



PROJECT IDENTIFICATION FORM (PIF) ¹

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND:SCCF

PART I: PROJECT IDENTIFICATION

Project Title:	Climate Resilient Coastal Protection and Management		
Country(ies):	India	GEF Project ID: ²	4536
GEF Agency(ies):	AsDB (select) (select)	GEF Agency Project ID:	40156
Other Executing Partner(s):	Ministry of Water Resources (MoWR); Ministry of Environment and Forests (MoEF); Governments of Maharashtra and Karnataka States.	Submission Date:	2011-09-14
GEF Focal Area (s):	Climate Change	Project Duration (Months)	36
Name of parent program (if applicable): ➤ For SFM/REDD+ <input type="checkbox"/>		Agency Fee (\$):	181,818

A. FOCAL AREA STRATEGY FRAMEWORK³:

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
CCA-1 (select)	1.1 Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas. (Component 1)	1.1.1 Adaptation measures and necessary budget allocations included in relevant frameworks for coastal zone management in 2 states.	SCCF	123,182	2,000,000
CCA-1 (select)	1.2 Reduced vulnerability to climate change in development sectors. (Component 2)	1.2.1 Vulnerable physical, natural and social assets strengthened in 2 states in response to climate change impacts, including variability.	SCCF	200,000	5,000,000
CCA-1 (select)	1.3 Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas. (Component 2)	1.3.1 Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability.	SCCF	100,000	1,647,620
CCA-2 (select)	2.1 Increased knowledge and understanding of climate variability and change-induced threats at country level and in targeted vulnerable areas. (Component 3)	2.1.1 Risk and vulnerability assessments conducted and/or updated for coastlines in 2 states.	SCCF	400,000	1,000,000
CCA-2 (select)	2.3 Strengthened awareness and ownership of adaptation and climate risk	2.3.1 Targeted population groups participating in adaptation and risk reduction	SCCF	525,000	27,948,285

¹ It is very important to consult the PIF preparation guidelines when completing this template.

² Project ID number will be assigned by GEFSEC.

³ Refer to the reference attached on the [Focal Area Results Framework](#) when filling up the table in item A.

	reduction processes at local level. (Component 3)	awareness activities			
CCA-3 (select)	3.1 Successful demonstration, deployment, and transfer of relevant adaptation technology in targeted areas. (Component 2)	3.1.1 Relevant adaptation technology transferred to targeted groups through implementation of pilot demonstration projects.	SCCF	250,000	10,000,000
CCA-3 (select)	3.2 Enhanced enabling environment to support adaptation-related technology transfer. (Component 1)	3.2.1 Skills increased for relevant individuals in transfer of adaptation technology in 2 target states and at national levels .	SCCF	100,000	5,432,953
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)	Others		(select)		
Sub-Total				1,698,182	53,028,858
Project Management Cost ⁴			SCCF	120,000	1,652,142
Total Project Cost				1,818,182	54,681,000

B. PROJECT FRAMEWORK

Project Objective: To strengthen the resilience of coastal ecosystems and communities to the adverse impacts of climate change by creating conducive institutional policy and practice frameworks for mainstreaming climate change considerations into coastal protection and shoreline management.

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Cofinancing (\$)
1. Climate resilient shoreline management and planning	TA	Coastal areas in Maharashtra and Karnataka are managed to mitigate immediate erosion and long-term climate change issues (CCA-1.1, CCA 2.1)	1.1 Compilation and interpretation of the latest climate change projections, key vulnerabilities and their implications for sustainable coastal protection and shoreline management in targeted states. 1.2 A review/compendium of global best practice of climate change resilience building measures within shoreline management policies and plans, enabling input into National and State level coastal protection policy and strategy reform. 1.3 A set of methods and a practical toolkit including the development of planning and design criteria to support day-to-day coastal protection decision-	SCCF	450,000	6,730,000

⁴ GEF will finance management cost that is solely linked to GEF financing of the project.

			<p>making using environmentally sustainable methods, within the context of climate change adaptation.</p> <p>1.4 Preparation of climate resilient shoreline management plans in 2 States.</p> <p>1.5 A functional coastal management information system in each state with linkages to central agencies.</p> <p>1.6 Trained staff at national and State level capable of managing and maintaining the system.</p>			
2. Improved infrastructure planning and community livelihoods through climate change vulnerability assessments	TA	<p>Increased awareness and capacity of sector agencies at National and State levels regarding the assessment of climate change impacts and adaptation options for coastal protection interventions (hard and soft) (CCA-2.1, CCA-3.2)</p> <p>Enhanced livelihood opportunities for coastal communities; and adaptation of coastal communities to climate change through engagement with the project (CCA-1.3).</p>	<p>2.1 Climate change vulnerability assessments undertaken for selected coastal zones in the target states linked to investments supported by the ADB Sustainable Coastal Protection and Management Investment Program (SCPMIP).</p> <p>2.2 Costs and benefits of climate change resilience measures for SCPMIP coastal infrastructure investments assessed, with methods disseminated; and options prioritised.</p> <p>2.3 Development of opportunities for increased community participation in the management of investments in coastal protection (soft and hard) incorporating adaptation to climate change.</p>	SCCF	348,182	5,712,000
3. Climate resilient coastal protection infrastructure	Inv	<p>Enhanced climate change resilience of coastal protection infrastructure in 2 target States (hard and soft) (CCA-3.1, CCA-2.3)</p> <p>Coastline subject to erosion is reduced to 380 km from the present level of 530 km (CCA-1.2)</p>	3.1 Specific climate change resilience factors and designs for coastal investments (hard and soft) integrated into the SCPMIP in the two target states.	SCCF	750,000	35,000,000
4. Institutional	TA	Improved human	4.1 National guideline and	SCCF	150,000	5,586,858

strengthening, knowledge management and learning for coastal protection and shoreline management		<p>resource and technical capacity building to address shoreline management within the context of climate change (CCA-2.1).</p> <p>Enhanced institutional capacity and structural arrangements for sustainable coastal protection and management to catalyse climate change resilience building measures (CCA-2.1)</p> <p>Established national and regional knowledge sharing networks, to leverage lessons learned (CCA-2.1)</p>	<p>best practice manual for the integration of climate change factors into shoreline management plans.</p> <p>4.2 Technical training and practical demonstration of methods and approaches for the integration of climate change consideration into coastal protection and shoreline management targeting sectoral agencies, including the MoWR Central Water Commission (CWC), and Central Water and Power Research Station (CWPRS) management; and State agencies including the Karnataka Public Works, Ports and Inland Water Transport Department; and the Maharashtra Maritime Board.</p> <p>4.3 Enhanced institutional arrangements and dialogue mechanisms established between MoWR, MoEF and the Maritime States regarding the integration of climate change factors into shoreline protection and management.</p> <p>4.4 Knowledge and tools, generated by the project, is documented, evaluated and disseminated nationally to all Indian Maritime States, including through the SCPMIP information management system.</p> <p>4.5 Project knowledge, including tools and methods, disseminated regionally through recognised climate change knowledge networks, including the Asia Pacific Adaptation Network (APAN) and the Nairobi work programme under the UNFCCC, and GEF-UNDP-UNEP Adaptation Learning Mechanism.</p>			
	(select)			(select)		
	(select)			(select)		
	(select)			(select)		

	(select)			(select)		
	(select)			(select)		
	(select)			(select)		
Sub-Total					1,698,182	53,028,858
Project Management Cost ⁵				(select)	120,000	1,652,142
Total Project Costs					1,818,182	54,681,000

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)

Sources of Cofinancing	Name of Cofinancier	Type of Cofinancing	Amount (\$)
GEF Agency	ADB	Hard Loan	37,681,000
Local Government	State of Maharashtra	In-kind	4,800,000
Local Government	State of Karnataka	In-kind	12,200,000
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
(select)		(select)	
Total Cofinancing			54,681,000

D. GEF/LDCF/SCCF RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY¹

GEF Agency	Type of Trust Fund	Focal Area	Country Name/Global	Grant Amount (a)	Agency Fee (b) ²	Total c=a+b
AsDB	SCCF	Climate Change	India	1,818,182	181,818	2,000,000
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
Total Grant Resources				1,818,182	181,818	2,000,000

¹ In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table

² Please indicate fees related to this project.

⁵ Same as footnote #3.

PART II: PROJECT JUSTIFICATION

A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

A.1.1 the GEF focal area/LDCF/SCCF strategies:

Consistent with the adaptation priorities identified in India's Initial National Communications to the UNFCCC, the project will implement high priority interventions to assist urgent adaptation needs. It will catalyze and leverage additional co-financing resources from multilateral sources. The GEF/SCCF financing will help to cover additional costs associated with achieving sustainable development under a changing climate. The project's focus on safeguarding India's coastal protection infrastructure against future climate risk, by pursuing a range of adaptation measures in infrastructure resilience building, policy development and institutional strengthening, is directly aligned with the scope of SCCF expected interventions, as articulated in the SCCF programming paper. As climate impacts fall disproportionately on the poor, the project also explicitly recognizes the link between adaptation and poverty reduction through ensuring that coastal protection infrastructure contains heightened climate-resiliency supporting income generation within coastal communities (GEF/C.28/18, 1(b), 29). In addition, the project focuses strongly on systemic support for mainstreaming, aligning directly to GEF's intended shift to a more programmatic approach to SCCF adaptation financing. Opportunities also exist for the GEF grant to leverage the mainstreaming of climate change adaptation within coastal protection infrastructure investments supported by the ADB Sustainable Coastal Protection and Management Investment Program (SCPMIP), which will be implemented as a 3 tranche program of investments with a total funding envelope of US\$361.5 million. Furthermore, the development of methods and toolkits for integrating climate change resilience measures into shoreline management planning, and the lessons learned and technical capacity developed through the project will further enable broader national mainstreaming.

At an outcome level the interventions described above will contribute directly to GEF Climate Change Adaptation including:

- **CCA-1 - Outcome 1.1** *“Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas”*, through the mainstreaming of climate change resilience within participatory shoreline management planning in two coastal states;
- **CCA-1 - Outcome 1.2:** *“Reduce vulnerability in development sectors”* by reducing the vulnerability of coastal assets, including land, houses, infrastructure and businesses to coastal erosion and climate change;
- **CCA-1 - Outcome 1.3** *“Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas”*, by reducing impacts to property and livelihoods due to coastal erosion and through the development of new income opportunities for coastal communities through participation in the construction and management of coastal infrastructure, including management interventions to support “soft natural infrastructure” such as coastal dunes, mangrove ecosystems and other vegetative buffers;
- **CCA-2 - Outcome 2.1** *“Increased knowledge and understanding of climate variability and change-induced risks at country level and in targeted vulnerable areas”*, through the compilation and interpretation of the latest climate change projections for application to shoreline management; the completion/updating of local level vulnerability assessments of selected coastal zones in two target states; and the strengthening of institutional knowledge and capacities targeting the Ministry of Environment and Forests (MoEF), the Ministry of Water Resources (MoWR) Central Water Commission (CWC), and Central Water and Power Research Station (CWPRS); and State agencies including the Karnataka Public Works, Ports and Inland Water Transport Department; and the Maharashtra Maritime Board.
- **CCA-3 - Outcome 3.1** *“Successful demonstration, deployment, and transfer of relevant adaptation technology in targeted areas”*, through the integration of climate change resilience factors and designs for coastal infrastructure investments under the SCPMIP, including through innovative and “soft technologies” and approaches such as the construction of artificial reefs and natural protection through the development of and planting of dunes and the planting of mangroves and other trees for protection and shelter.

A.1.2. the LDCF/SCCF eligibility criteria and priorities:

This project addressed two of the priority areas for SCCF financing – infrastructure development and integrated coastal zone management - based on GEF criteria (November 18, 2010 Council paper) and is country-driven, cost-effective, and will integrate climate change risk considerations into coastal zone infrastructure investments. It responds to national sustainable development and poverty-reduction strategies, and addresses adaptation priorities identified in the country's Initial National Communications to the UNFCCC.

A.2. national strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NIPs, PRSPs, NPFE, etc.:

In its Initial National Communication (INC) to the UNFCCC, India highlighted that future climate change in the coastal zones is likely to manifest through the aggravation of some of the existing coastal issues including erosion, flooding, subsidence, deterioration of coastal ecosystems. This would have significant implications for the coastal population and agricultural performance of India. The importance of climate change is recognized at the highest levels of Government in India. In June 2007, the Prime Minister's Council on Climate Change was formed to coordinate national action for assessment, adaptation and mitigation of climate change. This has been supported by statements from the Ministry for Environment and Forests (MOEF) that underline that India's primary focus is on adaptation, with specific niches for greenhouse-gas mitigation. Subsequently, the Prime Minister's Council has released the National Action Plan of Climate Change (NAPCC) in 2008, which identifies adaptation as a priority and highlights the importance of studying and addressing shoreline change and coastal erosion from human induced and natural pressures. A key initiative under the NAPCC is the development of State Action Plans on Climate Change. This GEF/SCCF support will align closely with these plans in States where they have been completed and support their finalization with respect to climate resilient coastal protection infrastructure and shoreline management planning.

Under the NAPCC, the National Mission on Strategic Knowledge for Climate Change and National Water Mission are of relevance to the project. The Water Mission focuses on 'conservation of water, minimizing wastage and ensuring its more equitable distribution both across and within states through integrated water resources development and management'. With respect to coastal zones the Water Mission calls for the collection of necessary additional hydrometeorological and hydrological data for proper assessment of the impact of climate change; and data and measures to address increased saline intrusion of coastal and island aquifers due to rising sea levels. Through GEF/SCCF support, the project will contribute to this Mission by enhancing knowledge on the impacts of climate change in coastal regions and by combating coastal erosion, with potential benefits in addressing saltwater intrusion. This, in the context of an integrated water resources management approach, will promote sustainable availability of freshwater resources in the 2 coastal target States.

The project link well with the National Mission for a Green India, that supports fight against land degradation and stability of fragile ecosystems. It will contribute to protecting natural habitats that consist of natural barriers to storm surge, erosion, waves and saltwater, such as mangroves and wetlands. The project will provide the financial and technical support, as well as awareness-raising to protect these coastal ecological services. Additionally, the proposed project is in line with the National Water Mission, as it will contribute to the protection of freshwater bodies in coastal areas by combating erosion, protecting soft and hard infrastructures, to protect ground and surface freshwater and fight against saltwater intrusion.

The project will support the implementation of the GoI eleventh Five Year National Plan, which describes a range of interventions relating to coastal protection and management. The key theme in this plan is the integration of environmental concerns into policy, planning and development activities. The Plan underlines the need to address sea-level rise impacts, particularly for coastal agriculture, and the management of sea water ingression into coastal areas. MOEF has initiated a study, through the Institute of Ocean Management, to analyze shoreline changes in the country due to various man-made and natural phenomena, in the West Coast, including for Maharashtra and Karnataka States. All new development on the coast, including shoreline protection works will have to be carried out in accordance with recommendations from this study report, and as per procedures of the new Coastal Zone Regulation notification. Furthermore, the project will link with, and support, the GoI National Coastal Protection

Project (NCP). The NCP is an initiative of the Central Government to consolidate coastal erosion protection proposals from all the maritime states and union territories, and seeks financial and technical support for a systematic and sustainable project for coastal protection and management. The project also supports the Government's initiative to implement new legislation (i.e. notification) for coastal zone management. The notification, which is expected to replace the existing coastal regulation notification, will introduce key elements of integrated coastal management. The exact form of this support will be dependent on the progress made on the NCP prior to initiation of the GEF/SCCF project. Additionally, the Draft National Biodiversity Action Plan (August 2007) places significant emphasis on climate change vulnerability and adaptation assessment, in view of the vast number of people who depend on agriculture and forestry for food security and livelihoods.

B. PROJECT OVERVIEW:

B.1. Describe the baseline project and the problem that it seeks to address:

Issues: All Indian maritime States and union territories are currently subject to varying degrees of coastal erosion, highlighting their extreme sensitivity to the future impacts of climate change, particularly sea-level rise (SLR). Approximately 1,450 kilometers (km) or about 26% of the country's mainland coastline is prone to erosion, causing an estimated loss of about 450 hectares (ha) of land each year. Around 20–25% of India's population lives within 50 km of the coast and around 70% of which in rural areas. Rural coastal communities are vulnerable to the impacts of erosion which destroys property and disrupts livelihoods. In fact, destitution is the primary reason that such people are drawn to the coastline, where they often encroach on State reserves and make a subsistence living from the surrounding natural resource base. Additionally, India's rapidly growing urban areas are also vulnerable to coastal erosion. Mumbai, for example, incurs a cost of approximately \$2.5 million per km on capital works alone to protect some of its prime waterfront land. India's coastline is also extremely sensitive to typhoons, which cause storm surges and extensive loss of land through wave-induced erosion. These impact considerable distances inland, flooding valuable land with salt water and causing loss of life, damage to agricultural production and infrastructures. Sea dykes constructed over most of the exposed length of coastline are vulnerable to damage by wave action and other near-coast infrastructures such as bridges, roads, schools, market places, and irrigation works, are damaged or unable to be used during and after typhoons, storm surges and floods. These problems are expected to escalate in the coming decades with expected increasing impacts of climate change. Among the impacts predicted are sea-level rise, an increase in the number and intensity of typhoons, and greater variability of rainfall. Sea-level rise on the Indian subcontinent is projected to be between 15 and 38 centimeters (cm) by the middle of the 21st Century and rising between 46 and 59 cm by the end of the century. A one meter (m) rise in sea level in India could inundate an estimated 6,000 km² of land, affecting around seven million people living on densely populated lowlands.

Through the efforts of National and State Governments, and assistance from the donor community, a suite of coastal zone management policies has been developed in India. Efforts to integrate the potential climate change impacts into policies are progressing, particularly in the delineation of coastal hazard zones. However, there is still significant scope to accelerate such efforts, specifically through greater consideration of climate change by policy makers, local planners and local communities. In particular, planning, design and regulation of coastal protection infrastructure currently do not incorporate resilience building in response to potential climate change, such as sea-level rise, typhoon activity and related storm surges, ocean acidification, ocean currents and the supply of sediment through rivers and estuaries.

The State of Maharashtra has a coastline of 720 km, of which about 320 km (about 44%) is subject to erosion. Coastal urban areas such as Mumbai have been severely affected, partly due to clearance of mangroves and associated vegetation along the shoreline and also due to construction of offshore and coastal infrastructure. Rural coastal districts such as Raigat and Palgrave have also been adversely affected by erosion. This has increased the vulnerability of resident coastal communities to natural disasters (such as cyclones) since their dwellings are along the fringes of the shoreline. The government of Maharashtra recognizes the need to address coastal protection in a more systematic manner. The State is interested in identifying alternative coastal protection methods that are compatible with the coastal activities and the environments that are to be protected, particularly innovative coastal protection interventions that can be structured into financially viable projects, especially through public–private partnerships. Water quality is also a major issue around the Mumbai urban area.

The State of Karnataka's coastline is 300 km long, and about 250 km (89%) is reportedly affected by erosion. The most severely affected areas are Ullal, Honnavar, Bhatkal, Kundapur, Bengre, Mulki, Bhavikeri, and Tannirbavi. Coastal protection received some prominence in the State after the Asian tsunami of December 2004. The Karnataka coastline includes several stretches of wide beaches which could be developed into tourism or residential areas. The State wishes to address coastal protection in such areas in a more systematic manner and adopt long-term measures with an emphasis on soft structures or non-structural interventions wherever possible.

Baseline project: The proposed ADB funded Sustainable Coastal Protection and Management Investment Program (SCPMIP) is a \$361.5 million investment program supported by ADB and the State Governments of Maharashtra and Karnataka. The impact of the investment program will be improved income and reduced poverty of the coastal communities in the subproject areas of the coastal states of Karnataka, and Maharashtra. The outcome of the investment program will be protected and managed shorelines in the two states, meeting the needs of stakeholders and protecting the environment. The key performance target is protecting and managing 150 km of coastline with community and private sector participation.

The investment program outcome will be achieved through the following outputs: (i) development, updating and implementation of sustainable plans and management for shorelines, (ii) reduced coastal erosion and instability, and (iii) enhanced capacity for shoreline planning and development. Further information on the baseline project outputs are provided below:

Output 1: Sustainable Plans and Management for Shorelines Developed

Output 1 includes (i) participatory SMPs; (ii) functional coastal management information systems; and (iii) management, supervision, and planning of subprojects.

(i) Participatory shoreline management plans. SMPs will be prepared to meet long-term shoreline management needs. Participatory and integrated SMPs, with the participation of women, will be produced for the coastlines of the three states. Shoreline plans will address key issues of the coastal processes, shoreline land use, and present proposals for the long-term sustainable management and protection of the shoreline. The plans will also identify potential economic development opportunities in coastal areas.

(ii) Coastal management information systems. Coastal management information systems will be developed and established within each SEA, with linkages to central agencies. The databases will source information from national and state level institutions and other specialized agencies, including the Ministry of Environment and Forests. These will establish effective mechanisms for sharing information with state and district level coastal agencies and stakeholders. Maintenance of the management information system will be a key responsibility of the coastal information management units (CIMUs) to be established within each SEA.

(iii) Management and planning of subprojects. The investment program will support management and supervision of subproject implementation, and preparation of detailed design of subprojects for future tranches. Planning and design of projects for implementation will be selected based on the outputs of the shoreline management planning process. Selected projects will be formulated and submitted for preliminary selection and assessment. Feasibility studies, including numerical modeling as required, will be carried out for all projects to assess their technical and economic viability as well as their social and environmental impacts.

Output 2: Coastal Erosion and Instability Managed and Reduced

Output 2 comprises (i) reducing coastal erosion and instability using environmentally and socially appropriate solutions, and (ii) community and private sector engagement in coastal erosion and instability reduction.

(i) Reducing coastal erosion, salinity and instability. Coastal erosion, salinity and instability will be reduced through economically viable protection works, using environmentally and socially appropriate solutions. Key areas of other coastal protection interventions include (i) navigation inlets and training of river and drain mouths; (ii) natural protection through the development and planting of dunes, and planting of mangrove or other trees for protection or shelter; and (iii) coastal management, including water quality, dredging, and reclamation.

(ii) Community and private sector engagement. The key components will be (i) training provided to local communities in shoreline management and income-generating activities, and (ii) new initiatives toward income generation of local communities. The states will take steps toward encouraging private sector investments in coastal protection and management, including putting in place enabling policies and guidelines for private sector participation in coastal protection and management as feasible.

Output 3: Enhanced Capacity for Shoreline Planning and Development

Output 3 includes (i) enhanced capacity within districts and states to design and implement projects; (ii) enhanced capacity of local experts and agencies, and government institutes; (iii) improved capacity of communities and stakeholders to manage and maintain beaches; and (iv) mandated SEAs to coordinate coastal infrastructure projects. Such capacity enhancement is crucial to realize the policy and institutional actions of the investment program road map.

(i) Enhanced capacity within districts and states. Capacity at district and state levels will be enhanced to prepare and implement participatory SMPs. CIMUs will be established and shoreline management plans will be prepared and updated at 5 yearly intervals. SMPs will form the basis of long-term shoreline protection and management.

(ii) Enhanced capacity of local experts and agencies and government institutes. The capacity of local experts and agencies, local bodies, and stakeholders will be enhanced to provide specialist support for planning, modeling, design, checking, and review for coastal protection and management.

(iii) Improved capacity of communities and stakeholders. The mandates and capacities of communities and stakeholders will be improved to manage and maintain the beaches. Locally based community stakeholders and beneficiaries will support project coordination and monitoring during implementation, and management and maintenance of the beaches.

(iv) Mandated state executing agencies. The states will take all necessary steps to empower the State Executing Agency (SEAs) to coordinate all coastal management programs. Towards this, the capacity of the SEAs will be enhanced. A Coastal Information Management Unit (CIMU) to be established within the SEAs will support the coordination of the management information system.

Implementation arrangements: The executing agency for the project will be the Ministry of Water Resources (MoWR), and the project will be implemented in close cooperation with the two participating states. At the state level overall project management and implementation will be supported by the Karnataka Public Works, Ports and Inland Water Transport Department, and the Maharashtra Maritime Board.

Overall approach: There is recognition that institutions at all levels have weaknesses that inhibit effective uptake and implementation of coastal protection and shoreline planning and the mainstreaming of climate change resilience. There is also a recognized need to change coastal development in all Maritime States and move towards a system that ensures linkage between participatory, bottom up, community-driven approaches with top-down national and State Government policy and planning mechanisms. To address this, the project will provide critical support to institutional strengthening of the key Government agencies, such as to the CWC-Coastal Protection and Development Advisory Committee (CPDAC). While it is recognized that there is scope to increase capacities within GoI, there is also a significant requirement for private sector and community participation to enhance Government capacities and resources.

Linked to this, the project will support systematic and sustainable planning and management of the entire coastal zone of the two target States, with site-specific (Sub Project Sites) investments in coastal protection measures, in locations chosen through detailed assessments of coastal erosion and protection risks, and a stakeholder-led prioritization process. In particular the project will provide investment for the development and installation of innovative techniques for effective and unobtrusive shoreline and near shore control of coastal erosion. This will

include the replacement or modification of hard rock protection with softer options, such as, beach nourishments, dune management or submerged reefs, based on international best practice and site level survey, assessment, modeling and design. The project is designed to specifically facilitate the transition to softer solutions. It will effect significant changes in the approach to coastal protection and management; it will build up national capacities and ensure a well planned and programmed transition process from hard environmentally harmful protection works to a new approach and technology of participative planning and integrated development of environmentally appropriate and sustainable solutions.

The long term sustainability of coastal protection infrastructure also requires local stakeholder support for management and maintenance. This may include participation in alternative livelihood activities such as beach stabilizing work involving the planting and management of the dunes, which is a low capital cost protection measure but requires long term management inputs. Local stakeholder and private sector engagement, and the relationship with central and State institutions, is therefore considered to be critical and will be supported by the project (e.g. by testing of stakeholder engagement and incentive frameworks for increasing participation in planning and management in coastal zones,) and knowledge sharing activities.

Alternative options: An assessment of issues, opportunities and alternatives has been undertaken as part of the preparation of the SCPMIP by ANZDEC Ltd in association with ASR Marine Consulting and Research, New Zealand (2009). A key technical issue is the diagnosis and identification of appropriate solutions for coastal protection works (and for climate resilience strengthening measures). The proposals in the National Coastal Protection Project plan and projects presently being implemented in the states are based almost entirely on the continued expansion and rehabilitation of rock protection works. This type of development is and will continue to have very serious environmental and social implications. There is a need to completely reshape the approach and philosophy to planning, design and implementation of coastal erosion works. Soft solutions for erosion control are now well developed and are already beginning to be implemented in India. The implementing agencies in the two states have shown a strong level of interest and commitment to change to soft technologies. There is need to help and guide a well planned and programmed transition process as well as ensure the planning and designs for the proposed investment program meet the highest standard of environmentally and socially appropriate solutions. There is also a need to identify and address the causes of erosion, frequently these are manmade and the most appropriate solution is to address the cause rather than the effect. This requires an integrated and coordinated approach to the planning and development of all coastal infrastructure and shoreline uses.

Financial and economic impacts. The main impacts of the project will be the protection of land, buildings and infrastructure from future damage caused by coastal erosion and monsoon storms. The benefits of the protected land will indirectly benefit the incomes and livelihoods of urban and rural households and businesses located on the coastline. Tourism, rural farm and fishing households, ports and factories and their owners, operators and workers will benefit from the subprojects. Subprojects may have both direct and indirect benefits for the environment. Removal of erosion risk will help encourage future investment in the coastal zone. In addition to land protection, the project will support the long term sustainability of the beaches. Previous protection programs have neglected the beaches and in many cases have caused increased degradation. Use of the new technologies and soft protection measures proposed under the project will sustain and enhance the beach areas. The beaches are key contributors to the economies in the tourist areas and essential for artisanal fishermen. The tourism potential of much of the coastal area is very high and the long term economic and environmental benefits of sustaining the beaches through the project interventions will be very significant.

B. 2. Incremental /Additional cost reasoning: describe the incremental (GEF Trust Fund) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

The GEF/SCCF grant will support mainstreaming climate change resilience building into coastal protection in and

shoreline management. This will be achieved through a range of mechanisms including: (1) at policy level, the development of national-level processes and mechanism to integrate climate change adaptation into shoreline planning guidelines, manuals, and methods; (2) at operational level, climate-proofing coastal planning and the design of investments informed by the latest climate science and integrated climate impacts and vulnerability assessments (e.g., linking to work being undertaken through India's Second National Communication (SNC) to the UNFCCC); and (3) the systematic development and strengthening of technical and institutional capacities to implement and maintain policies and operations that integrate climate resilience into sustainable coastal protection and shoreline management.

A central element of the proposed project is to examine climate change related risks with local communities and State/local level officials, applying the experiences gained from the climate-proofing of critical coastal infrastructure for vulnerability reduction at all levels. It does this in the context of substantial efforts in mainstreaming climate change adaptation policy, coastal infrastructure development, and capacity building efforts by the ADB and other donors in India. Aligning lessons learned from local level investments with national level programs, related to both coastal zone management and climate change adaptation initiatives, this proposed project will catalyze climate resilient development in vulnerable sectors and regions in the 2 target States.

In addition, site based climate change vulnerability assessments, community consultations and the integration of climate resilience factors and design into investments for selected sub-project pilot sites will be undertaken during Tranche 1 of the investment program, with a view to mainstreaming this process for all SCPMIP Sub Project Sites (during Tranche 2 and 3).

In the context of the project, approaches may include both "hard infrastructure" interventions and "soft natural infrastructure" interventions, which will be selected based on site level survey and assessment; the level of existing degradation; projected future climatic impacts and vulnerability; detailed modeling and design; and cost benefit analysis. "Hard infrastructure" interventions would focus on the use of innovative "soft technologies" such as the installation off shore submerged reefs using geo-textiles. "Soft natural infrastructure" interventions would include beach nourishments, dune management, coastal mangrove and vegetation restoration and protection. In the development of the project the implementing agencies in the two states have however shown a strong level of interest and commitment to move away from traditional measures such as hard rock protection structures (such as rock or concrete based sea walls, which may protect the land against further erosion but do not allow regeneration of the lost beaches) with comprehensive "softer technology" options, such as inshore/off shore structure (reefs, berms) made off sand filled geotextile bags that can be used to stop sea erosion, support beach regeneration and protection as well as dune restoration (when erosion is less severe).

Furthermore, the project will promote awareness and strengthen the technical capacity within key sectoral agencies and professional groups with coastal protection and shoreline planning responsibilities to promote climate-resilient decisions at national and local planning levels. Through this, information on the vulnerability of coastal areas to climate change will be fed into coastal planning processes so that options for coastal development can be assessed and recommendations can be made regarding changes in the planning or zoning of coastal zones or provision of resilience strengthening measures to reduce risks to existing or planned infrastructure. This may possibly include the identification of areas that are not recommended for certain types of development, or guidance/recommendations for climate resilient development standards.

This will involve engagement with the Government of India (GoI) at national, state and local levels with the private sector through representative professional bodies, NGOs and community groups. Institutional strengthening within the GoI will focus on the MoWR and its subsidiary bodies while promoting cross-sectoral linkages between GoI agencies and between the GoI at all levels, the private sector, NGOs and community groups. Through the GEF/SCCF supported activities it is also anticipated that the Ministry of Environment and Forests (MoEF), who is the central authority for regulating and controlling the activities in the coastal zone of the country will be involved in the project as well as various national level bodies such as the National Coastal Zone Management Authority (NCZMA), State / Union Territory Coastal Zone Management Authorities (SCZMA),

Central and State Pollution Control Boards and other State level agencies. During full project preparation further stakeholder analysis and targeting will be undertaken in order to specify key target agencies for participation in the project.

The project will also support exploring the use of ecosystem-based coastal adaptation approaches as cost-effective, environmentally sustainable approaches that finance conservation of soft infrastructures, and promote livelihood development. It will finally disseminate relevant adaptation knowledge through national and international knowledge-sharing networks.

Without GEF/SCCF funding for this project, the construction of coastal protection infrastructure and shoreline management planning will proceed according to current building standards that do not explicitly consider climate change related risks and vulnerabilities. These investments will be less 'resilient' than they need to be. The GEF/SCCF funding will allow a significant number of coastal protection infrastructure investments under the SCPMIP to be climate proofed, meaning the design will consider risks arising from climate change alongside other drivers of coastal change. The process of climate-proofing will build experiences, develop lessons and policy recommendations for the modification of coastal protection regulations and standards at state and national levels. Related analytical and spatial planning capacities will also be developed in the pilot States and at the national level. It will also generate indirect impacts on a large number of similar coastal protection infrastructure investments in India's coastal regions, specifically starting with the west coast states of Karnataka and Maharashtra. The overall outcome from this GEF/SCCF funding will be greater climate resilience of India's coastal areas.

With respect to the **financial analysis**, the project interventions will maintain the status quo or restore situations to the pre-erosion situation. Where an eroded beach will be restored, there will be a restoration of income for tourism businesses that lost business because of the erosion of the beach and new businesses may also be established. At other locations where future erosion due to climate change or other drivers is prevented, negative financial affect for businesses or other beneficiaries will be avoided. Some interventions will reduce future government expenditures; these interventions will have a potential impact on government expenditures by reducing future requirements for infrastructure replacement and the resettlement of affected populations.

B.3. Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF). As a background information, read [Mainstreaming Gender at the GEF.](#)":

Although the primary focus of the investment program is on addressing coastal erosion and coastal management, a significant number of the poor are likely to be beneficiaries of the subprojects because of protection against losses and damages to their land and houses, and restoration of their livelihood and incomes. The investment program will promote community participation and income-generating opportunities, including gender benefits through equal opportunities and strategies for the participation of women and women's groups. Coastal protection and management programs will create a number of economic opportunities including the provision and management of ecosystem services as a means to promote coastal climate resilience, some of which would have direct and indirect benefits to women. Furthermore, these initiatives will enhance the livelihood of all people directly affected by shoreline erosion and promote sustainable social development.

B.4 Indicate risks, including climate change 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:

There is a range of risks that might limit the project's success in achieving its objectives. Project risks will be mitigated by conducting the project in a manner consistent with the NCPP and NAPCC, which requires full cooperation of the MoWR and the MoEF. The project identified risks and corresponding mitigation measures are the following:

Risk: Low willingness of MoWR and MoEF, to work together in full cooperation to develop the policy framework and infrastructure mitigation measures. Mitigation: The proposed project will utilize the coordination mechanisms to be established at national and State levels under the ADB SCPMIP to ensure key information is shared and collaborative decision-making is carried out. Close linkage between the World Bank ICZM Project, executed through MoEF, and the GEF/SCCF project, to be executed through MoWR, will also mitigate the risk.

Risk: Limited readiness and/or ability of central ministries, especially MoWR and MoEF, to include project outputs in revised official ordinance/regulations for the integration of climate change resilience building measures into coastal protection infrastructure design and construction, and (subsequently) sufficient capacities at all levels to implement revised regulation. Mitigation: The proposed project will (i) prepare guidelines in close cooperation with relevant agencies to promote ownership; (ii) articulate, whenever possible the financial, social, and environmental benefits to relevant agencies; and (iii) ensure that guidance for mainstreaming climate change within coastal planning and investment projects are simple and cost effective.

Risk: Low commitment of selected State authorities to adopt findings and recommendations. Mitigation: The proposed component on climate-proofing will be conducted prior to the detailed engineering design of the selected coastal protection infrastructure (Tranche 2 and 3) so that the State governments will be aware of the costs and benefits of climate change risks and reduction measures and make informed decisions.

Risk: Implementation Delays: Lengthy procedures to establish the project, procurement delays and financing delays can all pose serious risk to the project schedule. The project will be implemented on or near the shoreline and implementation of surveys and works can largely only be implemented during the 6 month non monsoon period (approximately October to April). Mitigation: Avoiding lengthy delays from extreme weather events requires very careful scheduling of activities.

Risk: Inappropriate solutions: may be proposed for development. There are a number of pressures to continue the program of rock wall construction and change to soft environmentally appropriate options may not always be perceived as acceptable. Mitigation: To ensure that all physical investments are environmentally and socially appropriate it is proposed that all sub-projects for funding be supported by full environmental and social assessments.

Risk: Sustainability: will require resources, capacities and organizations for management and maintenance of the completed works. The level of input varies considerably depending on the type of works. For the offshore reefs requirements are minimal, however the proposed beach management solutions require fairly continuous inputs to protect and maintain the dunes with supplementary resources after storms and for pre monsoon digging of streams (nallas). Mitigation: Local level capacities, funding and organizations will be established to support this work.

B.5. Identify key stakeholders involved in the project including the private sector, civil society organizations, local and indigenous communities, and their respective roles, as applicable:

Representatives of the different groups of people and communities in each of the 4 sub-project sites were extensively consulted during project preparation. These include households and communities affected by sea erosion, industrial and commercial firms as well as private businesses together with their business associations, representatives of local government entities such as village panchayat, municipal panchayat, community leaders, associations of stakeholders, NGOs, state agencies responsible for erosion control and other stakeholders. Field visits covered many sites within each sub-project as well as sample households and businesses. Focus group discussions were also held with representatives of various sub-groups. This has helped to bring to light the difficulties that they face due to sea erosion, and also their perceptions on the proposed technical solutions including their environmental impacts. Also the field observations sharpened insights into the problem and the proposed intervention measures. The major benefits of multiple-erosion control methods including beach rejuvenation are: (a) reducing the likely damage of houses located very close to sea; (b) facilitating access to shore launched fishing boats and shore based dragnet fishing; (c) reducing the threat to tourism from beach erosion; and (d) development of beach based jobs. Initial consultations were at household levels involving groups of affected people in the sites. Formal public consultations were organized by the SEAs where representatives of main stakeholders were present. Representatives of the PPTA consultants and the SEAs presented the details of the technical proposals for each sites to the stakeholders. The presentations included information on the merits of the proposed design in comparison with the conventional approaches to protection. Feedback from the local

communities was obtained and the concerns of the stakeholders regarding the project design were discussed and issues explained.

Extensive consultation and participation were carried out at PPTA stage and would continue at the project sites during implementation. Consultation with fishermen and other beach users are required to ease their difficulties during the construction of the projects. Stakeholders will be closely involved in the program implementation and monitoring. A key feature of the project is developing long-term planning of shoreline protection and management with participation of key stakeholders and based on systematic shoreline planning, monitoring and performance evaluation. Public-private and public-community partnerships will be fostered for sustainable management, and operation and maintenance for coastal infrastructure. SMO will be established at each sub- project site involving communities and stakeholders to manage and maintain the beaches. During the project preparation phase for the GEF/SCCF supported activities, opportunities for participation of CSOs will be further assessed including participation of the GEF NGO Network.

B.6. Outline the coordination with other related initiatives:

The project will be closely linked with the ***ADB Sustainable Coastal Protection and Management Investment Program (SCPMIP)***, which will support (i) sustainable and appropriate planning and design (strategies, participatory shoreline planning, project selection, detailed feasibility studies and designs for subprojects); (ii) investments for Coastal Protection and Management (physical as well as non physical investments to meet the specific needs of coastal protection and management); and (iii) effective Institutions (professional capacity development of government and private sector organization for planning, design and management of the proposed investments).

The ***World Bank funded Integrated Coastal Zone Management (ICZM) Project*** is assisting the Government of India to build national capacity for implementation of the new integrated management approach for India's coastal zones. The ICZM Project is being executed through the MoEF. It is piloting the ICZM approach in two states of Gujarat, Orissa and West Bengal. The project will support mapping, delineation and demarcation of the hazard lines and ecological sensitive areas along India's mainland coast; capacity building of the MoEF as the secretariat for the National Coastal Zone Management Authority (NCZMA), nation-wide training program for integrated coastal zone management; and establishing a new National Centre for Sustainable Coastal Zone Management. The coastal hazard zone component includes consideration of sea-level rise effects, as determined through a consensus building process among Indian experts and key stakeholders in each State. Overall, the focus of the ICZM project is on coastal zone management and planning, while the ADB GEF/SCCF focus will be on designing coastal erosion protection infrastructure. Furthermore it has been discussed that during implementation, there will be joint workshops and meetings to ensure that outcome of both the projects are complementary and mutually reinforcing.

In addition to the initiatives outlined above, the current project would have strong links to India's SNC. The project would enable the high-resolution climate change scenarios, being developed through the SNC, to be interpreted through an expert-consensus building process, to develop a set of nationally consistent, reliable and justifiable scientific scenarios of key climate change drivers of coastal impacts. During the project preparation stage the status of this work will be further assessed and the needs, opportunities and financing requirements for down-scaling climate models to an appropriate scale for shoreline planning in the target states will be assessed.

TERI, are collaborating with the Hadley Centre, UK Met Office and the State of Maharashtra to undertake the project: ***Assessing Climate Change Vulnerability and Adaptation Strategies Maharashtra***. The overall aim of the project is to develop a cross-sectoral adaptation strategy for the State of Maharashtra based on the analysis of the projected climate change impacts and the assessment of vulnerability in the following four key sectors: hydrology and water resources, agriculture and food supply, coastal areas marine eco-system and biodiversity. Objectives for the proposed study are: (i) to review secondary data and past work done on vulnerability assessment and adaptation to scope the impacts of climate change for Maharashtra; (ii) to use State-of-the-art regional models to provide climate projections for the 2030's, 2050's and 2070's. The regional climate change information will be derived using the state-of-the-art Met Office climate models, to inform impact and vulnerability assessments at 25km spatial scale; and (iii) to conduct a cross sectoral assessment of impacts and vulnerability to climate variability and change in key identified sectors. Initial discussions between ADB and the

Hadley Centre, UK Met Office regarding possible collaboration between the two projects. In particular, there would be opportunities for the ADB and GEF/SCCF project to use the Hadley Centre, UK Met office regional climate projections for Maharashtra to inform impact and vulnerability assessments for coastal zones and then interpret and apply these for coastal infrastructure and shoreline management planning. Outcomes and lessons from the ADB and GEF/SCCF project on approaches for climate resilient shoreline management planning and infrastructure could feed into the development of Adaptation Strategies for Maharashtra. Further assessment of these opportunities will be assessed through consultations during project preparation.

C. DESCRIBE THE GEF AGENCY’S COMPARATIVE ADVANTAGE TO IMPLEMENT THIS PROJECT:

Guided by its Long Term Strategic Framework (Strategy 2020) ADB is supporting a comprehensive program of transformative actions on climate change covering both mitigation and adaptation measures, and mainstreaming climate change considerations into its operations. ADB's support to building climate change resilience involves a multi-faceted approach guided by regional, country and local priorities as defined in national strategies, action plans, sector plans and assessments and informed by up-to-date science and knowledge products. Key areas of ADB’s support include: National Adaptation Planning; Increasing Sector Resilience; Climate-proofing Projects; Integrating Climate Change Adaptation with Disaster Risk Management; Ecosystem-based Adaptation; and Enhancing Regional Cooperation. To ensure that development project outcomes, including those financed by ADB, are not compromised by climate change and variability, or by natural hazards in general, ADB supports: (i) testing and implementation of tools and cost effective approaches to reducing disaster risks, (ii) climate-proofing vulnerable investments and development programs; and (iii) up-scaling and disseminating lessons from climate-proofing and disaster risk management projects and programs. Climate-proofing activities by ADB date back to 2003 when ADB provided regional technical assistance to several Pacific countries to climate-proof infrastructure through its Climate Change Adaptation Program for the Pacific. Currently, ADB is climate-proofing a number of transport, infrastructure, energy and water sector projects in Cambodia, Laos, Timor-Leste and Viet Nam. Through these projects, ADB is gaining significant experience and lessons that can be applied and replicated in other projects. To guide this support, ADB has developed a “Climate and Disaster Risk Screening Tool”, sector brief sheets, and detailed technical guidance notes to guide the integration of climate and disaster risks within programs and projects. To disseminate and share the lessons and experience from these programs, ADB is also an active partner in a number of global and regional adaptation networks including the UNDP Global Adaptation Network and the Asia-Pacific Climate Change Adaptation Network and its South Asia node. With ADB’s substantial infrastructure portfolio, there are substantial opportunities for ADB to mainstream such climate-proofing actions for all projects at risk.

ADB’s significant role in India to date enables the ADB to garner political and institutional support from participating State governments to implement the project in a positive and cooperative manner. Through current work in India, the ADB is engaged directly with various government institutions and the national adaptation strategy. ADB's major comparative advantage is its ability to link GEF support on policy, planning and institutional strengthening to pilot demonstration and mainstreaming through the SCPMIP project, including the institutional links with the state authorities involved in coastal protection and management. Furthermore, there are good opportunities for lessons learned to be applied through other ADB supported investments. In India ADB is also supporting a number of climate change adaptation projects, including a technical assistance project on "Support for the National Action Plan on Climate Change" with a focus on providing support to the National Water Mission. This includes the preparation of strategic frameworks for integrated water resource management (IWRM) to address climate uncertainty; the preparation of a climate change adaptation road map for IWRM and the completion of specialist training and awareness-raising. Other projects include the Integrated Water Resources Management (IWRM) and Sustainable Water Service Delivery in Karnataka; and the climate change adaptation focused Sustainable Water Resources Strategy for Himachal Pradesh. The experience gained from these projects will enable linkage through ‘catchments to coasts’ environmental system linkages and sharing of lessons learned.

C.1 Indicate the co-financing amount the GEF agency is bringing to the project:

ADB SCPMIP will be implemented through a \$404 million Multi-tranche Financing Facility (MFF) established

for the two state governments. In the first Tranche, the GEF/SCCF grant will be linked to \$54.6 million in co-financing, however it is expected that the outcomes of the project will result in the mainstreaming of climate resilience measures within the design and implementation of infrastructure investments in the second and third tranches of the project.

An MFF is a financing modality that supports a client's medium- to long-term investment program or plan. ADB's Board of Directors approves a maximum amount for an MFF, and the conditions under which financing will be provided. On the basis of the Board's approval, and at the client's request, ADB Management converts portions of the facility amount into a series of tranches to finance eligible investments. A tranche can be a loan (other than program or a sector development program loans), grant, guarantee, or ADB-administered cofinancing. Financing terms and conditions can differ between tranches. The overall amount of the MFF is not recorded as a legally binding financial commitment on the part of either ADB or its clients; only the amounts converted (into loans, grants, guarantees or ADB-administered cofinancing) are recorded as committed, if and when approved.

C.2 How does the project fit into the GEF agency's program (reflected in documents such as UNDAF, CAS, etc.) and staff capacity in the country to follow up project implementation:

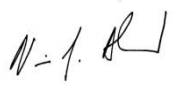
A key theme of the government's 11th Five Year Plan, 2007–2012 is the integration of environmental concerns into policy, planning, and development activities. The plan also underscores the need to address the impacts of sea level rise, particularly for coastal agriculture, as well as the management of seawater ingress into coastal areas. Considering the government's development priorities, the country partnership strategy of the Asian Development Bank (ADB) for India – a key policy instrument to guide ADB's development program in India, 2009–2012 emphasizes sustainable measures for coastal protection with a focus on the enhanced capacity of state authorities to design, implement, monitor, and finance coastal protection and management measures. ADB will provide appropriate supervision capacity during project implementation to ensure effective delivery of expected results and execution of funds in accordance to ADB procurement and financial management procedures. At the country level ADB's India Resident Mission, through its Climate Change Specialist will provide support for the projects implementation along with staff from ADB Headquarters in Manila. ADB's Resident Mission has been providing assistance to the Government of India on climate change adaptation through a TA on "Support for the National Action Plan on Climate Change", which supports action at the central and state levels to move the National Water Mission of the National Action Plan on Climate Change (NAPCC).

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

A. RECORD OF ENDORSEMENT 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 [OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Hem Pande	GEF Operational Focal Point	MINISTRY OF ENVIRONMENT AND FORESTS	05/03/2011

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF policies and procedures and meets the GEF/LDCF/SCCF criteria for project identification and preparation.					
Agency Coordinator, Agency name	Signature	DATE (MM/dd/yy)	Project Contact Person	Telephone	Email Address
Nessim Ahmad Director, Environment and Safeguards Division concurrently Practice Leader (Environment) Asian Development Bank		09/14/11	Arnaud Cauchois Senior Water Resources Specialist	+632 632 6090 / 632 632 6581	acauchos@adb.org

Annex 1: ADB Responses to GEFSEC Review Sheets

Question	GEFSEC Comment	ADB response
First GEFSec review dated: May 23, 2011		
8. Is the project aligned with the focal area/multi-focal area/ LDCF/SCCF results framework?	Recommended Action: In table A (SCCF Framework) please indicate the project components that contribute towards different outcomes.	Done. Table A has been updated to show the project components that are linked to each of the CCA objectives. Table B also now includes similar cross references. Further Descriptive text is provided in section A.1.1 describing the consistency of the project with the CCA objective.
9. Are the relevant GEF 5 focal area/ LDCF/SCCF objectives identified?	Recommended Action: Please specify which project components address the above-mentioned SCCF objectives.	Done. Please see response to comment 8 above.
10. Is the project consistent with the recipient country's national strategies and plans or reports and assessments under relevant conventions, including NPFE, NAPA, and NCSA?	Recommended Action: Please provide relevancy of the project not only with the NAPCC but also with National Communications. Description about contribution of the project to the National Water Mission is needed. Please provide the references for State Action Plans on Climate Change and describe in which capacity the proposed project supports the Action. Please revise the section to illustrate project alignment at national and also at state level (especially the two mentioned states) and the ways the project contributes to needs and knowledge gaps identified in various communications.	Done. Additional information has been added to Section A.2. Including specific reference to the National Communications, National Water Mission, State Action Plan on Climate Change and other strategic documents. Additional reference to the State Action Plan on Climate Change for Maharashtra can be found in Section B6 (relating to coordination with TERI and the UK Met Office)
12. Is (are) the baseline project(s) sufficiently described and based on sound data and assumptions?	Recommended Action: Please describe only the activities related to the baseline project ADB SCPMIP in this section, and revise the description to remove any ambiguity regarding the baseline project activities and the activities for which SCCF funds are sought. Please describe as clearly and succinctly as possible the measures that the SCPMIP takes in terms of coastal management, and provide sound reasons or references to additional information that supports such measures. Identify all the states involved in the SCPMIP, the description states that there are 3 target States but only Maharashtra and Karnataka are identified. The reasons behind choosing these States for the additional adaptation efforts need to be presented.	Done. Section B1 has been restructured to clarify the rationale, objective, outcomes, outputs, approach and implementation arrangements for the baseline project. Corrected. The discrepancy in the number of covered States has been fixed. There are actually 2 target States (Maharashtra and Kamataka). The mention of 3 target States was an oversight and should have been changed. The initial concept for the SCPMIP covered 3 States, including Goa,

		which was subsequently dropped for from Tranche 1. Goa may however participate in Tranche 2 and 3 (subject to further agreement)
13. Is (are) the problem(s) that the baseline project(s) seek/s to address sufficiently described and based on sound data and assumptions?	<p>Recommended Action: In addition to the general climate change risks that the Indian coastal regions face, please include and focus on the problems that the baseline project seeks to address specifically in context of the project States and the sub-project sites.</p> <p>Please relate the baseline project activities with the problems identified in studies such as National Communications etc. Also, the need for the national level plan and how these proposed sub-projects will contribute towards it should be described clearly.</p>	<p>Additional information is provided in section B.1 (see sub-section on Issues). The 2 States covered by the project are particularly vulnerable to coastal erosion. More detailed information on the States and explanation on how it will address such issues have been added to the text in the project overview.</p> <p>Information linking the baseline project and the additional GEF support to the identified problems and to relevant documents and strategies such as the National communications is provided in Section B.1 (see sub-section on overall approach) and Section B.2. (Additional cost reasoning).</p>
14. Is the project framework sound and sufficiently clear?	<p>Recommended Action: The project framework needs to be revised to reflect its consistency with the "Adaptation to Climate Change (LDCF/SCCF) Results Framework" (GEF 5 Template Reference Guide - Sept. 2010). Special attention needs to be given to make expected outputs mainly for components 1 and 2 more concrete so that they directly address climate change risks.</p> <p>Please clarify what participation in management of coastal structures (Output 2.4) will entail such that it will enhance livelihood opportunities. Expected output 2.5 need to specify which region or pilot initiative it is referring to.</p>	<p>The project framework has been adjusted with respect to the LDCF/SCCF Results Framework. Expected outputs have been refined, with particular attention to clarifying focus of the project interventions at National and State levels.</p> <p>Updated information on community participation and livelihood improvement opportunities is provided in Section B.1 (see sub-sections on baseline project outputs and overall approach). In particular the following is highlighted: Design and implementation of coastal planning and protection measures will adopt participatory approaches with communities. Training will be provided to local communities in shoreline management and income-generating activities and new initiatives toward income generation of local communities will be developed. Mandates and capacities of communities and stakeholders will be improved to manage and maintain the beaches (including dune restoration), and locally based community stakeholders and beneficiaries will support project coordination and monitoring during implementation, and management and maintenance of the beaches. Coastal protection measures will also increase land and property security and opportunities including tourism, fishing boat landing, shore fishing, fish processing, etc.</p>
15. Are the incremental	Recommended Action: Please revise sections B.1 and B.2 to include only the	Done. As indicated above sections B.1 & B.2 have been improved to clarify baseline and GEF

<p>(in the case of GEF TF) or additional (in the case of LDCF/SCCF) activities complementary and appropriate to further address the identified problem?</p>	<p>baseline and the project (PIF proposed) activities respectively.</p> <p>Please clarify whether inclusion of both the hard and soft infrastructure measures are already included in the baseline project activities. If they are (as expressed in the SCPMIP project document), then please explain what the proposal means by "use of ecosystem-based coastal adaptation."</p> <p>As written currently the baseline project description is ambiguous regarding the coastal infrastructure and management planning the SCPMIP encompasses. Please revise the description such that it is clear i) the activities under the SCPMIP project ii) climate vulnerabilities the SCPMIP project does not address iii) in section B.2 clarify how the SCPMIP projects are linked to making coastal areas resilient to climate change at a national scale and the need for it.</p>	<p>funded interventions.</p> <p>Hard and soft infrastructure measures will both be included in the baseline project. The project will provide investment for the development and installation of innovative techniques for effective and unobtrusive shoreline and near shore control of coastal erosion. This will include the replacement or modification of hard rock protection with softer options, such as, beach nourishments, dune management or submerged reefs, based on international best practice and site level survey, assessment, modeling and design. The project is designed to specifically facilitate the transition to softer solutions. With respect to use of "ecosystem-based coastal adaptation" this refers the protection and use of ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change. This overlaps with the notion of "soft infrastructure referred to in the baseline project" to the extent that sustainable management, conservation, and restoration of coastal ecosystems would be used to support coastal erosion control and climate resilience. In some cases, and following the completion of vulnerability assessments, a combination of hard and soft (or "ecosystem based" measures may be taken.</p> <p>As indicated above, these issues have been clarified in Section B.1. and B.2</p>
<p>16. Are the applied methodology and assumptions for the description of the global environmental benefits/adaptation benefits sound and appropriate?</p>	<p>Recommended Action: Please see comments for 14 and 15.</p>	<p>Noted. Issues have been addressed above.</p>
<p>17. Has the cost-effectiveness sufficiently been demonstrated, including the cost-effectiveness of the project design approach as compared to alternative approaches to achieve similar benefits?</p>	<p>Recommended Action: Please add information about possible alternative approaches and substantiate the cost effectiveness of the proposed project.</p>	<p>Done. Additional text on the cost effectiveness of the project is provided in section B.2. Further analysis will also be undertaken during project preparation, when the location of specific sub-projects and climate resilience measures have been identified and assessed. Please also note that Output 2.2 will assess the costs and benefits of proposed measures are part of the sub-project selection and prioritization process.</p>
<p>18. Is there a clear</p>		

<p>description of the socio-economic benefits to be delivered by the project and of how they will support the achievement of environmental/adaptation benefits (for SCCF/LDCF)?</p>	<p>Recommended Action: Please explain direct and tangible socio-economic benefits that the project will deliver in the targeted states and at the national level.</p>	<p>Done. See additional text added in Section B1 (sub-section on financial and economic impacts), Section B.2 (last para on financial analysis) and Section B3.</p>
<p>19. Is the role of civil society, including indigenous people and gender issues being taken into consideration and addressed appropriately?</p>	<p>Recommended Action: Please clarify the identity and role of community groups and local population in the proposed project. The statements like "including some gender benefits," need to be more specific and descriptive.</p>	<p>Done. Please see revised sections B.1 and B.3.</p>
<p>20. Does the project take into account potential major risks, including the consequences of climate change and provides sufficient risk mitigation measures? (i.e., climate resilience)</p>	<p>Recommended Action: Please describe the role of MoEF in the proposed project. Please identify the state level parties engaged in the project and their relations with the national level governmental entities involved in the project.</p>	<p>Done. See Section B.2</p> <p>The PIF has been prepared with support from Ministry of Water Resources (MOWR), MOEF and the 2 participating states.</p> <p>The executing agency for the project will be MOWR and the project will be implemented at State level in close cooperation with the Karnataka Public Works, Ports and Inland Water Transport Department, and the Maharashtra Maritime Board.</p> <p>Given MOEF role as the central authority for regulating and controlling the activities in the coastal zone of the country it is anticipated that they will be involved in the project, particularly through components 1 and 3. Various national level bodies such as the National Coastal Zone Management Authority (NCZMA), State / Union Territory Coastal Zone Management Authorities (SCZMA), Central and State Pollution Control Boards and other State level agencies may also be involved. During the preparation of the full project design further analysis and consultation with project stakeholders will be undertaken to confirm participation and institutional arrangements.</p>
<p>28. Is the GEF/LDCF/SCCF funding per objective appropriate to achieve the expected outcomes and outputs according to the incremental/additional cost reasoning principle?</p>	<p>The majority of the requested SCCF funding will go towards component 2: building resilient coastal protection infrastructure. However, activities to be undertaken are still unclear and duplication of efforts regarding inclusion of soft measures in the infrastructure needs, and vulnerability assessments need to be clarified.</p>	<p>The baseline project will support hard and soft infrastructure measure. However, without GEF/SCCF funding, the construction of coastal protection infrastructure and shoreline management planning will proceed according to current standards and historical climate information that do not sufficiently consider future climate change risks and vulnerabilities. These investments will be less 'resilient' than with the GEF/SCCF funding. The GEF/SCCF funding will allow a significant number of coastal protection infrastructure investments under the SCPMIP to be climate proofed.</p>

	<p>Recommended Action: Please see comment 14 and also fill table D</p>	<p>For example, under the baseline project it is proposed to test new technologies including the use of sand-filled containers as part of engineering designs for coastal erosion control. Experience internationally has shown that sand filled geotextiles can be used to support dune restoration as well as for offshore breakwaters including multi-purpose reefs for environmental and surfing enhancement. Sand-filled containers if used correctly are "softer" and more "user-friendly" than structures constructed of rock, concrete and steel, making them more desirable and benign in areas of natural sandy beaches. Taking into consideration the projected impacts of climate change however, including sea level rise and storm surges, a range of modifications may be needed to exist design specification. This may include changes in size and placement, improvements in the geosynthetic materials, fabrication methods, and other designs features to increase the effectiveness of the structures. As a result of climate change combinations of hard and soft measures may also need to be considered. During project preparation, further analysis of various options for strengthening the resilience of baseline project investments will be considered, along with an analysis and their costs and benefits.</p> <p>Please also see response to comments 14.</p>
<p>30. Is the budget (GEF/LDCF/SCCF funding and co-financing) per objective adequate to achieve the expected outcomes and outputs?</p>	<p>Please see comment 14.</p>	<p>Please see response to comment 14 above.</p> <p>Currently about 44% of the GEF grant (exclusive of project management costs) is allocated to investments under component 2 that will support pilot demonstrations to enhance the climate change resilience of coastal protection infrastructure. Other areas of support will include support for shoreline management planning in the 2 target states and associated guidance materials and tools for application at state and national levels (26.5%), climate change vulnerability assessments and analysis of adaptation options (15%), community participation and livelihood develop (6%) and institutional strengthening and learning (9%). Project management costs are estimated at 6.6% of the total grant.</p>
<p>Second GEF Sec review dated: September 12, 2011</p>		
<p>13. Are the activities that will be financed using GEF/LDCF/SCCF funding based on incremental/ additional reasoning?</p>	<p>Recommended Action: Especially because it is stated that there is a potential to develop the shorelines of Karnataka for tourism and residential purposes, it is requested to verify that the vulnerability assessments will be used to consider whether or not to initiate such</p>	<p>Additional text has been added to Section B.2 (page 12) to clarify this issue.</p> <p>In summary, the vulnerability assessments will be used as basis for shoreline management planning, including recommendations on coastal development zoning, and guidance on integrating</p>

	<p>developments, and to assist in making such potential developments climate resilient.</p>	<p>climate resilience factors into coastal infrastructure planning and design. Consideration of zoning issues in the context of coastal planning would allow shoreline management authorities and local governments to make decisions on the suitability of various economic developments, and to set provisions, standards or guidance for ensuring that any coastal developments are more resilient to climate change impacts.</p>
<p>14. Is the project framework sound and sufficiently clear?</p>	<p>Recommended Action: Please separate component 2 into two distinct components, one that is TA and one that is INV.</p> <p>As sections B1 and B2 emphasize soft measures, please provide more information on "hard adaptation measures" referenced currently under component 2 of Table B (Project Framework).</p>	<p>Table B has been revised: Component 2 has now been structured and split into 2 components so that the TA and INV can be separated. The project will now have 4 components: (i) climate resilient shoreline management and planning; (ii) improved infrastructure planning and community livelihoods through climate change vulnerability assessments; (iii) climate resilient coastal protection infrastructure; and (iv) institutional strengthening, knowledge management and learning for coastal protection and shoreline management. The rationale for the split is that Component 2 will undertake the vulnerability assessments for selected coastal zones, communities and infrastructure as a basis to identify vulnerabilities, options (for infrastructure and communities), and to assess the costs and benefits of responses (using TA resources), while Component 3 would be more investment oriented by integrating climate change resilience factors into infrastructure investments. Overall the outcomes and outputs for the project have not been changed.</p> <p>The below text has been added to Section B.2 on page 12: In the context of the project, approaches may include both "hard infrastructure" interventions and "soft natural infrastructure" interventions, which will be selected based on site level survey and assessment; the level of existing degradation; projected future climatic impacts and vulnerability; detailed modeling and design; and cost benefit analysis. "Hard infrastructure" interventions would focus on the use of innovative "soft technologies" such as the installation off shore submerged reefs using geo-textiles. "Soft natural infrastructure" interventions would include beach nourishments, dune management, coastal mangrove and vegetation restoration and protection. In the development of the project the implementing agencies in the two states have however shown a strong level of interest and commitment to move away from traditional measures such as hard rock protection structures (such as rock or concrete based sea walls, which may protect the land against further erosion but do not allow regeneration of the lost beaches) with</p>

		<p>comprehensive “softer technology” options, such as inshore/off shore structure (reefs, berms) made off sand filled geotextile bags that can be used to stop sea erosion, support beach regeneration and protection as well as dune restoration (when erosion is less severe).</p> <p>With respect to climate change adaptation interventions, it is therefore expected that a similar approach will be taken with a focus on “softer technologies” and “Soft natural infrastructure” interventions, combined with participative planning and community management involvement.</p>
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