-industrial, and artisanal.

Case 2. Continental shelf of Tamaulipas. The shrimp fishery in the Gulf of Mexico's continental shelf has shown severe changes in the last decades, most notably the collapse of the pink shrimp fishery (*Farfantepenaeus duorarum*) in Campeche. Nevertheless, this fishery off the coast of Tamaulipas is the only one in the region that has sustained its yields over time. The reasons for selecting this region of the gulf as a case study area are: a) although the effects of climate change are clear in other regions of the Gulf of Mexico, they don't seem to be as intense in this region; b) due to the different ecological conditions, all processes and variables associated make

this case study a completely different situation to the one addressed in the Campeche Sound during the first stage. From a scientific standpoint aiming to provide advice to the sector this would be very relevant as it would enable comparison and validation of the ecosystem-based management approach developed in the first phase of the program; c) defining strategies with an ecosystem-based management approach will enable developing an overall dynamic strategy towards a sustainable use of the ecosystem. For each case, the activities to be developed will be:

- 1) Gathering information and constructing a mass balance model. Review of the state of fisheries, with emphasis on grouper and brown shrimp fisheries.
- 2) Construction of a dynamic model of the ecosystem and management scenarios for each species.
- 3) Analysis of the evolution of the ecosystem and identification of management strategies based in balance harvest criteria, sustainability, and adaptability under climate change conditions (including analyses of the state of the ecosystem and reference points), as well as mid and long-term projections for each species.
- 4) Management and implementation proposal.

With the ecosystem-based management approach proposal for the two above mentioned species it will be demonstrated how the application of these management practices may directly benefit the marine environment. This will enable promoting and developing proposals of a technical-normative nature targeted to decision makers, which will harmonize existing fishery management plans with the ecosystem-based approach and contribute to halt the depletion of fisheries by analyzing the fishing effort, bycatch, and overfishing from an ecosystem standpoint.

#### Small-Scale Fisheries (Coastal Zone)

During its inception phase, the project identified that artisanal fishing was no longer a profitable activity due to a continued reduction in the availability of fisheries resources over time. In order to offer alternative economic activities, the project helped local communities identify, develop, and put in practice different ecotourism activities (dolphin, manatee and bird watching) according to the guidelines established in the management plan of the natural protected area and the applicable laws.

The implementation phase of the project proposes close work with the coastal communities through workshops on land use planning, conservation, sustainable use of natural resources, responsible fisheries, and awareness raising through environmental education. This work approach is proposed since activities related to the use of living marine resources in the coastal zone are multi-specific.

The approach to managing Living Marine Resources (LMR) implemented in Laguna de Terminos during the inception phase will be carried out in close collaboration with the different institutions that conduct research, management, surveillance, and conservation of LMR –in particular CONAPESCA, INAPESCA, and SEMARNAT, and replicated in the proposed sites: Los Tuxtlas, Veracruz; Humadales de Alvarado, Veracruz; Humadales de Tecolutla, Veracruz and Laguna Madre, Tamaulipas inside the Panuco watershed and Laguna de Terminos, Campeche; Los Petenes, Campeche; and Cardenas, Tabasco in the Grijalva-Usumacinta watershed of the Gulf of Mexico.

This project aims at providing the fishing communities with knowledge and ability to maintain commercial small-scale and recreational fishing in a sustainable, competitive and profitable manner. Sharing best practices with the fishermen and promoting their understanding of sustainable fishing increases the socio-economic well-being and resilience of fishing communities. In the Strategic Action Program –already endorsed by both countries, the action line corresponding to the promotion of sustainable fisheries gives priority to observing the Code of Conduct for Responsible Fisheries, as well as the international plans related to FAO and approved by Mexico and the US. The GoM LME project will take into consideration and implement the FAO Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication. Some of the guidelines have already been implemented in the Marine Living Resources component and in the Mangrove Restoration activities, such as community and women's participation. Contact has been established with FAO to provide technical advice in this component. The specific advisory role will be established during the PPG phase.

Output 2 Fish stocks able to sustain industrial, small-scale and recreational fisheries through support given by CONAPESCA and NOAA. The indicator is the number of fishery management plans developed, monitored and improved.

Work will be conducted in order to promote the results derived from the model to assign the fishery efforts according to the ecosystem capacity. Fisheries health will be enhanced through technical assistance provided by CONAPESCA, INAPESCA and NOAA, considering their plans and programs.

In order to ensure that fish stocks are able to sustain industrial, small-scale and recreational fisheries, Output 2 will have a strong focus on collecting information on fish stocks, assessing the information gathered, and

monitoring key environmental parameters, which will serve as input for developing fishery management plans in close coordination with INAPESCA and CONAPESCA.

NOAA will collaborate in this effort through technology transfer and development of bi-national best practices to guide data collections, stock assessments, management and enforcement approaches with the goal of sustainable fisheries management.

This output will build upon the results from the LMR pilot project, which conducted an assessment of fishing activities in Laguna de Terminos and proposed both an ecosystem-based management and a goods-and-services-added-value model for informed and timely decision-making. This will be carried out within the framework of the National Fisheries and Aquaculture Sectorial Program 2012-2018 adopted by the Mexican Federal Government.

Output 3 will review the existing regulatory framework for small-scale, recreational and industrial fisheries, complement the efforts to reduce overfishing by strengthening the regulatory framework and the enforcement capacity of government authorities to limit overfishing, and make recommendations for improvements based on the results from this component and overall project. The review will also make recommendations, based on the type of fishery, on ways to strengthen the enforcement capabilities of the relevant authorities.

Output 4 will demonstrate how the application of ecosystem based management practices in fisheries (small-scale, recreational and industrial) can have a direct effect on improving the marine environment by maintaining biodiversity and sustaining ecosystem trophic structure. Based on the fisheries management plans and other instruments such as the FAO Code of Responsible Fisheries, in particular the Voluntary Guidelines on Small-scale Fisheries, fishermen will be trained on how to prevent overfishing of commercial living marine resources, catching of under-sized fish, fishing of reproductive adults and dumping of by-catch. This will form the backbone of the new fishing strategies.

The SAP supports efforts from this component through the establishment of strategies and actions formulated for the sustainable management and use of exploited living marine resources, and for the recovery of depleted fish stocks to within safe biological limits, and will be verifiable with following indicators: Number of implemented fishery management programs, number of management plans and appropriate measures implemented for rebuilding or protecting fish stocks including alternative management approaches and number of targeted communities of fishers have adopted an ecosystem approach to fisheries management.

### Project Component 3. Conserve and restore the quality of coastal and marine ecosystems through community involvement

The third component will increase the sustainability of the coastal and marine ecosystems through community involvement in better management practices. This component will engage communities to preserve and recover natural breeding grounds, control the introduction and spread of invasive species, disseminate information on their implication to the health of the ecosystem, improve coordination and bi-national cooperation through the creation of education and political networks between Mexico and the U.S. to take concerted actions like eradication programs for invasive species populations that minimize or eliminate their negative impacts and promote restoration and conservation of ecosystems. These actions will be verified with the following indicators: number of environmental education programs and number of women, CSOs and institutions participating. Actions in this component will be coordinated with those in component one and two by developing them within the same geographical locations in order to optimize resources, promote synergies and enhance integrated management.

Output 1. In this output, building upon the major finding of the TDA which pointed out to water pollution as the major negative factor, community education programs will be developed and implemented, based on the experiences of community participation during the first phase. While industrial sources of water pollution will be addressed in project component 1, this output will focus on domestic waste water sources. Local authorities and residents will be sensitized in the need to reduce the amount of waste water released directly into the rivers without treatment. An awareness raising program will be developed to inform the population of the meaning of the water quality data collected in Component 1 and how to proceed in case of pollution peaks, events associated to climate change and sea level rise, based on the State Programs of Action on Climate Change promoted by the Mexican Federal Government, which aims at improving the public perception on mitigating emissions of greenhouse gases as well as impacts, vulnerability and adaptation to climate change at the state and municipal levels.

Output 2 will focus on replicating and up-scaling the activities conducted in the mangrove restoration pilot project developed during the inception phase, such as organizing community-based mangrove rehabilitation. This

will be developed in the same sites as the other component. Similarly, community-based programs will be implemented preventing the introduction and invasion of non-endemic species. These activities rely on the development and implementation of education programs targeting the local population followed by practical demonstrations. These activities are in line with GEF-6 Objective 3 – Program 3.2.: Preventing the Loss and Degradation of Coastal Habitats

The project will also take into account lessons learned from the GEF-funded project on Enhancing National Capacities to Manage Invasive Alien Species as well as Mexico's National Strategy for Invasive Species to apply policies and best practices for managing invasive species. Likewise, the National Strategy on Climate Change and the Climate Change Special Program will serve as the basis for coordinating local, state, and federal efforts by identifying actions and measures to reduce the vulnerability to the impacts of climate change and emissions of greenhouse gases from natural and human systems according to the State Programs of Action on Climate Change.

Continued mangrove restoration activities in Laguna de Terminos and the other proposed sites (referred to in Component 2 Output 1) will also help mitigate the effects of climate change and sea level rise. These actions will be verified with the following indicators: number of hectares of restored mangrove, total number of restorers, number of women restorers, CSOs and institutions participating, and number of invasive species control programs developed.

The inception phase of this project successfully demonstrated the importance of involving the local population in the preservation and restoration of the environment. This ensured the ownership of the local population and reinforced the link they have with their environment. Particularly important is to involve the vulnerable and marginalized population sectors who are dependent on the coastal and marine ecosystems of the GoM for their livelihood. The pilot project identified the important role of women in the mangrove restoration. This project will seek additional ways to strengthening the involvement of women in these activities with the aim of supporting their decision making power in the protection of their local environment and the development of productive activities which rely on a sustainable management of coastal and marine resources.

Output 3 deals with the improved coordination and bi-national cooperation through the creation of networks between Mexico and the US. In Mexico, bringing together the Mexican governors of all Mexican Gulf coastal states will be promoted based on the Governors National Conference (CONAGO) as a platform to create a Mexican GOMA. Networking can also be strengthened by promoting the creation of an environmental educators organization in the United States to enhance dialogue and exchange of experiences with the existing Mexican Alliance which was created by the GoM LME project.

Output 4 will support the effectiveness of marine protected areas by linking them into networks. The engagement and participation of marine protected area managers of Mexico's National Commission for Natural Protected Areas and US NOAA's National Marine Sanctuaries are expected to continue and be further strengthened in this project. Consolidation of the already created International Gulf of Mexico Marine Protected Areas Network and a complementary Gulf of Mexico LME Sister Sanctuary Network that is currently under way will also benefit from engagement and support of regional academic institutions, CSOs and the general public.

Furthermore, consolidation of the Protected Area System (SINAP II) as well as the project on Strengthening Management Effectiveness and the one on Conserving Endangered Species and their Habitats may benefit from the creation of a Marine Protected Areas Network by fostering interactions amongst species, enhancing interconnectivity and maintaining healthy species populations. Effective management of marine resources in the Gulf of Mexico cannot be achieved without cooperation between the Mexico and the United States.

The SAP supports efforts of this component through the establishment of strategies and actions for conserving biodiversity and habitats in the coastal zones of GoM LME, supported and harmonized at a regional level, and will be verifiable with following indicators: For Wetlands surface restored - number of hectares restored/ number of hectares planned, and identification and reduction impacts of invasive species (exact numerical targets will be agreed in the PPG phase); Invasive species control program or specific actions at key sites. For this output, the number of CSOs trained in management of local environmental issues is also important. This will be an important indicator as well as the information on the participation of women in the project community-based activities a final indicator will be the number of functional inter-ministerial committees to address the issue of nutrient reduction.

#### Project component 4. Monitoring and Evaluation, and dissemination of results

Effective monitoring and evaluation is a major tool in project management. The monitoring program will consider bi-national agreements, protocols and international standards to collect analyze and process the data to

be incorporated into a web-based information system. The program will include periodic progress reports on the impact status in the region, for each of the components of the project. The quarterly reports will be short activity reports and the semi-annual and annual reports will be technical reports on each of the project themes, which will serve as a base for the mid-term and final evaluations.

As for all IW projects, 1% of the GEF grant will go towards supporting IW:LEARN activities, such as regional IW:LEARN conferences, participation of at least two national representatives and relevant project staff at the IWCs being hosted during the project period. Furthermore, these funds should also cover formulation of at least two experience notes, result notes as well as developing and hosting a website.

#### 4. Incremental Cost Analysis

The Governments of the United States and Mexico have demonstrated their commitment to protecting the Gulf of Mexico through a wide variety of policies, programs and initiatives. Nevertheless, the first phase of the GoM LME project demonstrated that through joint, coordinated actions a stronger impact could be better achieved, rather than through isolated efforts. The Deepwater Horizon Platform MC252 oil spill is a clear example of how the coordination mechanisms established by the project helped facilitate communication and decision making in response to an environmental disaster.

The TDA identified pollution derived from economic activities as one of the most important threats to the marine ecosystem. While a regulatory framework exists to control pollution caused by industries, the TEST project conducted in Mexico identified the need for additional technical assistance to industries to not only help them comply with regulations but also improve their productivity so that they can be more competitive in the market. By applying the TEST methodology in key industries the project will demonstrate through concrete results that industries can increase their profits by applying resource efficiency and the use of clean technologies. Although the project will work with a few selected industries during this project, by documenting and sharing the experiences with other industries and other sectors, the project will help scale up the development of green industries along the coast of the GoM.

Another significant environmental issue identified in the TDA was the depletion of fish stocks. Considering the commercial importance of fisheries in the gulf, a business-as-usual scenario where no action is taken to protect living marine resources would mean that both countries would incur huge economic losses, not only with industrial and small-scale fisheries but also with recreational fisheries. The tourism sector is also very important in this region and can also be negatively affected by degraded ecosystems.

As a result of the project's first phase of work in Laguna de Terminos, local fishermen realized that they can no longer rely on fishing as their sole economic activity due to the decline in fish stocks. In response, the project along with Mexico's National Commission for Natural Protected Areas (CONANP), promoted ecotourism as an alternative economic livelihood among local communities. The project trained fishermen on ecotourism practices with an ecosystem-based approach, as well as on the relevant, legal framework. The project assisted the organization of 12 ecotourism cooperatives, 5 of which were formalized. While SEMARNAT and CONANP have developed a regulatory framework to protect natural areas, further assistance is needed to work directly with communities to develop ecotourism in accordance to the regulations. This project will replicate the previous experience and share best practices with other communities living in protected areas.

The pilot project on conservation and restoration of mangrove ecosystems carried out during the inception phase demonstrated the successful restoration of 1,325 hectares of mangroves. The local community was trained on mangrove restoration practices and indicators such as soil salinity and sulfides as well as mangrove natural regeneration variables were assessed by the project team in order to monitor the sustainability of the activities. The project worked jointly with SEMARNAT's Temporary Employment Program, CONAFOR Environmental Compensation Project and the Autonomous University of El Carmen (UNACAR) on these activities and trained approximately 800 local residents. However an implementation phase would ensure the continuity and scaling-up of the restoration activities to cover a larger area. It is important to note that the mangrove restoration activities were conducted largely by women in the community (as the men traditionally go fishing). Special attention will be paid to strengthening the role of women in these types of activities and diversifying economic activities linked to mangrove restoration.

Mexico is including co-financing from different institutions involved in pollution control and ecosystems conservation (SEMARNAT, CONAFOR, CONANP, INECC and Campeche State Ministry of the Environment). This is mainly because the GEF-financed actions will take place in Mexico, and the country is aligning resources to support the project.

Although both countries have demonstrated their commitment to the SAP during its development, in the absence of a GEF's second phase investment it is probable that the progress made in overcoming single-country, sector-based interventions will slow down or will not continue at all. The likely consequence of such scenario would be a reduced level of participation, resulting in the loss of gained experience and collaboration between the two countries and the possibility of scaling-up successful local experiences. Although both countries have demonstrated their commitment to the SAP during its development, in the absence of a GEF's second phase investment it is probable that the progress made in overcoming single-country, sector-based interventions will slow down or will not continue at all. The likely consequence of such scenario would be a reduced level of participation, resulting in the loss of gained experience and collaboration between the two countries and the possibility of scaling-up successful local experiences.

Incremental cost funding is required from the GEF to boost major coordination efforts while at the same time consolidating the governance framework, which will assist the region in making the transition towards more sustainable arrangements that will gradually reduce dependency on donor support. This project will result in improved ecosystem-based management and sustainable use of resources by agreeing and implementing appropriate institutional, governance and management arrangements that will enhance the protection of biodiversity, enable the recovery of depleted fisheries and strengthen the livelihoods of local communities dependent on the GoM LME resources. Overall, the GEF increment will trigger SAP implementation including the up-scaling of key developments initiated under the GoM LME project that address transboundary priority issues such overexploitation of fishery stocks, pollution and hypoxic zones. Furthermore, without the GEF's investment in the implementation phase of the SAP would be at stake, discouraging the stakeholders that have been actively involved in the past few years.

*A.2. Stakeholders.* Will project design include the participation of relevant stakeholders from civil society and indigenous people? (yes  /no  ) If yes, identify key stakeholders and briefly describe how they will be engaged in project design/preparation:

Many important partners will participate intensely in the project. In Mexico SEMARNAT will be the key partner for the implementation and the technical focal point of the project. The Ministry is responsible for all environmental affairs and is already the lead for the Inter-secretarial Commission for the Integrated Management of Oceans and Coasts, which was created in 2010 through a presidential decree. This Commission is comprised by the Ministries of the Interior, Foreign Affairs, Navy, Social Development, Energy, Economy, Agriculture, Rural Development, Food and Fishing, Transport and Communications, Tourism, and Natural Resources. NOAA is the United States' technical focal point for this project. Its role will be to coordinate co-financing from the USA and take a leading role in Output 2.2. NOAA is also a member of the Steering Committee.

Regarding implementation of on-the-ground activities many actors will be involved for each component, including:

Component 1, CONAGUA, the national commission in charge of water quality as well as the National Cleaner Production Center will be the major partners for implementation of the TEST Methodology. During the above-mentioned inception phase of the project, the staff of the center was trained in this UNIDO tool, especially the regional Tabasco office staff which is the center of the three watersheds to be addressed by this project.

Component 2 will include CONAPESCA as main stakeholder.

Component 3 will rely on the expertise of CONANP, the national commission for protected areas with strong involvement of research conglomerates such as the Consortium of Marine Research Institutions in the Gulf of Mexico and the Caribbean (CiiMar-GoMC, which groups 11 academic and research institutions CiiMar-GoM and has been designed to become a "sister consortium" of the "Gulf of Mexico University Research Collaborative".

The project will involve civil society organizations where possible. Active participation of local communities and vulnerable and marginalized population sectors who are dependent on the coastal and marine ecosystems of the GoM for their livelihood will be critical to ensure that the proposed demonstration activities do not negatively affect their current livelihoods and that they too benefit from the resources offered by the coastal and marine ecosystems.

The project will also seek synergies with the Global Program of Action for the Protection of the Marine Environment from Land-based Activities (GPA for LBA) led by UNEP; primarily by learning from their experience in preventing the degradation of the marine environment from land based activities through an integrated, multisectoral approach but also by sharing the lessons learned in this project with the international community through the GPA program.

*A.3. Gender Considerations.* Are gender considerations taken into account? (yes  /no  ). If yes, briefly describe how gender considerations will be mainstreamed into project preparation, taken into account the differences, needs, roles and priorities of men and women.

Women's groups will be involved in the project's activities, especially in Component 3. Increasing numbers of women are part of the work force in coastal areas, particularly in small scale and semi-industrial fisheries women were found to play a prominent role in post-harvest processing and clean-up operations. Therefore, their participation is essential in the sustainability of the project results. The awareness raising campaign will include activities and materials targeted towards these women groups to ensure their active involvement. Also, as mentioned previously, the involvement of women in mangrove restoration activities was crucial to its success. This project will build upon that experience by giving them a leading role in the up-scaled activities. Additionally, the Environmental Management Branch of UNIDO is finalising a gender document and the gender analysis developed will be applied during the PPG.

*A.4 Risk.* Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the project design (table format acceptable):

There are several risks inherent in this project. Acknowledgement of these and the level of risk posed provide a gauge for project assessment. The long-term success of regional-scale marine ecosystem management programs, such as the one proposed here, largely depend upon: the political willingness of the participating countries to cooperate; their willingness to continue project programs and approaches after the life of the GEF intervention; and the extent to which activities successfully engage the stakeholders that are the subject of intervention. In relation to political willingness, when compared with other IW projects addressing similar sized water bodies, the risks may be lower in the GoM LME, due to the small number of countries participating. The risks confronting the implementation phase project development were evaluated, and risk mitigation measures have been designed. In Mexico there is a great diversity of ecosystems that produce a significant amount of environmental services seriously threatened by human activities and the effects of climate change.

Climate change poses enormous challenges for adaptation of ecosystems and production systems. The characteristics of the impacts and how to address them will depend on the type of system as well as the risks to which these are exposed.

Sea level rise, increasing ocean temperatures, decrease in oxygen concentration, land use change and alteration of the hydrological cycle in wetlands, are some of the risks to which populations, ecosystems and natural resources are currently exposed in the Gulf of Mexico.

See the risk table in Annex A.

*A.5. Coordination.* Outline the coordination with other relevant GEF-financed and other initiatives:

The GoM LME aims to coordinate activities and promote collaborative agreements, exchange of experiences and best practices, training workshops and synergies under a broader approach, such as ecosystem based management, in common areas of interest with the following GEF-funded projects:

National projects:

1.- Coastal watersheds conservation in the context of climate change. Participants: SEMARNAT and Fondo Mexicano para la Conservación de la Naturaleza, A.C.

2.- Adaptation of coastal mangroves of the Gulf of Mexico to the impacts of climate change. Participants: World Bank, INECC, IMTA.

Regarding projects 1 and 2, there have been discussions on how to collaborate on environmental monitoring and mangrove restoration, specifically with community participation and exchange of experiences.

3.- Adaptation, Land Use and Integrated Management Plan for the Grijalva and Usumacinta Watersheds. Participants: Government of Chiapas and Inter-American Development Bank

4.- Enhancing National Capacities to Manage Invasive Alien Species (IAS). Participants: CONABIO. A solid background of close collaboration already exists, which includes joint binational workshops and capacity building activities. Plans are in place to continue and strengthen this collaboration.

5.- World Bank Consolidation of the Protected Areas Program (SINAP II). This project extends the protected areas program initiated with GEF funding in 1992 and restructured as an endowment funds to support conservation of 10 protected areas in 1997 (Project SINAP I), by adding 12 new protected areas to the program.

6.- Strengthening Management Effectiveness and Resilience of Protected Areas. GEF-Resilience. Improvement of the effectiveness to manage 17 priority NPAs in order to reduce the impacts and threats of climate change to biodiversity, by building and strengthening capacities of staff and local residents.

7.- Strengthening Management of the Protected Areas System to Better Conserve Endangered Species and their Habitats. Invasive species. Development and application of new tools on decision-making, information resources, and technical and financial capacities that will result in a proper implementation of Mexico's national strategy on invasive species.

It is important to link to projects 5, 6 and 7 since protected areas in the Gulf of Mexico under management by Mexican and U.S. agencies are physically and ecologically connected by ocean currents and the transboundary movement and recruitment of marine species.

Regional projects:

8.- Mesoamerican Biological Corridor. Participants: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Panama.

9.- Catalyzing Implementation of the Strategic Action Program for the Sustainable Management of Shared Living Marine Resources in the Caribbean and North Brazil Shelf Large Marine Ecosystems (CMLE). Participants: Mexico, Central American States, Caribbean States and Brazil.

Bi-national project:

10. - Regional Framework for Sustainable Use of the Rio Bravo. Participants: Mexico and the United States.

In the wider region, the project will collaborate closely with the recently approved Caribbean LME project and share experiences and results in order to maximize its implementation.

Cooperation with other UNIDO-led initiatives will also be sought. For example, the National Cleaner Production Center has ongoing cleaner production and TEST activities with a high synergy potential. UNIDO also has extensive experience working with SEMARNAT on projects associated to the Montreal Protocol. Such projects have on-the-ground experience with chemicals management and greening of industries. There is also potential for collaboration on a Montreal Protocol project currently under UNIDO's development, which foresees the replacement of ozone depleting substances (ODS) with non-ODS in the fishery sector.

At least 1% of the GEF grant will go towards supporting IW:LEARN activities, such as regional IW:LEARN conferences, participation of at least two national representatives from each participating country and relevant project staff to the IWCs being hosted during the project development period. Furthermore, these funds will also cover formulation of at least two experience notes, result notes as well as hosting and establishing a website within the IW:LEARN platform. This will result in improved collaboration and communication with other GEF-funded projects and initiatives.

## **DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:**

B.1 Is the project consistent with the National strategies and plans or reports and assessments under relevant conventions? (yes  /no  ). If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, etc.:

The bi-national nature of this project requires an assessment of both countries' national strategies and plans on ecosystem preservation.

Mexico's national strategy has been in line with global agendas on environmental preservation. Mexico's National Biodiversity Strategy Action Plan (NBSAP, 2000) has established four strategic lines that will help to accomplish objectives under the Convention for Biological Diversity, placing the preservation of ecosystems among the top national priorities.

The National Development Plan establishes the national objectives, strategies and priorities of the current Mexican administration. It sets forth five national goals and three transversal strategies which all policies of the Federal Government must include. The five goals are: 1) A peaceful Mexico; 2) An inclusive Mexico; 3) Mexico with quality education; 4) A prosperous Mexico; and 5) A globally responsible Mexico. The transversal strategies are: democratic productivity, a modern government close to its people, and ensure a gender equality perspective. Environmental issues are addressed in the fourth goal, which promotes an inclusive green economy to preserve the country's natural capital while creating wealth, competitiveness and jobs.

The Sectorial Program on Environment and Natural Resources 2013-2018, in line with the National Development Plan, aims at the recovery of watershed functionality through conservation, restoration and sustainable development of the natural capital in its Objective 4, and takes into account the Aichi Goals. It aims to capitalize on the international agenda focused on ensuring the protection, conservation and sustainable development of the ecosystems, their biodiversity and environmental services. Objective 6 calls to develop, promote, and apply policy instruments, information, education, participation, and human rights to enhance environmental governance. Regarding climate change, the enacted General Law on Climate Change points out that the National Strategy on Climate Change (Vision 10-20-40) will be the main environmental policy instrument so that Mexico can transition into a sustainable, low-carbon emissions economy within 10, 20 and 40 years.

To consolidate the national policy on climate change, the Special Program on Climate Change 2014-2018 groups 14 sectorial programs seeking to reduce greenhouse gas emissions and incorporate adaptation and mitigation measures. It addresses the reduction of population's vulnerability in risk areas, preservation of ecosystems, reduction of greenhouse gas emissions, and pollutants of short life by working with major emissions sectors, such as transport, oil, gas, industry, agriculture, electricity and waste.

Mexico's National Strategy on Invasive Species helps identify the priority actions that must be taken to address this issue in a coordinated fashion among all sectors, from the government to the civic society. Such actions will aid in consolidating a narrative that puts a higher value on the biological biodiversity of the GoM LME, promoting the generation of solutions to face invasive species and their impacts, and preventing the introduction of non-native species and the dispersion of the already established ones. The success of its implementation will require engagement and integration of legal instruments, generation of knowledge, and active participation of the civil society.

The National Strategy on Mangrove Ecosystems aligns policies and programs of the federal government with a nation-wide, transversal approach to guide its activities in the coastal environment in order to achieve protection of mangrove ecosystems, prevent ecosystem depletion, and generate alternative sustainable production, promote mangrove structure restoration, function and coverage with direct and ongoing participation of the civil society.

SEMARNAT is the administrative authority responsible for most environmental issues under federal jurisdiction, and has delegations in each state for handling federal issues; hence it is the executing partner for this project. Under the General Law of Wildlife, which establishes the regulations for species listed under the Official Mexican Standard NOM-059-SEMARNAT-2010, Mexico directs its national strategy towards the environmental protection of native species, including marine and coastal ecosystems. In context with the past projects on mangrove forests restoration, the Official Mexican Standard provides special protection to endangered species as a consequence of human activities, such as the Gulf of Mexico mangroves. In addition, the Official Mexican

Standard NOM-022-SEMARNAT-2003 establishes specifications for the preservation, conservation, sustainable use, and restoration of coastal wetlands in mangrove areas, in line with the objective of this project.

In the United States an extensive array of federal laws supports the protection and restoration of ecosystems. In the context of water quality and protection of marine ecosystems, the U.S. has a developed national strategy, including various agencies, private and public stakeholders, and designated implementing institutions. The Clean Water Act as the major federal environmental law on water quality improvement provides a comprehensive framework of standards, technical tools, and financial assistance to address the many causes of pollution and poor water quality, including municipal and industrial wastewater discharges, and habitat destruction.

The current project has been developed fully in line with the Strategic Action Program which has been endorsed by both countries. Therefore it is fully in line with the latest regional and national priorities. This Strategic Action Program (SAP) is a policy document negotiated by the governments of the United Mexican States (Mexico) and the United States of America (U.S.) through the coordination of the appointed Technical National Focal Points to the Gulf of Mexico Large Marine Ecosystem Project (GoM LME), the Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT) of Mexico and the National Oceanic and Atmospheric Administration (NOAA) of the United States of America. The document outlines the joint strategies and aims to promote shared policy goals and legal and institutional actions to address priority transboundary problems that have been previously identified by both NOAA and SEMARNAT in the Transboundary Diagnostic Analysis (TDA).

The transboundary elements to be addressed are summarized in Annex 2 of the SAP and include common problems to both countries that require collective action to address, such as: habitat alteration and/or loss, eutrophication and hypoxia, effects from hydrocarbons, pesticides, metals, emergent pollutants and floating marine debris. Other elements identified are overexploitation and overcapitalization of stocks exploited by both countries, effects of climate change, ecosystem-wide connectivity, inadequacy of the evaluations of ecosystems services, increase information exchange between equivalent agencies, improve information exchange and define joint or harmonized management strategies, establish and implement Ecosystem Based Management in a standardized way within and among countries.

Each participating country intends to develop and implement a National Action Program (NAP) as part of the SAP implementation process, which provides a set of priority strategic actions. The GoM LME NAPs will include the details of additional measures to be addressed by each country at the national level in accordance with the guidelines and priorities declared in the SAP. The NAPs will include details of responsibilities and specific projects and will also promote the identification of institutional frameworks for successful implementation of specific project funding needs.

**PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)**

**A. RECORD OF ENDORSEMENT<sup>8</sup> OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (PLEASE ATTACH THE [OPERATIONAL FOCAL POINT ENDORSEMENT LETTER\(S\)](#) WITH THIS TEMPLATE. FOR SGP, USE THIS [SGP OFP ENDORSEMENT LETTER](#)).**

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Gonzalo ABAD FRIAS	Operational/Political Focal Point	MINISTRY OF FINANCE AND PUBLIC CREDIT	

<sup>8</sup> For regional and/or global projects in which participating countries are identified, OFP endorsement letters from these countries are required even though there may not be a STAR allocation associated with the project.

## B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies<sup>9</sup> and procedures and meets the GEF criteria for project identification and preparation under GEF-6.

Agency Coordinator, Agency name	Signature	Date (MM/dd/yyyy)	Project Contact Person	Telephone	Email
Philippe R. Scholtès, Managing Director Programme Development and Technical Cooperation Division (PTC), UNIDO GEF Focal Point		08/22/2014	Ludovic Bernaudat 	+43 1 26026 3648	L.Bernaudat@unido.org

## C. ADDITIONAL GEF PROJECT AGENCY CERTIFICATION (APPLICABLE ONLY TO NEWLY ACCREDITED GEF PROJECT AGENCIES)

For newly accredited GEF Project Agencies, please download and fill up the required [GEF Project Agency Certification of Ceiling Information Template](#) to be attached as an annex to the PIF.

### ANNEX A: Risk Table

Risk		Risk Mitigation Measure
Governments at all levels and key stakeholder groups do not remain committed to undertaking required sectorial, institutional, legal and economic reforms, nor do they remain committed to a regional management framework	L	Approval by the governments of this project reflects support from the different levels (federal, state and municipal). However national commitment to addressing any sectorial, institutional, legal and economic reforms needs to be forthcoming and effective delivery of the project will only occur if there is country commitment and the project has effectively communicated its role and expected outputs. The reliance on the inter-sectorial committees as well as commitments defined in the NAPs shall be stressed throughout the project and will be paramount to overcoming this risk. Moreover the project builds upon a strong suite of existing bi-national initiatives, and these will contribute to laying the bases for effective

<sup>9</sup> GEF policies encompass all managed trust funds, namely: GEFTF, LDCE, and SCCF

		implementation of the SAP and development of associated NAPs
Relevant government agencies not willing to share and provide data and information	L	<p>It is important that scientific and technical groups providing inputs are committed to joint work and that there is reasonable access to national data and information. National data can often be sensitive to the countries involved but to ensure the SAP process proceeds successfully, there is a need for countries and organizations to be committed to providing the necessary data and information.</p> <p>An understanding of the value of a regional Data and Information Management (DIM) system, and a growing appreciation of its benefits, should encourage stakeholders to be forthcoming with information and data.</p>
LME-wide objectives may conflict with local/national interests	M	<p>Infrastructure development for tourism, the commercial fishing industry, the oil industry and agriculture are all important economic activities for the countries. Local and national resistance and objections to proposed changes to these sectors are likely to arise. Broad stakeholder participation and support, achieved through targeted awareness and information strategies, as well as stepwise consensus building will be required and are built into the project as critical components. Routine and effective involvement of stakeholders in planning, management and decision-making can only be accomplished by on-going encouragement, strengthened capacities, and financial commitment by the project, donors and the countries themselves</p>
<p>Climate Change risk associated to livelihoods:</p> <ul style="list-style-type: none"> <li>• Reduced access to clean water</li> <li>• extreme weather events</li> <li>• sea water level rise</li> <li>• reduction in the availability of fresh food and water</li> </ul>	H	<p>Improve ecosystem-wide collection of water quality data to inform the public.</p> <p>Assist the industry to reduce water use and ensure released water can be used downstream.</p> <p>Develop collaborative models and projects in coastal communities emphasizing on the ground planning and adaptation activities as well as those increasing resilience of coastal communities such as restoration of mangrove which protect the coast from erosion and contribute assist in improving water quality.</p> <p>The vulnerability assessment and implementation of adaptation measures is performed locally in response to particular conditions with actions that strengthen the resilience of the population and reduce vulnerability of ecosystems, production systems and strategic infrastructure to climate change.</p>
Effective private sector involvement is difficult to achieve	L	<p>For the long-term sustainability of the GoM LME Program, the project aims to demonstrate to productive sectors the long-term benefits to be derived from any jointly defined regional coordination mechanism that is established and that their own further investment in the project will be less than the costs which would accrue to them if these mechanisms were not in place. Although there may be specific niches within the productive sectors that are non-responsive, current high levels of CSR and</p>

		investment in environmental projects, such as by PEMEX, indicate that this risk is low.
[Rating: L = Low Risk; M = Medium Risk; H= High Risk]		

## **ANNEX B: TEST Methodology**

The TEST methodology was developed by UNIDO in 2000 and is aimed at improving environmental management and competitiveness of companies. It integrates and combines essential elements of tools like Cleaner Production, Environmental Management Systems, Environmental Management Accounting, Transfer of Environmentally Sound Technology and Corporate Social Responsibility, applied based on an integral analysis of the needs of the enterprise. TEST is aimed at enterprises in key industrial sectors that face a large scope and complexity of problems, need to improve economic and environmental performance, lack of information system for management of material/energy flows, poor environmental management system, limited human capacities for improvement, lack of strategies and strategic thinking for sustainable entrepreneurship.

The integrated TEST approach is based on three basic principles:

1. First, it gives priority to the preventive approach of cleaner production (systematic preventive actions based on pollution prevention techniques within the production process) and considers the transfer of additional technologies for pollution control (end-of pipe) only after the cleaner production solutions have been explored. This leads to a transfer of technologies aimed at optimizing environmental and financial elements: a win-win solution for both areas.
2. Second, the integrated TEST approach addresses the managerial aspects of environmental management as well as its technological aspects, by introducing tools such as EMS and EMA.
3. Third, it places environmental management within the broader strategy of environmental and social business responsibilities, by leading companies towards the adoption of sustainable enterprise strategies (SES).

TEST consists of the following tools:

### **Cleaner Production Assessment (CPA)**

The cleaner production assessment focuses on systematically identifying potential applications of preventive techniques for pollution sources (where pollution is seen as a symptom of process inefficiency). The adopted pollution prevention measures reduce not only pollution but also operational costs. The cleaner production measures identified are classified in two categories: on the one hand, the low-cost measures such as good housekeeping and limited production changes; and on the other hand, the measures which require additional investment.

### **Environmental Management Accounting (EMA)**

EMA is defined as the identification, collection, analysis and use of two types of information for internal decision-making: physical information on the use, flow and destination of energy, water and materials (including wastes) of the company; and monetary information on costs, profits and savings regarding the environment. It focuses on the optimization of production and products by tracking all environmental costs back to their sources, especially costs of pollution that are “hidden” in production costs.

### **Environmental Management System (EMS)**

ISO 14001 defines EMS, the part of the overall management system that includes the organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving and maintaining the environmental policy. It focuses on identification and management of environmental aspects, and it is widely used as a tool to ensure compliance with environmental standards. However, to operate properly it must be integrated with the other systems of the company.

### **Environmentally Sound Technology (EST)**

According to Agenda 21, “ESTs encompass technologies that have the potential to significantly improve environmental performance relative to other technologies”. These technologies protect the environment, are less polluting, use resources in a sustainable manner, recycle more of their wastes and products and handle all residual wastes in a more environmentally sound manner than the technologies they are designed to replace. This tool builds on the concept of best available techniques and can include end-of-pipe solutions after the potential for feasible preventive measures has

been explored. The EST typically covers the cleaner production measures which require additional investment. EST affects the production process but needs the endorsement of the managers (hence the stakeholders) to secure the investment. While the TEST projects do not provide funds to support the introduction of the EST, detailed investment packages with a clear payback period based on the EMA analysis are developed with the companies.

### Corporate Social Responsibility (CSR)

CSR is a self-regulation mechanism integrated with a business model that companies use to comply with ethical standards and international regulations. It is based on close cooperation with stakeholders and integrates all sustainability considerations (social, environmental and economic) into business operations.

