



GEF-6 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:	Reducing Pollution and Preserving Environmental Flows in the East Asian Seas through the Implementation of Integrated River Basin Management in ASEAN Countries		
Country(ies): ¹	Cambodia; Indonesia; Lao PDR; Malaysia; Myanmar; Philippines; Vietnam	GEF Project ID:	9654
GEF Agency(ies):	UNDP	GEF Agency Project ID:	5635
Other Executing Partner(s):	PEMSEA Resource Facility; National Water Agencies in the 8 participating countries ²	Submission Date:	17 October 2016
		Resubmission Date:	3 March 2017
GEF Focal Area(s):	IW	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:	Not Applicable	Agency Fee (\$)	805,517

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES

Objectives/Programs (Focal Areas, Integrated Approach Pilot, Corporate Programs)	Trust Fund	(in \$)	
		GEF Project Financing	Co-financing
IW Program 3.5: Reduce Nutrient Pollution Causing Ocean Hypoxia	GEFTF	5,079,123	16,500,000
IW Program 2.4: Addressing the Water/Food/ Energy/Ecosystem Security Nexus	GEFTF	3,400,000	12,610,000
Total Project Cost		8,479,123	29,110,000

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: To improve integrated water resources management, reduce pollution loads from nutrients and other land-based activities, sustain freshwater environmental flows and reduce climate vulnerability through demonstrations and replications, planning and strengthening of integrated river basin management in selected countries in the East Asian Seas

Project Components	Financing Type	Project Outcomes	Project Outputs	Trust Fund	(in \$)	
					GEF Project Financing	Co-financing
1. Baseline Assessment of Source to Sea Management Continuum	INV and TA	1.1 Improved understanding of governance, socioeconomic, ecological conditions, gaps and needs of priority river basins	In collaboration with participating countries and stakeholders in 8 priority river basins and coastal areas: 1.1.1. Bio-physical profiles prepared/updated covering: a) land uses in the watershed and coastal delta, including significant planned development; b) conjunctive uses of water; c) changes and trends in river water flows and quality over time (including groundwater if available);	GEF TF	2,400,000	7,200,000

¹ Thailand has expressed interest in participating but still undertaking consultations. It will be included in this project if an LOE is submitted prior to CEO endorsement. The PIF includes references and proposed activities in Thailand.

² Cambodia (TBD); DG of Water Resources, Ministry of Public Works and Housing, Indonesia; Dept. of Water Resources, Ministry of Natural Resources and Environment, Lao PDR; Dept. of Irrigation and Drainage, Ministry of Natural Resources and Environment, Malaysia; Directorate of Water Resources and Improvement of River Systems, Myanmar; National Water Resources Board, Department of Environment and Natural Resources, Philippines; Department of Water Resources, Ministry of Natural Resources and Environment, Thailand; Waste Management and Environment Improvement Department, Vietnam Environment Administration

			<p>and d) other biophysical considerations.</p> <p>1.1.2 Socio-economic and demographic profiles prepared/updated covering existing and forecast growth/development in the respective river basins and coastal areas.</p> <p>1.1.3 Governance and management systems assessed in each of the selected river basins and corresponding coastal areas, including IRBM and ICM institutional arrangements, policies, legislations/regulations, enforcement, stakeholder participation (including indigenous people, women and the youth), management, scientific and technical capacities, and current levels of financing for source to sea management.</p> <p>1.1.4 Land-based pollutant loadings and sources identified and forecasted using total pollutant loading models; the impact of existing and planned developments and growth in the river basins assessed in the context of national and local policies and regulations as well as in the context of the corresponding TDAs and SAPs in the various LMEs, particularly with regard to the objectives and/or agreed reductions in nutrient and pollution loads from the rivers into the coastal waters and LMEs.</p> <p>1.1.5 Competing uses and users of water analyzed using decision support models to assess existing and future water uses and the implications on the applicable water/food/energy/ecosystem security nexus at the basin/sub-basin level.</p> <p>1.1.6 Information and knowledge gained from the profiling and modeling activities consolidated into baseline assessments for the 8 priority river basins and coastal areas, including existing and forecast conditions, gaps and needs in governance and management; baseline assessments disseminated to national and local governments and other concerned stakeholders in the respective countries for validation, awareness and consensus building.</p>			
2. Governance for Improved IRBM	TA	2.1 Integrated River Basin Management Strategies and	Using participatory processes to engage stakeholders in the 8 priority river basins and coastal areas:	GEF TF	4,000,000	19,200,000

		<p>Action Plans in 8 priority river basins/sub-basins formulated and adopted</p> <p>2.2 IRBM and ICM governance mechanisms and instruments result in improved source to sea management at the national and local levels in 8 priority river basins/sub-basins and coastal areas</p>	<p>2.1.1 Eight IRBM strategies and action plans developed/updated (one each in Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines Thailand, Vietnam) to address priority needs and gaps in IRBM and in support of the SAPs of relevant LMEs and the regional SDS-SEA.</p> <p>2.1.2 Eight IRBM plans submitted to responsible government authorities for review and adoption.</p> <p>With the commitment and cooperation of national and local governments to initiate the implementation of IRBM plans in the 8 priority river basins/sub-basins and coastal areas:</p> <p>2.2.1 Interagency and multisectoral governance structures set up or strengthened, building on existing IRBM and ICM intergovernmental and multi-sectoral coordinating mechanisms at the national and local government levels.</p> <p>2.2.2 IRBM and ICM policies, regulations and programs developed/ revised and adopted at the national and local levels, with commitments of adequate and continued human and financial resources to implement the programs.</p> <p>2.2.3 Feasibility studies, investment and business plans, and sustainable financing mechanisms prepared to facilitate increased public and private sector investments in required infrastructure and services, including climate smart, low carbon, and resource and energy efficient technologies and processes, as well as alternative energy solutions.</p>			
3. Knowledge Management and Learning	TA	<p>3.1 Common set of IRBM indicators adopted and implemented by 8 countries for monitoring and evaluation of progress.</p> <p>3.2 Capacity development</p>	<p>3.1.1 Building on existing and planned initiatives and monitoring and reporting systems in the region and globally, a harmonized set of indicators on inputs, process, socioeconomics, governance, stress reduction, environmental status, among others are adopted, monitored and reported as appropriate; incorporation into IRBM, ICM and relevant regional and/or LME frameworks</p> <p>3.2.1 Regional, national and local mechanisms and capacities for river</p>	GEF TF	1,676,000	1,500,000

		<p>initiatives establish core capacities and skills in IRBM development and management at the national and local levels.</p> <p>3.3 Knowledge management platform facilitates replication of good practices and up-scaling of IRBM</p>	<p>basin data collection, monitoring and evaluation reviewed; scientifically sound water quality/quantity monitoring program developed; access to training/support services at the national and regional levels facilitated.</p> <p>3.2.2 National and local capabilities in the application and up-scaling of IRBM and ICM management systems and the use of related models and tools (e.g., TPL; socio-economic assessment; water use analysis and forecasting) developed and expanded through regional and national training workshops and scientific and technical support networks.</p> <p>3.3.1 Regional forums/events organized and conducted in collaboration with (a) the existing ASEAN governance framework, particularly the ASEAN Working Group on Water Resources Management (AWGWRM) and the ASEAN Senior Officers on the Environment (ASOEN) as applicable to accelerate adoption, uptake and upscaling; (b) other GEF-supported LME projects in the region, including SDS-SEA, Gulf of Thailand and South China Sea, Indonesian Seas, among others; (c) PEMSEA's regional networks (e.g., local governments; universities)</p> <p>3.3.2 Innovative knowledge products and services from the IRBM projects synthesized, packaged and disseminated among the ASEAN Member States, local governments and water resource managers, as well as targeting various audiences at the regional and global levels using various forms of media.</p> <p>3.3.3 Allocation of 1% of IW grant for IWLEARN activities; participation in related regional and global forums; preparation of experience notes; twinning activities.</p>			
		Subtotal			8,076,000	27,900,000
		Project Management Cost (PMC) ³		GEF TF	403,123	1,210,000
		Total Project Cost			8,479,123	29,110,000

³ 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 (\$)
National Governments	Cambodia, Indonesia, Laos PDR, Malaysia, Myanmar, Philippines, Thailand, Vietnam	In-kind	28,000,000
Multilateral and Bilateral Organizations	ASEAN Secretariat; PEMSEA	Grant In-kind	190,000 150,000
NGOs	Chuncheon Global Water Forum	Grant	270,000
Implementing Agency	UNDP	In-kind	500,000
Total Co-financing			29,110,000

D. INDICATIVE TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS ^{A)}

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee (b) ^{b)}	Total (c)=a+b
UNDP	GEFTF	Regional	International Waters	(select as applicable)	8,479,123	805,517	9,284,640
Total GEF Resources					8,479,123	805,517	9,284,640

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)⁴

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: \$253,000					PPG Agency Fee: \$27,000		
GEF Agency	Trust Fund	Country/ Regional/Global	Focal Area	Programming of Funds	(in \$)		
					PPG (a)	Agency Fee ⁵ (b)	Total c = a + b
UNDP	GEFTF	Regional	International Waters	(select as applicable)	288,000	27,360	315,360
Total PPG Amount					288,000	27,360	315,360

F. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS

Provide the expected project targets as appropriate.

Corporate Results	Replenishment Targets	Project Targets
1. 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	Water-food-ecosystems security and conjunctive management of surface and groundwater in at least 10 freshwater basins;	
	20% of globally over-exploited fisheries (by volume) moved to more sustainable levels	

⁴ PPG requested amount is determined by the size of the GEF Project Financing (PF) as follows: Up to \$50k for PF upto \$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.

⁵ PPG fee percentage follows the percentage of the Agency fee over the GEF Project Financing amount requested.

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 and/or adaptation problems, root causes and barriers that need to be addressed

The need to maintain certain environmental flows (quality, quantity and timing of water flows) to sustain aquatic ecosystem function has become well-recognized. However, despite the obvious hydrological connection between land, rivers and sea, challenges still remain when it comes to effectively accounting for larger ecosystem linkages. There are numerous examples of the importance of considering these “source to sea” linkages in the management of LMEs, such as those in the Asia-Pacific region with the results summarized below. In support of the water/food/energy/ecosystem nexus and application of the Source-to-Sea approach, this proposal seeks to expand the GEF investment in scaling up ICM in East Asia via the piloting and upscaling of IWRM in national river basins which transport upstream and downstream pollutants affecting coastal ecosystems and resources of the receiving seas and oceans.

Table 1. Highlights from Transboundary Diagnostic Analyses (TDAs) and Strategic Action Programs (SAPs) of Applicable LMEs in the Asia-Pacific Region

LME (Year)	Highlights of Findings on Land-based Pollution
South China Sea and Gulf of Thailand (TDA – 2000; SAP – 2008)	During the late 1990s, river basins in China, Indonesia, Philippines, Thailand, Vietnam, with the exception of Cambodia and Malaysia are moderate to heavily polluted using standard water quality parameters such as BOD, nutrients (N and P), TSS and oil. The mouths of the rivers are pollution hotspots, and mitigation at the source end from both point and diffuse sources were recommended to be dealt with. The SAP identified regional actions to support management of land-based pollution loadings into the coasts, including preparation of environmental quality guidelines and tools for dissemination and adoption in the region, including development of common methodologies that will generate comparable data among participating countries.
Bay of Bengal (TDA – 2012; SAP – 2014)	This LME includes some of the ASEAN countries, including Indonesia, Malaysia, Myanmar and Thailand. The TDA assessed eight major contaminants using secondary data, including sewage, organic load, solid waste/marine litter, nutrients, oils (hydrocarbons), sediments, POPs and heavy metals. Most of these pollutants are a problem in varying degrees in all the 4 ASEAN countries in the 2000s. The SAP identified as a priority, the development of national action plans to address land- and sea-based sources of marine pollution, in particular excess nutrients. It included targets to: a) reduce discharge of untreated sewage and wastewater into river, coastal and marine waters; b) reduce and control nutrient loading; c) minimize solid waste and marine litter.
Arafura and Timor Seas (TDA – 2011; SAP – 2014)	Indonesia is the only ASEAN country in this LME (Timor Leste, Papua New Guinea and Australia are the other countries). The TDA indicated that due to sparse population, land-based pollution impacts are largely localized and confined to areas where mining operations are ongoing or with poor catchment practices. Sediments and other pollutants are discharged to the coasts through rivers and tributaries. Objective 3.1 of the SAP aims to prevent and reduce inputs of pollutants from point land sources (wastewater, sewage and industrial) and diffused sources (land-use).
Sulu Celebes Seas (TDA* – 2014; SAP – 2013)	The littoral countries in this LME are Indonesia, Malaysia and the Philippines. About a billion tons of sediments representing 20-25% of global sediment export were estimated from river systems in the Philippines, Borneo and Sulawesi Islands. Other pollution-related issues include solid waste, chemical contamination and oil spills and eutrophication leading to harmful algal blooms and fish kills in coastal areas. The SAP focused on fisheries and did not include specific actions to address land-based pollution. A second phase which is in the pipeline seeks to expand the scope of the SAP to include land-based pollution.
East Asian Seas: Sustainable Development Strategy for the Seas of East Asia (SDS-SEA) (2003; revised 2015)	The SDS-SEA covers all the countries proposed in this project, except Myanmar. The SDS-SEA emphasizes the ecological significance of river basins in the region with a total watershed area of 8.6 million km ² . The rivers, which mostly flow within national boundaries, transport large flows of water, sediment, nutrients and pollutants into adjacent estuaries affecting the Seas of East Asia. Among the many priority strategies to address land-based pollution to maintain and enhance the quality of coastal waters is “extending the implementation of integrated watershed development and management programs to all major river basins, lakes and international water systems in the region”.

*The publication of the TDA came after that of the SAP.

Note: Indonesian Seas LME is within the region but has not started TDA and thus not included in this table.

It is expected that unless land-based pollution through the various East Asian national river systems is effectively addressed, it is bound to worsen. The drivers of pollution in the ASEAN (Association of Southeast Asian Nations) region are quite strong. It is home to about 617 million people (mid-2014) the majority of whom live on major rivers and lakes, floodplains, and low-lying coastal areas. The people and economies of the region depend strongly on agriculture and ecosystem services which are directly and indirectly related to water resources. As a region, the ASEAN economy is the seventh-largest in the world, with a combined GDP of \$2.9 trillion in 2014 and is projected to rise to fourth by 2050. With globalization, continued rapid development in the region is expected to have far-reaching global socio-economic and environmental consequences.

Water use in the ASEAN countries is growing rapidly while water quality and quantity challenges persist in such a way that the situation in some areas have threatened to derail economic growth. As elsewhere, increased population has intensified water usage. Water demand increased drastically due to rapid urbanization, industrialization and agriculture intensification and expansion, and most of the areas in the region are projected to be water stressed by 2025.⁶ Climate change is expected to worsen the situation significantly through impacts on hydrologic processes at the sub regional scale of Southeast Asia (IPCC 4th Assessment Report). Unless action is taken to safeguard its supply, ASEAN countries may face unsustainable water consumption with significant water scarcity. Reduced access to freshwater is expected to lead to cascading consequences, including impaired food production, the loss of livelihood security, large-scale migration within and across borders, and increased economic and geopolitical tensions and instabilities. Improving the way the ASEAN countries manage and allocate water is among the great challenges in the 21st century.

In the Mekong, the economic loss from fisheries from the planned 11 mainstream and 70 tributary dams is estimated at USD 1,000 million in 2015 and about USD 2,000 million per year by 2030 with further development. Although increased sedimentation are causing major impacts throughout Source-to-Sea⁷ systems, like the smothering of coral reefs and seagrass beds (Wilkinson, 2008; Orth et al, 2006), problems associated with decreases in water and sediment flows are more or less overshadowing the effects of land use practices at the global scale (Syvitski, Vörösmarty, Kettner & Green, 2005). Reservoir construction is probably the most important influence on land–ocean sediment fluxes (Walling, 2006) and about 30% of the global sediment flux to coastal zones is trapped behind large reservoirs (Vörösmarty and Sahagian, 2000). The reduced aggradation combined with accelerated compaction is contributing to the sinking of numerous deltas at rates many times higher than global sea level is rising (Syvitski et al, 2009). Apart from being a major cause of delta starvation and submergence (*ibid*), the reduction of river supplied sediment can also cause coastal erosion, in itself a significant challenge in many regions (Liquete et al, 2004; McManus, 2002; Cai et al, 2009; Ly, 1980).

Water stress and degradation have downstream impacts all the way to the coastal areas. Most of the river systems in the ASEAN flow through large cities and urban areas towards and into the adjacent seas and oceans. Continental Southeast Asia (Myanmar, Thailand, Lao PDR, Cambodia, and Vietnam) is drained by five major river systems (i.e., Irrawaddy River, Salween River, Chao Phraya River, Mekong River, and Red River) whereas archipelagic Southeast Asia (Malaysia, Singapore, Indonesia, Philippines, and Brunei Darussalam) hosts several major rivers all of which directly drain into the seas. These rivers transport sediments, nutrients, and other forms of pollutants to the adjacent seas and oceans which ultimately serve as pollution sinks. Table 2 shows the extent of river basins that are conduits of land-based pollution to the coasts as they drain huge catchment areas.

Table 2: Major River Basins in the GEF-Eligible SEA Countries*

Country	Number of Principal River Drainage Basins	Watershed Area of Major River Basins (km ²)	% of Watershed Area in Total Land Area
Cambodia	37	103,600	57.2
Indonesia	131	1,331,000	69.9
Lao PDR	31	148,848	62.9
Malaysia	88	196,259	59.5
Myanmar	60	608,400	90
Philippines	82	178,024	52
Thailand	254	313,003	61
Vietnam	<89	142,420	43

⁶ Lee Poh Onn, ed. 2013. Water Issues in Southeast Asia: Present Trends and Future Direction. Singapore: Institute of Southeast Asian Studies.

⁷ Also recognized in GEF/STAP paper “A Conceptual Framework for Governing and Managing Key Flows in Source-to-Sea Continuum: Summary and Policy Recommendations for the GEF Partnership (GEF/STAP/C.50/Inf.05/Rev.01 May 2016).

Total	<772	3,021,554	66.9
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* Estimated figures (multiple years) retrieved from various sources.

Increasing pollution in rivers and lakes in Southeast Asia is shrinking the availability of clean fresh water even further, which is accelerating the water crisis in the region. Many SEA countries face problems of deforestation in upstream areas, high sedimentation and erosion in watersheds, floods in rainy season and long drought in dry season, industrial and/or agricultural activities which contribute to the pollution of heavy metals and organic wastes in aquatic environments, and urbanization and mobilization of inhabitants surrounding the flood plains and deltas. In some SEA countries, lakes and rivers are used as receptacles for an assortment of wastes – including untreated or partially treated municipal sewage, industrial wastes, and harmful chemicals that leach into surface and groundwater. There are concerns that degrading water quality in the region is causing hypoxia, algal blooms and pollution in the coastal environments.⁸ Eutrophication is mentioned as a growing problem in the Gulf of Thailand according to the Sustainable Development Strategy of the Seas of East Asia.⁹

Historically, phosphorus has been the priority nutrient controlling freshwater productivity while nitrogen limitation has characterized coastal waters. Past upstream nutrient management actions focusing exclusively on controlling phosphorus loads have exacerbated nitrogen-limited downstream eutrophication and the human alteration of nutrient cycles has caused imbalances in nitrogen and phosphorous loading making it difficult to now control eutrophication by reducing only one nutrient (Pearl, 2009).

The use of the rivers and the ocean for waste disposal has been practiced both legally and illegally for decades. Marine litter is increasingly seen as a global environmental problem (GEF STAP, 2011), which regularly flows into the oceans from rivers and the coast, is difficult to manage, and has consequences on the food system. As an example, the amount of plastic waste entering into the ocean has been estimated at up to 12.7 million tonnes, the countries contributing the most plastic waste largely being determined by the size of their population and their quality of waste management (Jambeck *et al* 2015). Furthermore, with the high rate of growth of coastal urban areas combined with climate change risks like the increased frequency of severe weather related events (UN-HABITAT, 2009), we are likely to see an increase of serious marine littering. Events such as hurricanes, tsunamis, tropical storms, drastically change the way in which water comes into contact with land and increases the amount of litter it takes with it back to sea. It is estimated that the Tokoku Tsunami in 2011 created marine litter amounts equivalent to thousands of years of litter from Japan’s coastline (Lebreton and Borrero, 2013). According to the Japanese government, the tsunami released 5 million tons of debris into the ocean, 1.5 million tons of which was floating debris (NOAA, 2013). The risks to marine waters from ongoing processes such as climate change and coastal urbanization are inadequately managed by our current governance processes.

In the context of strengthening the national and regional frameworks for improved integrated river basin management (IRBM) and integrated coastal management (ICM), barriers towards effective national and transboundary coordination are multiple – policy, institutional, technological, and financial. These barriers include: difficulties enforcing existing and planned policy and regulatory frameworks to protect water resources and related ecosystems, particularly at the sub-basin level; insufficient investment in capacity building to meet the specific need and conditions across the river and coastal basins and within the SEA countries; lack of national and basin-level ability to prioritize water resources management across the basin, though the allocation of government resources among some countries is increasing; low level of integration and harmonization of development/management plans and/or approaches, both within and between countries; inadequate enabling framework for sustainable land and water use in watershed areas and coastal basins; and lack of updated information on water use in the multi-sector development path and sources of land-based pollution. To reduce pressure on water resources and coastal environment from unsustainable water and land uses, a shift from current unsustainable territorial planning policies and water management practices to effective regulation of relations between river basin and coastal zone is needed.

2) The baseline scenario or any associated baseline projects

⁸ Sundarambal Palani, Rajasekhar Balasubramanian, and Pavel Tkalic. 2012. A 3-D Model on the Possible Role of Atmospheric Deposition in Tropical Coastal Eutrophication, *Marine Science*: 11–21.

⁹ PEMSEA. 2003. Sustainable Development Strategy for the Seas of East Asia.

<http://www.pemsea.org/sites/default/files/sustainable-development-strategy-seas-east-asia-sds-sea-reprint-2011-opt.pdf>

This project will complement the initiatives of the various LME projects (Table 1) and will support implementation of the respective LME SAPs. In many respects, such initiatives will constitute the baseline although details are not known at this stage as the SAP implementation projects for these LMEs are in various stages of formulation. The ongoing upscaling of the SDS-SEA will be clearly complemented by this project as the ICM work mostly focuses on the coastal zone.

Regional cooperation on water resources management has developed through ASEAN on issues of common interest as well as for transboundary rivers, mainly in mainland countries and especially for the Lower Mekong River Basin involving Vietnam, Cambodia, Lao PDR and Thailand. In a region-wide context, the regional cooperation on freshwater management has been established and enhanced through ASEAN policies and mechanisms. The vision for water resources in ASEAN was initially defined in the ASEAN Long Term Strategic Plan of Action for Water Resources Management¹⁰ endorsed by the ASEAN environment ministers in 2002. The vision for water in Southeast Asia by 2025 is: “the attainment of sustainability of water resources to ensure sufficient water quantity of acceptable quality to meet the needs of the people of Southeast Asia in terms of health, food security, economy and environment.”

To ensure that concrete actions are undertaken, the ASEAN Socio-Cultural Community (ASCC) adopted “Blueprint 2009-2015”, which outlines a set of actions to fulfill the Strategic Objectives related to water resources management, namely: (1) continue implementation of the ASEAN Strategic Plan of Action on Water Resources Management; (2) endeavor to reduce by half the number of people without sustainable access to safe drinking water by 2010; (3) manage water resources efficiently and effectively in order to provide adequate and affordable water services by 2015; (4) promote the implementation of integrated river basin management (IRBM) by 2015; (5) promote public awareness and partnership to enhance integrated water resources management (IWRM); and, (6) promote regional cooperation on water conservation measures and programs as well as scientific and technological innovations in water quality improvement and supply. With respect to the coastal area and in recognition of the region’s 173,000 km of coastline, the ASSC in the same Blueprint also committed to “ensure ASEAN’s coastal and marine environment are sustainably managed ...” and “promote cooperation in addressing pollution of coastal and marine environment from land-based sources.”

Even earlier regional work to manage the coastal zone have been initiated, which include among others the ASEAN/US Coastal Resources Management Project (1986 to 1992) and the GEF/UNDP Regional Project for the Prevention and Management of Marine Pollution in the East Asian Seas (1994-1998) and several phases that followed in the framework of PEMSEA. The key intergovernmental agreement that emerged from this effort was the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA), which is a regional marine strategy that implements integrated approaches, in particular ICM, to address constraints and challenges to sustainable development and management of coastal and marine resources. The implementation of the SDS-SEA is spearheaded by the Partnerships in Environmental Management for the Seas of East Asia (PEMSEA), which has evolved into an intergovernmental organization. All of the ASEAN countries proposed in this project are also implementing the SDS SEA with the exception of Myanmar.

The evaluation¹¹ of the implementation of the ASEAN Long Term Strategic Plan of Action on Water Resources Management by the Global Water Partnership (GWP) revealed that all Southeast Asian countries have committed to addressing water-related issues in the form of incorporating elements and components of water resources management in their national development policies, plans, and legislations. After 2000, almost all the countries have formulated comprehensive national water policies based on IWRM principles. However, the countries still face vast challenges in implementing IWRM, which include the need for strengthening of policy and institutional framework, improving compliance and enforcement capabilities, statistically sound monitoring designs, long term data storage facilities and standardized reporting systems, and developing public participation. In order to achieve sustainable utilization of freshwater resources without compromising the economic viability of the coastal areas, new approaches to water and river basin management (i.e., active management of water quality in river basins and coastal waters) are required.

¹⁰ <http://environment.asean.org/files/ASEAN%20Strategic%20Plan%20of%20Action%20on%20Water%20Resources%20Management.pdf>

¹¹ http://www.gwp.org/Global/GWP-SEa_Files/VOL%201_CONSOLIDATED%20COUNTRY%20PAPER.pdf

3) The proposed alternative scenario, with a brief description of expected outcomes and components of the project

In most cases, the spatial boundaries of IWRM/IRBM and ICM have not been clear. In the former, the downstream boundaries often do not go as far as the coast, whereas in the latter, the delineation of and planning for the coastal zone may not explicitly consider the presence of river basins and the upstream influences. However, in reducing pollution and preserving environmental flows in the coastal areas, river systems are an important consideration. Thus, the direct project development objective is to improve water resources management, reduce pollution loads from nutrients and other land-based activities, sustain freshwater environmental flows and reduce climate vulnerability through demonstrations and replications, planning and strengthening of integrated river basin management in selected countries in the East Asian Seas, which are the 8 ASEAN countries eligible to receive GEF funds. To achieve this objective, the proposed project will consist of three components as outlined below.

The proposed project will contribute to two of the objectives of the GEF-6 International Waters Focal Area Strategy. It will support the GEF IW Objective 2 (IW-2): Catalyze investments to balance competing water-uses in the management of transboundary surface and groundwater and enhance multi-state cooperation – Program 4, Water/Food/Energy/Ecosystem Security Nexus, which includes basin/sub-basin scale management supported by adequate regional legal/institutional frameworks for cooperation. The project will also deliver a specific outcome under the GEF IW Objective 3 (IW-3): Enhance multi-state cooperation & catalyze investments to foster sustainable fisheries, restore & protect coastal habitats, reduce pollution of coasts & LMEs – Program 5, Reduce Ocean Hypoxia through working with ASEAN Member States to cumulatively reduce nutrient pollution and coastal hypoxia in the regional seas including the Gulf of Thailand and the Indonesian seas.

Component 1. Baseline Assessment of Source to Sea Management Continuum

The initial component of the project will focus on:

- a) gathering and analyzing information on bio-physical, socio-economic, land-based pollution, water use, governance and management conditions in 8 priority river basins and consolidating that information into baseline assessment reports for the respective watersheds;
- b) improving understanding and building consensus among national and local stakeholders on the importance of integrated management of the priority rivers and the coastal sea areas/LMEs that they flow into; and
- c) assessing available capacities, needs and gaps among stakeholders at regional, national and local levels in IRBM and ICM governance and management.

The principal challenges to be addressed in this component are: a) the gathering and consolidation of information and data from the many different sectors that have authority, responsibility and/or operate in the river basins and coastal areas, including national agencies responsible for agriculture, fisheries, mining, forestry, tourism, transportation, water resource management, environment, etc., as well as local governments, scientific institutions/universities, NGOs and communities (Outputs 1.1.1, 1.1.2, and 1.1.3); b) forecasting future growth and development and the potential benefits and impacts of such development (Outputs 1.1.4 and 1.1.5); and c) building awareness and consensus among the different government authorities, users and beneficiaries of the priority river basins on the need and benefits of a holistic and integrated approach for a source-to-sea management continuum (Output 1.1.6).

To help address the first challenge, PEMSEA's Integrated Information Management System (IIMS) (or similar database that may be available and functioning in each participating country) will be used to store and analyze governance, demographic, socio-economic and environmental data for input to baseline assessment reports, including trend analysis. These data will also serve as input into total pollutant loading and water use models. The models will provide forecasts of water demand among sectors, as well as the potential impacts resulting from conflicting and competing uses of freshwater resources and receiving marine waters. A major part of this component entails a series of awareness building and consultation workshops conducted in each of the priority watershed areas to:

- a) gather feedback on the challenges, conflicts, gaps and needs as perceived by the principal stakeholders at the national and local levels;
- b) identify proposed solutions for improved management and use of the shared freshwater resource; and
- c) explore options for improving the engagement of relevant sectors in the governance and management of the river basins and coastal areas.

The resulting baseline reports will be widely disseminated for validation by the stakeholders. Supplementary materials will be also be prepared and distributed to outline the scope and content of a responsive IRBM action program and to highlight the participatory and consultative nature of the development process. The expected outcome of this effort is an enhanced level of awareness of the need for improved governance and management of the respective river basins and coastal areas among the general public and the principal users of the natural resources, and commitments to be part of the development and management processes.

Table 3 lists the proposed priority national river basins as well as potential replication sites in the 8 ASEAN countries. The table also indicates the receiving marine waters that are of relevance to GEF International Waters Program in the context of discharge areas or receiving LMEs with TDAs and SAPS. A more detailed description of the sites based on available secondary data is provided in Table 4.

Table 3. Proposed national river basins by national water agencies as potential sites for the project

Country	Proposed National River Basins			
	Learning Site	Discharge Area or Receiving LME	Replication Site	Discharge Area or receiving LME
Cambodia	Kampong Bay River	Gulf of Thailand	Kamchay River	Gulf of Thailand
Indonesia	Kapuas River Basin – West Kalimantan, Borneo Island	Indonesian Seas	Limboto-Bolango-Bone River Basin, Sulawesi Island	Indonesian Seas
Lao PDR	Nam Tha River – Louangnamtha, Oudomxay, Bokeo Provinces	Mekong River to South China Sea	Nam Houng River – Xayaboury Province	Mekong River to South China Sea
Malaysia	Sungai Muda River Basin – Kedah, Peninsular Malaysia	Malacca Straits to Andaman Sea	Sungai Muar River Basin – Johor, Negeri Sembilan, Pahang and Malacca	Malacca Straits to Andaman Sea
Myanmar	Tanintharyi River Basin – Southern Myanmar	Andaman Sea	Lensa River Basin – Southern Myanmar	Andaman Sea
Philippines	Pampanga River Basin – central part of Luzon island	Manila Bay to South China Sea	Agno River Basin – northern part of Luzon island	Lingayen Gulf to South China Sea
Thailand	Tha Chin River Basin – central Thailand	Gulf of Thailand	Mae Klong River Basin – western Thailand	Gulf of Thailand
Vietnam	Thi Vai River Basin – southern Vietnam	South China Sea	Vu Gia – Thu Bon River Basin	South China Sea

A survey was conducted among the national agencies that comprise the AWGWRM to identify the priority and replication river basins and provide information necessary to prepare the PIF with the key data in Table 4. With respect to Component 1, it is noted that some countries, namely Indonesia, Malaysia, Philippines and Thailand, have made progress in the development of IWRM/IRBM plans and institutional/governance arrangements at the identified priority sites. However, it is not clear the extent to which the integrated plans have been implemented, the effectiveness of the governance mechanisms or the linkages made to LME and ICM initiatives in the receiving marine waters and coastal areas. For Laos, Myanmar and Vietnam, the introduction and implementation of integrated concepts are still at an early stage. Thus, it is recognized that the starting points for the projects differ across countries and across the priority sites. The project will build upon the existing progress and accomplishments in each country and at each of the sites.

Component 2: Governance for Improved IRBM

In this component of the project, the focus will be on improving water governance through Integrated River Basin Management (IRBM), in order to:

- a) optimize efficient use of water resources while meeting the challenges of sustainable development in the ASEAN countries;
- b) reduce environmental stress through protection of water supplies; and
- c) reduce pollution releases into the freshwater and ultimately into the marine environment of the East Asian Seas.

Component 2 will focus on integrated water resources management through river basin decision-making processes and effective institutional arrangements, inclusive of key affected stakeholders who will be involved throughout project preparation, implementation and monitoring an assessment processes. Improving water resources

management at the river basin/sub-basin level now will help the ASEAN Member States (AMS) to cope with water security challenges in the future.

Component 2 will enable the participating countries to develop and initiate the implementation of integrated coastal area and river basin management plans in the selected sites. The plans will be developed using a participatory process targeting major stakeholders in the river basin and coastal areas who use, benefit from and/or are impacted by the freshwater and marine water resources and the services they provide. This will also entail input from scientists and universities who are working in the river basins and coastal areas (Output 2.1.1).

A major thrust of Component 2 will be initiating the implementation of the IRBM strategies and plans. Due to the limited timeframe of the project, implementation of the plans will specifically target:

- a) setting up or strengthening intergovernmental and multisectoral IRBM and ICM coordinating mechanisms at the national and local levels;
- b) developing and revising supporting policy, regulations and programs, and facilitating adequate human and financial resource commitments to implement the programs; and
- c) strengthening public and private sector investments in required infrastructure and services to meet the objectives of the IRBM plan by preparing feasibility studies and investment and business plans, and promoting sustainable financing mechanisms (e.g., PES; blue carbon; etc.).

Existing institutions for IRBM that are already in place will be assessed and, where necessary, strengthened to enable efficient and effective coordination of IRBM plan implementation interlinked with coastal considerations. For some river basins, the project will need to start by mobilizing a multi-stakeholder body for IRBM coordination in parallel to the formulation of the IRBM plans (Output 2.2.1).

Proposed interventions to improve national and local governance will entail strengthening policy, legal, institutional and financial frameworks. At the regional, the ASEAN Socio-Cultural Community (ASCC) Blueprint 2009-2015 and the new framework for Post-2015, and the ASEAN IWRM Country Strategy Guidelines, address shared or common priority water issues (i.e., land-based pollution contributing to ocean hypoxia) and country capacities in integrated river basin management. Output 2.2.2 targets innovative policies and regulations for IRBM at the national level, thereby providing the enabling policy and legal framework for IRBM in the priority river basins, which can be replicated in other river basins in each country.

A major impediment to the implementation of IRBM and ICM programs is the lack of investment in required infrastructure (e.g., water supply and distribution; sewage collection and treatment; drainage; waste collection, processing and disposal) and services (e.g., water quality monitoring and evaluation; surveillance and enforcement; training and education; communications). Output 2.2.3 will assist national and local stakeholders by providing skills and experience in developing and promoting “bankable projects” to public and private sources of funding. The project will bring together responsible national government agencies, local governments, donors, the business community and investors to plan, develop and initiate required infrastructure projects and services. Bankable projects will be socially, environmentally and economically beneficial to the local communities and the country as a whole, as well as financially sustainable within the context of the capacity- and the willingness-to-pay of users and beneficiaries of the proposed infrastructure and services. To this end, innovative sustainable financing mechanisms (e.g., PES; blue carbon; PPP) will be explored and integrated into the investment and business plans of the various projects.

Component 3: Knowledge Management and Learning

Component 3 consists of three targeted outcomes. Outcome 3.1 is focused on development and adoption of a common set of indicators for measuring the progress and achievements of IRBM governance and management programs, taking into account policies and measures for the multifunctional uses of rivers on a catchment scale and associated institutional changes. It is envisaged that a set of indicators covering “pressures” in targeted river basins, state of the river ecosystems, threats and impacts on goods and services provided by rivers, and societal responses will not only meet the information needs of policy- and decision-makers, but also provide managers and planners with scientifically sound feedback on IRBM programs and investments. The proposed set of indicators measured at a river basin scale will also result in integrated information on the sustainable use and supply of goods and services, underlying cause-effect relationships and possible trade-offs and their spatial distribution (e.g., upstream versus downstream). It is further envisaged that Outcome 3.1 will contribute to the establishment of national and

basin-level mechanisms or units of tasks and responsibilities for river basin management with regard to the development of indicators, data collection, and their application in decision-making. It will build on the regular monitoring work done by participating governments to support the collection of information for the indicators.

Outcome 3.2 enables core groups within each country and river basin with the essential capacities and skills in IRBM development and management. Priority capacity development needs are expected to include water quality monitoring, analysis and reporting, IRBM and ICM development and implementation, and the application of supporting models and tools for socio-economic assessment, water use and forecasting, total pollutant loading, etc. The capacity development needs of managers, planners and implementers of IRBM programs at the national and local levels will be assessed during the project preparation stage and will be regularly reviewed and assessed during project implementation. Adjustments in training and learning programs will be undertaken as required.

Outcome 3.3 results in the transfer of various good practices and lessons learned from the project and promotes upscaling of IRBM to the identified replication sites. The primary target audience for sharing good practices and lessons from the 8 river basin experiences includes national and local resource managers and planners, project managers and implementers, universities and scientific institutions with responsibilities or operations in the priority river basins and replication sites. At the regional level, another target audience includes relevant ASEAN forums and working groups, other LME projects in the region, as well as regional networks of national and local governments, communities, universities and the business/corporate sector established by PEMSEA and other regional programs (Output 3.3.1).

Activities will also be undertaken to identify, package (i.e., case studies; infographics; posters; brochures; policy briefs; investment briefs; etc.) and disseminate innovative knowledge products from the 8 IRBM project sites to a wider audience at the national, regional and global levels (Output 3.3.2). Various forms of media will be utilized as part of a knower management platform including social media, radio and television, blogs and webinars.

Output 3.3.3 facilitates the transfer of knowledge and lessons learned via the IW:LEARN program (financed at 1 percent of the GEF Grant) and other knowledge sharing platforms at the local, national and regional levels. The latter at national and local levels will utilize existing platforms by the participating agencies. At the regional level, collaboration with knowledge sharing platforms, such as those operated by PEMSEA, ASEAN and other potential partners (e.g., GWP), will be explored.

Details of the knowledge management platform, and its linkages to other national, regional and global knowledge platforms (e.g., IW Learn) will be developed during the project preparation stage.

Table 4: Additional information on proposed national river basins from survey of lead national agencies in the AWGWRM

Country/River Basin	Length (km)	Drainage Area (km ²)	Human Population	Protected Areas in the River Basin	Basin-wide Issues	Status of IWRM/IRBM/ICM Efforts
Cambodia: Kampong Bay River Basin	n.d.	2,443	149,000	Bokor National Park	Pollution and siltation; increased flooding due to climate change; saltwater intrusion; water, agriculture, energy (Kamchay Reservoir) nexus; poverty incidence at 35%	No data (n.d.)
Indonesia: Kapuas River Basin	1,140	103,000	2,968,609	Betung Kerihun NP; Lake Sentarum NP; Bukit Baka – Bukit Raya NP	Illegal gold mining; forest/land degradation; illegal logging; untreated domestic waste; sediment loadings to coastal areas; coral reef destruction	RBO formed in 2006; strategic plan following IWRM principles formulated
Indonesia: Limboto-Bolango-Bone River Basin	n.d.	5,253	702,701	Taman Nasional Bogani Nani NP; Bogani Nani Wartabone NP;	Sedimentation; water hyacinth infestation; illegal gold mining; uncontrolled logging	RBO formed in 2006; master plan for implementation of IWRM developed in 2013-2014
Laos: Nam Tha River Basin	197	9,180	195,681	Nam Ha National Biodiversity Conservation Area	Flash floods; erosion; water quality degradation; hazardous discharges (source of drinking water for local population)	IWRM introduced in 2005 but no concrete activities beyond participation in national capacity building initiatives and forums
Laos: Nam Houng River	n.d.	2,958	74,334	Nam Poui National Park	Flooding; erosion; headwater forest degradation; forest conversion to agriculture	IWRM introduced in 2005 but no concrete activities beyond participation in national capacity building initiatives and forums
Malaysia: Sungai Muda River Basin	203	4,219	50,000 households	Permanent reserve forests for Muda, Pedu, Ahning and Beris Dam water catchments	Inadequate water for agriculture, domestic and industrial demand; sand mining and logging; flooding; sedimentation	Some IWRM concepts incorporated into the flood mitigation plan; water allocation scheme developed
Malaysia: Sungai Muar River Basin	n.d.	6,140	660,000	Forest reserves (mangrove and peat swamp)	Serious flooding; saline water intrusion during low flow period; water supply inadequate to meet demand	IWRM Committees at federal, state and district levels are currently being set up.
Myanmar: Tanintharyi-Lenya River Basin*	300	20,300	251,944	Lampi Island NP; Tanintharyi Nature Reserve; Tanintharyi NP (proposed); Lenya NP (proposed)	Land-use changes with agricultural expansion (oil palm and rubber); encroachments; prone to natural disasters; gradual growth of industry; increased use of fertilizers and municipal waste	IWRM concept introduced in 2000 but no concrete activities
Philippines: Pampanga River Basin	260	10,344	6,929,283	Mt Arayat NP; Biak-na-Bato NP; Minalungao Park; various forest reserves covering dam catchment areas	Conflicts in water allocation; pollution; solid waste dumping; serious flooding; intrusion of saltwater; unregulated fishponds in coastal areas; excessive deforestation in headwaters	IWRM plan formulated and the Pampanga River Basin Committee was formed; implementation of the plan is weak
Philippines: Agno River Basin	206	5,952	>4,000,000	Catchment reserves for 3 dams along the river; Upper and Lower Agno Forest Reserves	Mining in the upper reaches; flooding; soil erosion; mine tailings	RBO (Agno River Basin Development Commission) has been put in place.
Thailand: Tha Chin River Basin	320	13,682	2,419,000	Phu Toei NP; Huai Kha Khaeng Wildlife Sanctuary; 2 wetlands; 2 non-hunting areas	Deterioration of water quality due to waste from agriculture (piggeries), domestic waste and industrial waste; floods and droughts; mangrove clearing for shrimp ponds	IWRM practiced since 2005; River Basin Coordinating and Management Sub-Committee in place and functioning
Thailand: Mae Klong River Basin	n.d.	71,414	1,742,000	11 NPs; 5 wildlife sanctuaries; 3 forest parks; 4 non-hunting areas; 3 wetlands	Deterioration of water quality due to waste from various sources; floods and droughts; saltwater intrusion	IWRM practiced since 2001; Mae Klong River Basin Sub-Committee established in 2001 and functioning
Vietnam: Thi Vai River Basin	76	3,400	79,680	Can Gio Biosphere Reserve, Long Thanh-Nhon Trach Mangroves Forest	Waste waters discharged from domestic, industrial and port activities, saltwater intrusion.	IWRM has not been introduced
Vietnam: Vu Gia – Thu Bon River Basin	n.d.	10,350	1,800,000	Ba Na-Nui Chua NP;	Pollution; mining; urban development; hydropower development, saltwater intrusion	IWRM has not been introduced

*Listed as a single river basin in the survey but are separate rivers. Project will work in one these two although information in this table pertains to the two river basins. This will be addressed during project design.

4) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCE, SCCF, and co-financing

The ASEAN region is surrounded by major LMEs that have been historically supported by the GEF, which include the Gulf of Thailand, South China Sea, Indonesian Sea, Sulu-Celebes Seas, Arafura Sea and the Andaman Sea that is part of the Bay of Bengal. In the past decades, increased population, rapid economic growth, combined with region-wide social inequities among the SEA countries have exerted increasing pressures on riverine and coastal resources of the region. Region-wide development activities also brought along various common or shared environmental issues, such as air, water and land pollution, urban environmental degradation, transboundary haze pollution, and depletion of natural resources, particularly biological diversity. River basin and coastal area management and related land-based sources of pollution are among the most important issues facing the countries in the context of sustainability and the future of regional seas. Most pollutants and materials discharged from land-based activities are carried by rivers and streams into the marine and coastal systems causing deleterious impacts on the marine environments and posing threats to economic development and human health.

A relatively large number of both regional agreements through ASEAN sectoral bodies and national policies and programs on water resources and coastal management adopted in the last two decades attest to the determination of the SEA countries to address their common and transboundary issues. The proposed project will build on these regional and national initiatives and has been designed to enable the countries to prioritize integrated river basin management while addressing existing and potential impacts of major pollution from land-based sources to the coastal environment. This effort would lead to the adoption of a set of IRBM plans at the basin or sub-basin level based on IWRM and ICM principles, which will strengthen IWRM and ICM implementation and linkages at both national and transboundary levels. The GEF resources will support incremental activities including implementation of a series of basin or sub-basin level integrated water resources management and planning processes in river basins in eight ASEAN countries, showcasing innovative integrated river basin and coastal area management in line with the concepts of Ridge to Reef or Source to Sea.

The proposed GEF incremental activities would consolidate a common knowledge base and build foundational capacity for enhancing regional synergy and cooperation. The present project will be co-financed by a number of baseline national and basin-level authorities in all eight participating SEA countries. Regional target programs of ASEAN community on water and coastal management and related areas of concern such as the ASEAN Programme on Sustainable Management of Peatland Ecosystem (2014-2020), the ASEAN IWRM Country Strategy Guidelines, the Promotion of Environmentally Sustainable Cities (ESC) in ASEAN and East Asian Countries (ASEC ESC Model Cities Year 2), the ASEAN-Korea Environmental Cooperation Project (AKECOP), and the ASEAN-China Environmental Cooperation Strategy (2015-2020) would be consulted during the project development for possible co-financing. UNDP, as Implementing Agency for this project will provide co-financing from its water and ocean governance programme implementation and jointly with the PEMSEA through the implementation of the SDS-SEA program.

5) Global environmental benefits (GEFTF) and/or adaptation benefits (LDCE/SCCF)

The global environment benefits associated with the proposed project relate to contribution to reduction of nutrient pollution and coastal hypoxia by decreasing pressures on freshwater, coastal and marine resources in the SEA river basins and LMEs through innovative IRBM policy and on-the-ground implementation, as well as to promotion of the Water/Food/Energy/Ecosystems Security Nexus for enhancing water productivity, water quality and management in basin planning and implementation for multi-purpose delivery of water and ecosystem services in the long term. By linking action and implementation in river basins and coasts, the project would support stress reduction in freshwater ecosystem services and improve riparian and coastal livelihoods in the SEA region where freshwater become more vulnerable to stress particularly those associated with problems of pollution in natural water bodies including rivers and streams caused by diffuse pollution and nutrient runoff from agriculture, domestic sewage discharges, and industrial wastewater, causing deleterious impacts on the environments and posing threats to economic development and human health.

6) Innovativeness, sustainability and potential for scaling up

The project's integrated river and coastal management approach offers strong mechanisms to integrate water considerations into cross-sector policy development and provides an effective management instrument for multiple stakeholders to address common-pool resources within agreed governance frameworks. It can contribute directly to a number of water management measures that are identified through existing national and basin/sub-basin IWRM-based IRBM and ICM plans. In addition, the IRBM and ICM plans and the consultations undertaken during their development can strengthen the basin planning process by providing information on the potential impacts of development plans on water resources and the aquatic, marine and coastal environments and help ensure these important considerations are adequately accounted for in basin planning.

The combination of having the proposed project implemented by the national and basin/sub-basin level authorities with the technical and political support of the ASEAN bodies and regional partners such as PEMSEA would enable both collaboration at the government level in existing fora for cooperation on water resources management (i.e., AWGWRM and concerned national agencies) as well as operationalization benefiting from the existing multi-stakeholder settings of the basin management authorities/units in the participating countries. Although existing capacity in government across ASEAN may be limited to provide the necessary and required support for integrated river basin management, the willingness to work towards such goals are reflected in the provision of national water sector strategies, policies and regulations, as well as commitment through regional cooperation. This setting would allow the SEA countries to harmonize instruments in order to achieve more sustainable river and coastal basin management.

Following the successful model for ICM pioneered by PEMSEA, the proposed project is designed to promote replication and scaling up at the basin and/or sub-basin level by identifying potential sites for replication early on at the proposal development stage. The project will promote cooperative action among agencies concerned and stakeholders at the basin/sub-basin level, thereby fostering joint planning of the sustainable management of target river basin in the respective countries, with opportunities to share knowledge and lessons across basins and countries. Demonstrated activities, promoting innovative approach in addressing freshwater and coastal issues through integrated river basin management, will build on national and local knowledge and awareness providing the opportunity for continued support and partnerships, involving participation of local leaders with local and national governments as well as the private and non-profit sectors. The widespread adoption of integrated river basin management practices in the SEA countries and their continued application beyond the life of the project are therefore envisaged.

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:

Key stakeholders in this project include national and local government agencies responsible for water resources management of the eight participating countries in Southeast Asia, respective river basin organizations, ASEAN Secretariat, academic and research institutions, concerned non-governmental organizations at national and local levels, and international cooperation partners.

ASEAN Secretariat: The ASEAN Secretariat was set up in February 1976 by the Foreign Ministers of ASEAN. The ASEAN Secretariat's basic function is to provide for greater efficiency in the coordination of ASEAN organs and for more effective implementation of ASEAN projects and activities. The Secretariat will be involved in the regional components of the projects and also in its coordination support for the AWGWRM.

AWGWRM: The ASEAN Working Group on Water Resources Management (AWGWRM) was formed by the ASEAN Senior Officials on the Environment (ASOEN) in July 2002. The AWGWRM aims to promote networking and engage in collaborative action towards the practical implementation of integrated water resources management (guided by the ASEAN Strategic Plan of Action for Water Resources Management); promote and facilitate the exchange of relevant information, expertise, technology and know-how among water resource agencies of member countries; and provide or make arrangements for relevant training, education and awareness-raising campaigns. In accordance with its mandate, the AWGWRM will serve as the Regional Steering Committee for the project.

AWGCME: The ASEAN Working Group on Coastal and Marine Environment (AWGCME) with its mandate on the coastal environment, will be informed of the project through the ASEAN Secretariat.

PEMSEA: The Partnership for the Environmental Management for the Seas of East Asia (PEMSEA) is an intergovernmental organization based in Manila that evolved from a UNDP-GEF project, the first phase of which started in 1993. PEMSEA spearheads the implementation and scaling up of integrated coastal management (ICM) in 7 of the 8 GEF-eligible countries in the ASEAN with the exception of Myanmar. PEMSEA’s work is embodied in the Sustainable Development Strategy for the Seas of East Asia (SDS-SEA) that recognizes the ecological and developmental links between river systems and coasts in achieving healthy ecosystems.

LME SAP Implementation Projects. The formulation of SAP implementation projects in the 4 relevant LMEs namely, South China Sea, Bay of Bengal, Sulu Celebes (Sulawesi) Seas and Arafura and Timor Seas are in various stages. The proposed project will work closely with these initiatives to ensure that the entire Source-to-Sea continuum is covered therefore ensure achievement of global environmental benefits. This will involve other UN agencies such as UNEP for South China Sea and FAO for Bay of Bengal. UNDP covers the other two LMEs.

Table 5: Water-related National Governments under ASEAN Cooperation

Country	ASOEN Focal Point	AWGWRM Focal Point	AWGCME Focal Point
Cambodia	Ministry of Environment	Ministry of Environment/Ministry of Water Resources and Meteorology	Ministry of Environment
Indonesia	Ministry of Environment and Forestry	Ministry of Public Works	Ministry of Environment and Forestry
Lao PDR	Ministry of Natural Resources and Environment	Ministry of Natural Resources and Environment	Ministry of Natural Resources and Environment
Malaysia	Ministry of Natural Resources and Environment	Ministry of Natural Resources and Environment	Ministry of Natural Resources and Environment
Myanmar	Ministry of Environmental Conservation and Forestry	Ministry of Transport	Ministry of Education
Philippines	Department of Environment and Natural Resources	Department of Environment and Natural Resources	Department of Environment and Natural Resources
Thailand	Ministry of Natural Resources and Environment	Ministry of Natural Resources and Environment	Ministry of Natural Resources and Environment
Viet Nam	Ministry of Natural Resources and Environment	Ministry of Natural Resources and Environment (MONRE)	Waste Management and Environment Improvement Department, Viet nam Environment Administration, MONRE

Local Governments/River Basin Organizations (RBO): In some SEA countries, particularly Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand and Vietnam have established basin-level authorities/management units to regulate, manage and/or provide water-related services in the basin areas. In the proposed priority river basins, the project will work closely with the existing authorities, as well as with concerned national and local authorities for suitable arrangement of specific institutions at the basin or sub-basin level, to achieve the project objectives.

Other Stakeholders: The project will integrate smaller initiatives at the basin/sub-basin level being driven by CSOs for linking to national and/or regional initiatives. Some examples of water-related CSOs include KNI-BB, SKEPHI and HKTI in Indonesia; MyWP and MWA in Malaysia; MmWp and ARBRO in Myanmar; Pampanga River Basin Committee in Philippines; WLTSN and MKWUG in Thailand; and, Clear water Union, Vietnam river network, and Center for Conservation and Development of Water Resources in Viet Nam.

International and regional partners such as Wetlands International, WWF Malaysia, Network of Asian River Basins Organization (NARBO), GWP-SEA, PEMSEA, and International Water Management Institute (IWMI) can facilitate IWRM, ICM, transboundary, and research aspects of the project and support the global IWRM/ICM linkages. The project will strive to engage more stakeholder involvement, particularly the **private sector**, in integrated river basin management for reducing water pollution and addressing Water/Food/Energy/Ecosystem Security Nexus which are essential elements of the success of the project.

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.

The proposed project realizes the potential of IRBM based on stakeholder visions and experiences. Recognizing innovative approaches to sustainable water and coastal management would create a long-term vision for policy reform and participatory planning at both national and basin level, the project will make steps to contribute to improved process to mainstream gender¹² in water and coastal management activities and improved collaboration between researchers, managers and practitioners with gender and water experts to find practical and realistic approaches to gender mainstreaming. At the basin level, in particular, the project would support mechanisms to engage all stakeholders in implementation by working collaboratively and collectively through a strong networking arrangement with project partners in raising awareness amongst decision makers and policy developers on the potential of bottom-up strategies for negotiated integrated management of river basin ecosystems, based on participatory decision-making and the equitable distribution of responsibilities, burdens and benefits between women and men as well as their equal participation in dialogue and decision-making in the development and management of sustainable water resources.

A.4 *Risks*. 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):

The following risks have been identified as potentially hindered the ability of the project to reach its objective and needed mitigation efforts and/or close monitoring during the project implementation.

Table 6: Project Risks Assessment and Mitigation Measures

Risks	Rating	Risk Mitigating Measures
Integrated approach and mechanisms lacking for river and coastal basin management	Low	The project will introduce integrated coastal area and river basin management or Source to Sea training and exchange of knowledge and lessons with the relevant sectors of government in cooperation with NGOs and community organisations. Involvement of the river basin organizations and local authorities will be essential as they are key IRBM stakeholders and water users. A more systematic approach to water and coastal management will be developed by all stakeholders and incorporated into national and basin-level policy. Capacity building in IWRM-ICM will be emphasized with government and NGO staff, and community representatives.
Lack of national and local political support and buy-in for implementation of IRBM	Medium	IWRM and ICM concepts have been widely accepted and implemented in SEA. The project will build on the experience of ASEAN cooperation on IWRM and ICM at both regional and national levels, while ensuring that key stakeholders are involved in project planning and implementation, and offered appropriate training. The project would strive to work closely with decision-makers, particularly at basin/sub-basin level, and give an active role to the regional project steering committee (AWGWARM) with support from the ASEAN Secretariat, taking into account policy making and on-ground capacity. More importantly, the project will strive to influence IRBM stakeholders to allocate the necessary funds to implement IRBM plans.

¹² For example, following the work of UNDP in this area:

http://www.undp.org/content/undp/en/home/ourwork/environmentandenergy/focus_areas/water_and_ocean_governance/gender-and-water.html

Risks	Rating	Risk Mitigating Measures
Complex water and land use policy and practice in river basins will impede adoption of integrated management approaches	Medium	Given the nature of the proposed project – oriented toward joint fact finding, consensus building, establishing processes, creating enabling political environments, it is envisaged that the integrated river basin management approach will facilitate the recognition of implications of upstream land use practices and water resources development projects on coastal water resources and communities living in the coastal margin. The project would emphasize active management of water quality in river basins and coastal waters that can obviate or reduce deleterious effects and yield enhanced opportunities for sustainable socio-economic advantage.
Lack of capacity in government staff and community-based basin organizations to undertake project activities and sustainability	Low	The incentive for supporting government staff and other stakeholders at national and basin levels through site-specific demonstration and well-designed and effective knowledge management/learning activities, with strong political and technical support at regional, national and basin/sub-basin levels, would play a role in ensuring stakeholder engagement and sustainability.

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

The proposed project, being the first SEA regional initiative to address common IWRM-ICM water issues at the basin and sub-basin level, will build on the experiences and lessons learned from relevant GEF-financed initiatives on IWRM and ICM within and beyond the SEA region. In particular, the project employs IWRM and ICM practices and solutions through successful demonstrations and achievements at both regional and national levels under the series of UNDP/GEF Projects under the PEMSEA framework, the UNDP/UNEP/GEF Project on “Implementing Sustainable Water Resources and Wastewater Management in Pacific Island Countries” and the UNDP/UNEP/GEF Integrating Watershed and Coastal Area Management (IWCAM) project (Caribbean SIDS). The project will keep up to date and in close collaboration with relevant new initiatives being developed in the SEA region, including “World Bank/GEF Partnership Investment Fund for Pollution Reduction in the Large Marine Ecosystems of East Asia (Tranche 1, 2nd Installment),” “UNDP/GEF EAS: Scaling up the Implementation of the Sustainable Development Strategy for the Seas of East Asia,” “UNEP/GEF Implementing the Strategic Action Programme for the South China Sea,” the UNEP/GEF Project on “Sharing Knowledge on the Use of Biochar for Sustainable Land Management, and the ADB/GEF Project on “GMS Forest and Biodiversity Program (GMS-FBP) - Creating Transboundary Links Through a Regional Support.” The project will also coordinate with other relevant projects and stakeholders at both regional and national through the AWGWRM platform and through international initiatives such as GWP, PEMSEA, NARBO, and IWMI. At each country level, coordination will be facilitated by the national project focal points that are also members of the AWGWRM.

A.6. Consistency with National Priorities. 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 proposed project would support the SEA countries in implementing the ASEAN Long Term Strategic Plan of Action on Water Resources Management and related existing and proposed ASEAN action plans on coastal and marine environment, climate change, nature conservation and biodiversity, as well as transboundary haze pollution. Under the ASEAN cooperation on water resources, the Member States agree to set up policy and implement IWRM as part of national strategies and meet annually to report the progress. The ASEAN Member States (AMS) have adopted the ASEAN Strategic Plan of Action on Water Resources Management - ASPAWRM (2005-2025) which aims to tackle issues relating to demand and supply allocation, water quality and sanitation, extreme events, and governance and capacity building. Specifically, based on measures adopted by the international community and the ASEAN Leaders in 2004 under the Vientiane Action Programme (2004-2010), the ASPAWRM promotes integrated river basin management and awareness to enhance integrated water resources management. The draft ASEAN Community’s Post-2015 Vision and its attendant documents being developed by AMS also include conservation and sustainable management of ASEAN water and coastal resources as one of the key results.

At national level, a number of the AMS have adopted water-related/IWRM policy and practices at national and basin levels, as outlined in Table 7 below. The proposed project would assist AMS in strengthening and implementing national policies and strategies for the improved management of water resources, particularly focusing on linked issues of water resources and coastal management at the basin or sub-basin level. Alignment with national and basin level programmes supported by the governments and their partners would facilitate linkages between the regional level and national level. With respect to ICM, the 8 countries also subscribe to the SDS-SEA, and the project will be specifically aligned with SDS-SEA on extending the implementation of integrated watershed development and management programs to major river basins draining into the East Asian Seas as indicated in Table 1. Lastly, the project supports a range of commitments pertaining to reducing pollution inputs and maintaining environmental flows to coastal areas enumerated in the various endorsed LME SAPs.

Table 7: National Water Resource Policy and Strategy in SEA¹³

Country	Water Resources Policy	Water Legislation Framework
Cambodia	A comprehensive NWRP was formulated in 2004; Existence of several sectoral policies related to IWRM, such as National Policy on Water Supply and Sanitation(2003); Draft of sub-decrees on River basin Organization and Water Licensing.	A comprehensive WRM Law was enacted in 2007; New sectoral laws were enacted during 2000-2010: Land Law, 2001, Forestry Law, 2002, Fishery Law, 2002, Inland Water Navigation Law, 2010; Existence of royal decrees, sub-decrees and other legal documents, such as sub-decrees on River Basin Management.
Indonesia	National WRDM Policy approved by NWRC in 2011; Water Resources Management Policy Reform carried out to enhance IWRM; Existence of several WRM policy, such as irrigation, water supply and sanitation, water quality, river basin management, climate change mitigation and adaptation, national action plan on MDG's which are developed during the period 2000-2010.	Comprehensive Water Resources Law was enacted in 2004; New or revised water regulations were formulated for the following sectors during the period of 2000-2010: Irrigation, water supply, river basin management, water quality, groundwater, dam construction.
Lao PDR	NWRP formulated in 2000; Review of NWRP carried out in 2009; NWRP, Strategy and Action Plan (2011-2015).	Law on Water and Water Resources 1996 was implemented in 2001.
Malaysia	No comprehensive policy on WR at National level; A draft overall comprehensive policy has been prepared, to be tabled at the National Water Resources Council in October 2011; 8 new sectoral policies related to WRM was formulated during the period 2000-2010: National Climate Change Policy, National Mineral policy, Food Security Policy, National Solid Waste Mgt Policy, Third National Agricultural Policy, National Biodiversity Policy, National Urbanization Policy, Green Technology Policy, National Water Vision formulated in 2000.	No comprehensive law on WR at national level; Only 4 out of 13 states have enacted comprehensive WRM laws, allowing for the setting up of State Water Management Bodies; New National laws enacted during 2000-2010: Water Services Industry Act (2006).
Myanmar	No single comprehensive NWRP; Existence of several sectoral policies related to WRM, such as, agricultural sector, irrigation development, watershed conservation, environmental conservation and energy.	No specific comprehensive WRM Law enacted before 2000; Most existing laws were Conservation of Water Resources and River Law enacted in 2006.
Philippines	1998 – Master Plan for Water Resources Management; After 2000 - several sectoral policies formulated addressing issues related to WRM, such as: Irrigation Sector, Water Supply and Sanitation, Flood Management, River Basin Sector, Forest/Watershed.	No comprehensive national WRM law based on IWRM principles; 3 laws legislated between 2000-2010 addressed sectoral issues: Wildlife Resources and Conservation Act(2001), Clean Water Act (2004), Climate Change Act (2009).

¹³ Information is adapted from Global Water Partnership Southeast Asia. 2011. Evaluation of the Status of IWRM Implementation in Southeast Asia 2000-2010 in Respect to Policy, Legal and Institutional Aspects.

http://www.gwp.org/Global/GWP-SEa_Files/VOL%201_CONSOLIDATED%20COUNTRY%20PAPER.pdf

Country	Water Resources Policy	Water Legislation Framework
Thailand	National Water Resources Committee, 1989; Draft of National Water Law, 1994; National Water Vision, July 2000; National Water Policy, Oct 2000; National Water Resources Strategic Plan, 2007.	No comprehensive National Water Resources Law (NWRL).
Viet Nam	NWR Law, 2012; NWRC established in 2000; After 2000 - several policies formulated addressing issues related to WRM, such as: implementation of the water resources Law, 2013; Water rights licensing 2003 and 2014, Exchange of water information 2003, Water supply and sewerage 2007, Flood and disasters 2007, Environment flows 2008, River basin management 2008. National Target Program to Respond to Climate Change, 2008; Vietnamese standards of water quality, waste water discharges,	Comprehensive Law on WRM enacted in 2012; Several laws related to WRM address sectoral issues, such as, Law on Environment (2014); Law on Land (2013); Law on Forestry (2004); Law on Fisheries (2003); Law on Navigation (2004); Law on Dike-Flood control (2006); Law on Biodiversity (2008).

A.7. Knowledge Management. Outline the knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.

Recognizing that integrated water management or especially integrated river basin management to be efficiently applied in practice needs both knowledge and practical tools, the proposed project will develop innovative integrated river basin knowledge and management tools, as well as well-planned structured stakeholder consultation processes in order to facilitate basin planning and management. With targeted basins/sub-basins to be managed for improved effectiveness in water resources management, reduce pollution loads from nutrients and other land-based activities, sustain freshwater environmental flows and reduce climate vulnerability through demonstrations and replication or scaling up, the project will facilitate direct exchanges on best practices and enhance capacity and expertise of river basin organizations in target demonstration sites through collecting and disseminating the shared knowledge for the common benefit of all. The project is intended to demonstrate an innovative approach to IRBM, enhance national and local capacity in IRBM knowledge management, and to apply lessons learned throughout the river basin in the SEA region, as well as to elsewhere via IW:LEARN services.

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

A. RECORD OF ENDORSEMENT¹⁴ 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)
Mr. Lonh HEAL	Technical Director General	Ministry of Environment Cambodia	07 March 2016
Ms. Ibu Laksmi DHEWANTHI	Senior Advisor to the Minister for Industry and International Trade	Ministry of Environment and Forestry Indonesia	07 July 2016
Mr. Khampadith KHAMMOUNHEUANG	Deputy Director General, Environment Department,	Science Technology and Environment Agency Lao PDR	27 January 2016
Dr. Gary William THESEIRA	Deputy Undersecretary	Ministry of Natural Resources and Environment Malaysia	31 March 2016
Mr. Hla Maung THEIN	Deputy Director General, Environmental Conservation Department	Ministry of Environmental Conservation and Forestry Myanmar	04 March 2016
Ms. Analiza REBUELTA	Undersecretary	Department of Environment and Natural Resources Philippines	18 April 2016
Dr. Mr. Nam Thang DO	Deputy Director General, Department of International Cooperation	Ministry of Natural Resources and Environment Vietnam	08 August 2016

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies¹⁵ 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
Adriana Dinu UNDP-GEF Executive Coordinator		3 March 2017	Jose Erez Padilla	+66 2 304 9100 ext 2730	jose.padilla@undp.org

¹⁴ 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.

¹⁵ GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, and SCCF