

Funding Proposal

FP053: Enhancing Climate Change Adaptation in the North Coast and Nile Delta Regions in Egypt

Egypt | United Nations Development Programme (UNDP) | Decision B.18/08

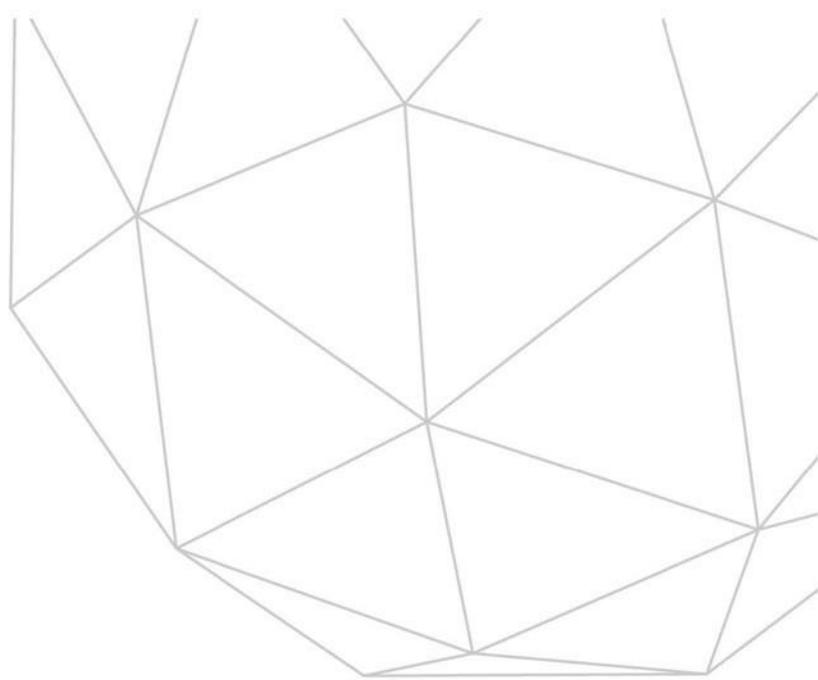
2 November 2017



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Funding Proposal

Version 1.1

The Green Climate Fund (GCF) is seeking high-quality funding proposals.

Accredited entities are expected to develop their funding proposals, in close consultation with the relevant national designated authority, with due consideration of the GCF's Investment Framework and Results Management Framework. The funding proposals should demonstrate how the proposed projects or programmes will perform against the investment criteria and achieve part or all of the strategic impact results.

Project Title: Enhancing Climate Change Adaptation in the North Coast and Nile Delta Regions in Egypt

Country: Egypt

Accredited Entity: United Nations Development Programme

Date of Submission: 4 September 017

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Note to accredited entities on the use of the funding proposal template

- Sections **A, B, D, E** and **H** of the funding proposal require detailed inputs from the accredited entity. For all other sections, including the Appraisal Summary in section F, accredited entities have discretion in how they wish to present the information. Accredited entities can either directly incorporate information into this proposal, or provide summary information in the proposal with cross-reference to other project documents such as project appraisal document.
- The total number of pages for the funding proposal (excluding annexes) is expected not to exceed 50.

Please submit the completed form to:

fundingproposal@gcfund.org

Please use the following name convention for the file name:

“FP-UNDP-050617-5945”

A.1. Brief Project / Programme Information		
A.1.1. Project / programme title	Enhancing Climate Change Adaptation in the North Coast and Nile Delta Regions in Egypt	
A.1.2. Project or programme	Project	
A.1.3. Country (ies) / region	Egypt	
A.1.4. National designated authority (ies)	Egyptian Environmental Affairs Agency	
A.1.5. Accredited entity	United Nations Development Programme	
A.1.5.a. Access modality	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> International	
A.1.6. Executing entity / beneficiary	<p>Executing Entity: Ministry of Water Resources and Irrigation</p> <p>Beneficiaries:</p> <ul style="list-style-type: none"> Coastal governorates and local communities in Port Said, Damietta Beheira, Dakhalia, and Kafr El-Sheikh directly benefitting a total of 768,164 people, of which 377,189 are women; and indirectly benefitting a total of 16.9 million people. Ministry of Environment Ministry of Agriculture and Land Reclamation (MALR) Egyptian Meteorological Authority Research Institutes and Universities 	
A.1.7. Project size category (Total investment, million USD)	<input type="checkbox"/> Micro (≤ 10) <input type="checkbox"/> Small ($10 < x \leq 50$) <input checked="" type="checkbox"/> Medium ($50 < x \leq 250$) <input type="checkbox"/> Large (> 250)	
A.1.8. Mitigation / adaptation focus	<input type="checkbox"/> Mitigation <input checked="" type="checkbox"/> Adaptation <input type="checkbox"/> Cross-cutting	
A.1.9. Date of submission	5 June 2017; 4 Sep 2017	
A.1.10. Project contact details	Contact person, position	Tom Twining-Ward
	Organization	United Nations Development Programme (UNDP)
	Email address	tom.twining-ward@undp.org
	Telephone number	(office): +90 850 288 2612; (cell): +90 539 653 2807
	Mailing address	UNDP – Global Environment Finance Unit, Bureau for Policy and Programme Support, Istanbul Regional Hub, Key Plaza, 6th Floor, Abide-i Hürriyet Cd., İstiklal Sk. No/11, Şişli, 34381, Istanbul, Turkey

A.1.11. Results areas <i>(mark all that apply)</i>
<p>Reduced emissions from:</p> <p><input type="checkbox"/> Energy access and power generation (E.g. on-grid, micro-grid or off-grid solar, wind, geothermal, etc.)</p> <p><input type="checkbox"/> Low emission transport</p>

(E.g. high-speed rail, rapid bus system, etc.)

- Buildings, cities and industries and appliances
(E.g. new and retrofitted energy-efficient buildings, energy-efficient equipment for companies and supply chain management, etc.)
- Forestry and land use
(E.g. forest conservation and management, agroforestry, agricultural irrigation, water treatment and management, etc.)

Increased resilience of:

- Most vulnerable people and communities
(E.g. mitigation of operational risk associated with climate change – diversification of supply sources and supply chain management, relocation of manufacturing facilities and warehouses, etc.)
- Health and well-being, and food and water security
(E.g. climate-resilient crops, efficient irrigation systems, etc.)
- Infrastructure and built environment
(E.g. sea walls, resilient road networks, etc.)
- Ecosystem and ecosystem services
(E.g. ecosystem conservation and management, ecotourism, etc.)

A.2. Project / Programme Executive Summary (max 300 words)

Please provide a brief description of the proposed project/programme, including the objectives and primary measurable benefits (see [investment criteria in section E](#)). The detailed description can be elaborated in [section C](#).

1. This proposal seeks to support adaptation efforts of the Government of Egypt (GoE) in the Nile Delta, the area identified by the IPCC in its Fourth Assessment Report as one of the world's three "extreme" vulnerability hotspots. The Nile Delta is situated in northern Egypt, where the river Nile reaches the Mediterranean Sea. The Delta begins approximately 20 kilometers (km) north of Cairo and extends north for about 150km. At the coast the delta is about 250km wide, from Alexandria in the West to Port Said in the East. The area of the Nile Delta is about 20,000 km²; is home to approximately 40 million Egyptians; ranks among the world's most fertile farming areas; and accounts for approximately 90% of Egypt's agricultural sector output.
2. The objective of the proposed project is to reduce coastal flooding risks in Egypt's North Coast due to the combination of projected sea level rise and more frequent and intense extreme storm events. Output 1 focuses on the installation of 69 km of sand dune dikes along five (5) vulnerable hotspots within the Nile Delta that were identified during an engineering scoping assessment and technical feasibility study. This output will provide a "beneficial reuse" for existing maintenance dredged material from a number of local sources that are operating under existing Government of Egypt approvals. Output 2 focuses on the development of an integrated coastal zone management (ICZM) plan for the entire North Coast, to manage long-term climate change risks and provide Egypt with adaptability to impending flood risks.
3. The barriers that will be addressed by the proposed project include a lack of high quality data to inform planning decisions; absence of a suitable framework for implementing integrated approaches to coastal adaptation; weak institutional coordination to build coastline resilience to sea level rise impacts; the significant reduction of dredge material that would otherwise be disposed into the marine environment; and low institutional capacity to anticipate and manage expected sea level rise impacts. The proposed project will facilitate transformational change in in the short-term by reducing coastal flooding threats along vulnerable

hotspots in the Delta and in the long-term by integrating additional risks of climate change into coastal management and planning, budgeting and implementation of risk reduction measures.

4. The “soft” coastal protection measures will directly benefit approximately 768,164 people and indirectly benefit 16.9 million people in urban/rural communities. They have been designed to mirror natural coastal features and/or sand dunes and will transform the areas from high to low risk zones for coastal flooding. They will be stabilized with a combination of rocks and local vegetation species to encourage dune growth by trapping and stabilizing blown sand. Importantly, the coastal protection measures will provide beneficial reuse of existing dredge material that would otherwise be disposed into the marine environment.
5. The ICZM plan will provide benefits through capacity building to enable high resolution diagnosis of coastal threats, updated regulatory and institutional frameworks to account for sea level rise, and a coastal observation system for ongoing data collection/analysis.
6. The project is aligned with GoE’s priorities as outlined in its Nationally Determined Contribution to the Paris Agreement and is line with Egypt’s Country Work Programme, as submitted to the Green Climate Fund (GCF). Based on a request made to UNDP by the National Designated Authority (Egyptian Environmental Affairs Agency NDA; Coastal Research Institute (CoRI) and Shore Protection Authority (SPA)), the project is also a part of UNDP’s Work Programme to the GCF and is aligned with Government’s priorities to focus on as per the Country Programme Document, which outlines UNDP’s foci in Egypt.

A.3. Project/Programme Milestone	
Expected approval from accredited entity’s Board (if applicable)	Not applicable
Expected financial close (if applicable)	TBD (Date of agreement on the FAA between UNDP and GCF)
Estimated implementation start and end date	Start: <u>01/01/2018</u> End: 31/12/2024
Project/programme lifespan	7 years

B.1. Description of Financial Elements of the Project / Programme

7. Grant financing is requested from the GCF to reduce the impact from sea level rise-induced coastline flooding along five (5) vulnerable hotspot areas in the Nile Delta of Egypt at the following locations: Port Said, Damietta, Beheira, Dakahlia, and Kafr El-Sheikh.
8. Financing for the project consists of a request for a grant financing from GCF and new and additional parallel co-finance from the GoE. The grant request from the GCF is appropriate for several reasons. First, while there are other types of financial instruments available such as loans or non-concessional grants, the proposed traditional grant is responsive to the climate change adaptation driven and public good nature of the project. The grant will be used to meet the additional cost of a public good that is urgent to adapt to a changing coastal environment, and which in the absence of climate change, would not be required. There is no private benefit. Specifically, the project will reduce the risks associated with coastal flooding risks from the combined effect of sea level rise and an expected increase in the incidence of extreme storms. Second, the investment shall not lead to creation of distorting subsidies given the general lack of private sector financing of coastal protection in this area. Third, the proposed project has been structured in a way to catalyze strategic planning and knowledge generation.
9. The investment is modest by contrast to the monetary damages that will be avoided, both in the short and long-term. During the devastating coastal flooding that occurred in October 2015, 400 buildings suffered severe structural damages and in the district of Wadi El Kamar the lives of 100,000 people were adversely affected, including deaths that could have been avoided. While a financial damage assessment has not been conducted, it is estimated that damages from this single flooding event are in the range of millions of USD as it occurred with the extreme weather events hitting different parts of Egypt in the last few years.
10. The GoE will provide co-financing in the form of new and additional cash/grant. Together with the government's commitment to a high level of new and additional co-financing, the proposed project offers a mechanism to implement comprehensive and systemic steps to reduce coastal flooding threats along the Nile Delta (in the near-term) and the entire North Coast of Egypt (in the mid- to long-term). In addition, all operations and maintenance needs for the 69 km of soft protection measures beyond the project implementation period (for the next 40 years) are also committed by the Government. The government's co-financing and maintenance commitments are provided in Annex IV. The co-financing provided by the Shore Protection Authority (SPA) is guaranteed and is sufficient to ensure the satisfactory completion of all proposed activities for which it is designated. The O&M Plan for maintenance of the installed soft protection measures is presented in Annex XIII (d). For information on the project partners, please refer to Section C.4.
11. A breakdown of cost estimates is provided below. Direct and additional co-financing of USD 73.8 million will be provided by the GoE as per the Government co-financing letter and this amount is included in the assessment of the economic viability of the proposed project. Of this amount, \$8.72 million is allocated to the construction of the soft coastal protection; a further \$ 64.98 million is distributed across activities associated with the development of the ICZM plan and early warning system. Notably, these amounts are only a portion of the total co-financing of USD 73.8 million to be provided by the GoE (see Annex IV) that will cover cost of coastal protection works that is aligned with the ICZM Plan as well as Operation and Maintenance (O & M) for the established systems.

Table 1 Breakdown of costs

Output	Activity	Financing (US\$)		Total cost per Activity	Total Local Currency (EGP)
		GCF	Co-financing from GoE		
1) Reduced vulnerability of coastal infrastructure and agricultural assets to coastal flooding damage in hotspot locations in Nile Delta	1.1 Soft coastal protection (pre-construction) detailed designs, and site-specific assessments undertaken for protecting 69 km of the Nile Delta in 5 vulnerable hotspot locations	820,000	300,000	1,120,000	19,780,427
	1.2 Construction of coastal soft protection structures at the 5 vulnerable hotspot locations	23,938,000	7,717,000	31,655,000	559,061,980
	1.3 Development and implementation of an operations & maintenance programme for the installed soft protection structures	125,000	706,000	831,000	14,676,370
2) Development of an integrated coastal zone management (ICZM) plan for	2.1 Development of national capability to conduct long-term climate change risks induced hazard, vulnerability and risk high resolution	500,000	0	500,000	8,830,424

the entire North Coast of Egypt	assessments of erosion and flooding under climate change scenarios on an ongoing and iterative basis				
	2.2 Development and implementation of a climate change risk informed ICZM plan to include a shoreline master plan and a regulatory/legislative framework	1,725,000	59,384,000	61,109,000	1,079,236,751
	2.3 Development of a capacity building program on climate change risk management for institutions involved in the long-term management of the north coast	743,500	0	743,500	13,130,840
	2.4 Implementation of specific components of a national observation system	1,732,500	5,600,000	7,332,500	129,474,926
Project Management Cost	Project Management Cost	1,800,800	100,000	1,900,800	33,563,715
Total		31,384,800	73,807,000	105,191,800	1,857,755,433

12. The Accredited Entity (AE) fee for the proposed project is US\$2,510,784. The budget figures presented in this proposal exclude the fee.

B.2. Project Financing Information

	Financial Instrument	Amount	Currency	Tenor	Pricing
(a) Total project financing	(a) = (b) + (c)	105.192	<u>million USD (\$)</u>		
(b) GCF financing to recipient	(i) Senior Loans	.....	<u>Options</u>	() years	() %
	(ii) Subordinated Loans	.....	<u>Options</u>	() years	() %
	(iii) Equity	.....	<u>Options</u>		() % IRR
	(iv) Guarantees	.....	<u>Options</u>		
	(v) Reimbursable grants *	.....	<u>Options</u>		
	(vi) Grants *	31.385	<u>million USD (\$)</u>		
<p>* Please provide economic and financial justification in section F.1 for the concessionality that GCF is expected to provide, particularly in the case of grants. Please specify difference in tenor and price between GCF financing and that of accredited entities. Please note that the level of concessionality should correspond to the level of the project/programme's expected performance against the investment criteria indicated in section E.</p>					
Total requested (i+ii+iii+iv+v+vi)		31.385	<u>million USD (\$)</u>		

	Financial Instrument	Amount	Currency	Name of Institution	Tenor	Pricing	Seniority
(c) Co-financing to recipient	<u>Grant</u>	73.807	<u>million USD</u>	Ministry of Water Resources and Irrigation (MWRI)	() years	() %	<u>Options</u>
	<u>Options</u>		<u>(\$)</u>		() years	() %	<u>Options</u>
			<u>Options</u>			() % IRR	<u>Options</u>
Lead financing institution: Not applicable							
* Please provide a confirmation letter or a letter of commitment in section I issued by the co-financing institution.							
(d) Financial terms between GCF and AE (if applicable)	<p><i>In cases where the accredited entity (AE) deploys the GCF financing directly to the recipient, (i.e. the GCF financing passes directly from the GCF to the recipient through the AE) or if the AE is the recipient itself, in the proposed financial instrument and terms as described in part (b), this subsection can be skipped.</i></p> <p><i>If there is a financial arrangement between the GCF and the AE, which entails a financial instrument and/or financial terms separate from the ones described in part (b), please fill out the table below to specify the proposed instrument and terms between the GCF and the AE.</i></p>						
	Financial instrument	Amount	Currency	Tenor	Pricing		
	Choose an item.	..... ....	<u>Options</u>	() years	() %		
Please provide a justification for the difference in the financial instrument and/or terms between what is provided by the AE to the recipient and what is requested from the GCF to the AE.							
B.3. Financial Markets Overview (if applicable)							
Not applicable.							

Please fill out applicable sub-sections and provide additional information if necessary, as these requirements may vary depending on the nature of the project / programme.

C.1. Strategic Context

13. The IPCC has singled out low-lying river deltas to be one of the most vulnerable systems to climate change and sea level rise.¹ Low-lying river deltas are home to millions of people, highly productive agricultural lands, industrial/transport infrastructure and valuable touristic assets. Compounding the vulnerability of these areas is the fact that deltas, areas of land formed from sediment where a river flows into the sea, are sinking due to both natural factors (i.e., compaction of river sediments over time) and anthropogenic factors (construction of dams that restrict the flow of sediment that would otherwise reach the river mouth and build up delta lands, groundwater abstraction). The downward motion heightens vulnerability to coastal flooding, particularly when combined with sea-level rise.
14. One of the three most vulnerable deltas in the world to climate change is the Nile Delta in Egypt. This region accounts for more than 50% of Egypt's economic activity through agriculture, industry and fisheries. The Nile Delta contributes about 20% of the Egypt's GDP and account for the largest source of employment, around 30% of the labor force. As Egypt does not produce enough food to feed its current population, any loss of prime agricultural land in due to coastal flooding from sea level rise will have a direct adverse impact on the livelihoods of millions of people and lead to hardship throughout the entire economy.
15. Coastal areas in the Nile Delta are especially vulnerable to climate variability and changes in sea level. Extreme events that result in increased sea level events, driven by the combination of high tides associated with sea level rise and storm surges, have led to devastating coastal flooding and millions of dollars in damages. The impacts, including the loss of life during coastal floods in Alexandria in 2015, as well as flood waters reaching and threatening to damage the international coastal road located hundreds of meters inland were significant. The rate of sea level rise for the Nile Delta ranges between 3.2 - 6.6mm/year and is due to three major factors; globally rising sea due to thermal ocean expansion; locally sinking land due to compaction of sediments; and loss of annual replenishment of sediments. The IPCC concludes that global mean sea levels have risen between 2.8 and 3.6mm/year from 1993 to 2010. During the same period, local land subsidence has been evident across the entire Delta, with actual rates ranging from about 0.4mm/year in Alexandria to the West to around 3mm/year in Port Said to the East.²
16. Coastal areas in the Nile Delta will be more vulnerable to an increasing frequency and intensity of extreme coastal storms associated with sea level rise. As with many climate change modeling outcome, regional projections at the spatial scale of the Nile Delta suggest that the southern Mediterranean has already seen a measurable increase in the number of natural disasters: from an average of three natural disasters/year in 1980; to an average of >15/year in 2006.³ An increase in frequency and severity of storm surges is already evident ; and the continuation of rising seas, sinking lands, and more frequent and intense storms is a necessary inference from the review of recent trends and future climate change forecasts.
17. Economic damages from climate change induced sea-level rise on the North Coast of Egypt has been and will continue to be direct and far-reaching. As of 2017, much of Egypt's population, industry, agriculture, private sector and tourism infrastructure and development is located along the northern low coastal lands, and the reliance on the Nile Delta for prime agricultural land is critically important to the country's economy. Studies on the vulnerability of Alexandria, indicated that sea level rise of 0.3m would lead to infrastructure damage worth billions of dollars, displacement of over half a million

¹ IPCC (2007); Fourth Assessment Report

² El-Shinnawy, I. (2008). Coastal Vulnerability to Climate Changes and Adaptation Assessment for Coastal Zones of Egypt, Final Report. Ministry of Water Resources and Irrigation (MWRI), National Water Research Center (NWRC), Coastal Research Institute (CoRI)

³ El-Shinnawy, I., et al (2008). Climate Change Risks to Coastal Development and Adaptation Options in the Nile Delta

inhabitants, and a loss of about 70,000 jobs (Firhy et al, 1997⁴, El-Raey et al 1999⁵, El-Raey, 2004⁶). Moreover, the Nile Delta's coastal lagoons are among the most productive natural systems in Egypt and they are internationally renowned for their abundant bird life. Approximately 60% of Egypt's annual fish catch are from three main Delta lagoons, Idku, Burullus and Manzalla, separated from the Mediterranean by 0.5- 3km sand belt and dune system. Coastal flooding and/or permanent inundation of these areas would lead to a decline in water quality in coastal freshwater lagoons and corresponding adverse impacts on fisheries and biodiversity.

18. All these factors make the low-lying northern coast and Nile Delta region a high priority for adaptation to climate change in Egypt. Such concerns are well-reflected in Egypt's Initial (GoE, 1999), 2nd (GoE, 2010) and 3rd (GoE, 2016) National Communications under the United Nations Framework Convention on Climate Change (UNFCCC). The Sustainable Development Strategy 2030 also includes coastal adaptation to climate change and investment in infrastructure to face climate change is priority. The GoE has already started addressing these urgent needs for Alexandria, committing \$200 million to constructing hard coastal protection structures, while seeking to develop an ICZM approach to the long-term planning for the entire North Coast in the face of climate change. One of the most prominent obstacles to ICZM in Egypt is the complex and sometimes unclear institutional framework for addressing development activities; the limited and often ad hoc approach between different agencies. There is an absence of a systematic approach to coordinate the different tasks of the involved ministries and institutions, to set agreed priorities and to clarify overlapping mandates. Despite these barriers, there has been some developments in Egypt that have advanced strategies and plans that are compatible with an ICZM framework and can be leveraged in the proposed project. Some of the major developments are briefly summarized in the bullets below.

- EEAA Vision 2007 – 2012: The report identifies approaches to mitigation and adaptation to the impact of climate change. It presents an overview of efforts made in fields such as education, information, public awareness-raising, institutional building and capacity development in relation to climate changes; and incorporation of relevant action plans into the State's general plan.
- National Wetland Strategy/Action Plan: Medwet, the UNDP and EEAA developed a National Wetland Strategy/Action Plan as a part of a Global Environmental Facility (GEF) funded project focusing on the conservation of Wetland and Coastal Ecosystems in the Mediterranean Region. The project's objective was to create or enhance structures for the management of wetlands. One of the primary outputs of this project is the promulgation of a National Strategy for Wetland Conservation (EEAA, 2006).
- Integrated Coastal Zone Management of the Coastal Area between Mersa Matrouh and Sallum: The project's site covers 200km long of a semi-desert and an under-developed coastal stretch near the Libyan border. Over the next few decades, the area will be the focus of extensive development plans to advance local tourism, agriculture, industries and services. The project objectives are to create a strategy and guidelines for the definitions of an ICZM plan for the North West of the Mediterranean coast of Egypt, and to address the coastal zone management in the light of sustainable development.
- MAP's Protocol on the Integrated Management of Mediterranean Coastal Zones: This is an initiative regarding a Protocol on the Integrated Management of Mediterranean Coastal Zones (ICAM Protocol) by the Parties, Egypt included, which was developed during the Barcelona Convention (Convention for the Protection of the Mediterranean Sea against Pollution). The protocol provides for key definitions, broad principles governing sustainable

⁴ Frihy, O.E. and Lotfy, M.F. (1997), 'Shoreline changes and beach-sand sorting along the northern Sinai coast of Egypt', Geo-Marine Letters, 17, 140-146

⁵ El Raey, M. Kh. Dewidar, M. El Hattab. (1999) Adaptation to the impacts of sea level rise in Egypt. Climate Research, Vol. 12: 117-128

⁶ El Raey, M. (2004). Adaptation to Climate change for Sustainable Development in the Coastal Zone of Egypt. Global forum on Sustainable Development 11-12 Nov, Paris

development, institutional coordination protocols, protection and use of coastal zones, and others.

- The Costs of Environmental Degradation in Coastal Areas of Egypt: The Mediterranean environmental technical assistance programme "METAP" project "Strengthening of the capacity in selected METAP countries to assess the cost of environmental degradation in coastal areas" conducted a study on the Cost of Environmental Degradation in Coastal Areas of Egypt. The study recommended ICZM and land use plans should be made to improve use of land to avoid unnecessary loss of habitats, and proper enforcement of existing legislation to protect coastal line against construction should be established.
- Alexandria Integrated Coastal Zone Management Project sub-programme (AICZM) of the Egyptian Pollution Abatement Project (EPAP II): The Government of Egypt has received financing from GEF for the preparation of the Alexandria Integrated Coastal Zone Management sub-program (AICZM) of the Egyptian pollution Abatement Project (EPAP II). The program's main objectives are to supply a strategic framework and immediate small-scale investments to reduce the load of land-based sources of pollution entering the Mediterranean Sea in the "hot spots" of El-Mex Bay and Alexandria; and to protect/restore globally significant coastal heritage and ecosystem by supporting the government of Egypt's efforts to develop and implement a National Coastal Zone Management Plan.
- SMAP III ALAMIN Alexandria (EC- funded) "Alexandria Lake Maryut Integrated Management": The main objective of this project is to promote ICZM approaches & strengthen institutional and human capacities for the effective management and monitoring of Lake Maryut in Alexandria. Its specific objectives are to assist in the preparation of an integrated management action plan for the Lake Maryut zone in Alexandria, involving major stakeholders, conduct Strategic Environmental Assessment for the integrated development action plan, develop integrated management and monitoring system(s) for the Lake Maryut zone, build institutional and human resources capacities of Alexandria Governorate and EEAA for west Delta for the effective monitoring and management of this zone, and raise public awareness.

19. The above projects represent important contributions for enhancing planning paradigms and interventions that account for climate change threats, including enhancing community preparedness, building capacity, and improving resilience to coastal flooding impacts. However, these projects have not produced the kind of transformational change Egypt requires to sustain long-term coastal resilience along its North Coast. Rather, they represent unconnected and small incremental steps toward increasing the management capability in Egypt to confront coastal flood risks associated with sea level rise. What is needed, is a comprehensive approach to coastal protection that addresses urgent near-term risks, while putting in place a framework for a systematic and integrated planning of coastal zone development in the North Coast that addresses mid- top long-term risks under climate change.

20. GCF support will facilitate this transformational change in coastal management in Egypt. This is because current national approaches to coastal zone protection do not systematically integrate the additional risks of increased climate variability or climate change and the project will ensure this occurs. The proposed project will, with financial assistance from the GCF, address these additional risks and raise the adaptive capacity of planning organizations in Egypt, rendering them more equipped to proactively address sea level rise vulnerability and craft integrated solutions that enjoy broad support of affected stakeholders. In this way, this project represents a departure from the business-as-usual practices and instigates a paradigm shift in Egypt's coastal protection practices by: a) preferring critical soft coastal protection over shoreline armoring in hot spots that are highly exposed, vulnerable and require immediate attention; and b) strengthening the local coastal management system to ensure that all future coastal zone management takes place within an integrated framework. This framework will embed climate change risks into a holistic approach to coastal risk management that clearly delineates responsibilities to achieve overall institutional coordination. In this way, the project seeks to instigate transformative change in not only the current practices in coastal protection, but also in the perceptions of stakeholders within coastal management

so that shorelines are perceived as a part of an integrated coastal system. The support of Egyptian institutions involved in coastal protection has been secured for this sharp departure from historical practices much due to the lessons learned from the emerging results of the GEF/SCCF project on coastal adaptation (which is further discussed in Section C.2 below).

21. Without GCF involvement to complement ongoing adaptation efforts and address key barriers to a holistic solution to the challenge of sea-level rise induced flooding, the GoE cannot take adequate near-term steps to help vulnerable communities adapt to climate-related risks. Over the longer-term, the paradigm-shifting nature of the proposed project is rooted in the plausibility of prospects for the GoE to alter its trajectory of future investments away from maladaptive coastal measures and toward the kinds of climate-resilient practices and technologies to be implemented in the proposed project. Conditions of full paradigm shift will be evident when large-scale mobilization of project activities across the country become the basis for future climate change risk-informed development planning in coastal zones. This approach will allow the GoE to address the urgent adaptation needs on one hand, and set up an enduring planning framework to build long-term resilience along Egypt's Mediterranean coastline.

C.2. Project / Programme Objective against Baseline

22. The proposed project aims to enhance the resilience of local communities in the Northern coast and Nile Delta in Egypt. It will do so through integrated coastal management and scaling up the use of soft engineering solutions and ecosystem-based adaptation measures. These measures would limit potential displacement of local coastal communities and reduce the number of young people who otherwise would be compelled to search for immigration opportunities. The proposed project addresses the urgent climate change adaptation needs in the Delta's most vulnerable areas located across 69 km in five areas. Concurrently, the proposed project also addresses the broader and longer-term climate change adaptation challenges impacting the entire delta and beyond. The financing from the GCF will enable the introduction of an integrated coastal zone management planning process that will result in an integrated coastal development plan for the entire North Coast. The challenges addressed by the proposed project are high priorities in Egypt's national strategy for adaptation to climate change and will address baseline vulnerability conditions, build upon past coastal protection interventions and leverage recent coastal adaptation initiatives, as outlined below.

Baseline scenario: what will happen without GCF intervention

23. Recent ocean modeling simulations of future sea level rise indicate that Egypt's Mediterranean coast will experience substantial sea-level rise (SLR) this century with recurrent flooding episodes by 2100 absent the introduction of effective adaptation measures. Several researchers have shown that more than two thirds of the world's sandy coastlines have retreated during the last few decades, and only 10% have progressed (Gornitz, 1995⁷; Pennekamp, et al., 1992).⁸ The projected impacts of SLR on the Nile delta such as coastal inundation or saline intrusion are consistent with the results of global vulnerability assessments of coastal areas. Further exacerbating sea level rise is ongoing land subsidence in the Delta which is currently estimated at 1-5 mm/year.⁹
24. Without the GCF intervention, current impacts of increased flooding frequency, and inundation of coastal areas, will worsen under sea level rise. OECD summarized and ranked the key climate change impacts and vulnerabilities in Egypt for sectors important to the national economy.¹⁰ The socio-economic impacts associated with saline intrusion and inundation are far-reaching and include migration, unemployment and possibly political unrest. The World Bank (2005) also highlights the present coastal erosion and retreat of the Delta, which are aggravated by human interventions such as reduced sediment input, groundwater extraction, and hard engineering work in coastal strip. Post-installation of Aswan Dam, for example, the delta coastline eroded much faster; the sea began

⁷ Gornitz, V., 1995: Sea-level rise: A review of recent past and near-future trends. *Earth Surf. Proc. Landforms*, **20**, 7-20.

⁸ Pennekamp, H. A., Hoozemans, F.M.J. and Marchand, M., (1992); Sea level Rise; A Global vulnerability Assessment; vulnerability Assessment for population, coastal wetlands and rice production on a global scale; DELTA HYDRAULICS, Delft.

⁹ El-Fishawi, N.M. and Fanos, A.M., 1989. Prediction of sea level rise by 2100, Nile delta coast. INQUA Commission on Quaternary Shorelines Newsletter, 11, 43-47

¹⁰ Agrawala, et al. (2004). Development and Climate Change in Egypt: Focus on Coastal Resources and The Nile. OECD.

encroaching upon low-lying areas of the delta; fertile silt no longer reached the delta; salt content of cultivated land rose; fish stocks in the lakes declined because of decreased nutrients reaching the coast; and water hyacinths choked canals and waterways. Following the construction of the High Aswan Dam, GoE has sought assistance from US based consulting firm Tetra Tech to develop a Shore Protection Master Plan for North Coast of Egypt in 1986. The study identified 13 hotspots in Nile Delta Coast that were affected by the High Aswan Dam (HAD) construction and had focused on construction of sea walls and other hard structures for coastal protection. The Government of Egypt began implementation of the plan in the 1980s and continued implementation for over 30 years tackling the identified hotspots. The total costs exceeded USD 180 million excluding inflation effects. However, SLR associated with climate change has posed threats to other areas in the North Coast. A study by I.H. Cantabria, completed in 2017, identified 19 hotspots across the North Coast of Egypt of which seven hotspots were identified in the Nile Delta Coast including the five hotspots in this project proposal.

25. At the five vulnerable hotspots that will be targeted by project activities, the projected impacts of sea level rise and extreme storm events without the GCF intervention are consistent with the conditions described above. There are varied socioeconomic activities ranging from agricultural production, to aquaculture in the coastal lagoons, to industrial activities. Currently, each hotspot is characterized by flat or gently sloping topography that is vulnerable to flooding level during storms, leading to negative impacts on local industries, communities, and agricultural areas. Some of the hotspots (i.e., Kafr El-Sheikh hotspot) are adjacent to important protected areas that are home to wintering waterfowls while others sit at the outlets of the Nile River (e.g., Damietta hotspot). All hotspots are characterized by the situation that any increase in mean sea levels will even exacerbate flooding risks and led to shoreline retreat thereby impeding the socioeconomic development of the regions. Details of the baseline diagnosis relative to impacts and threats to infrastructure and local ecology for each vulnerable hotspot is discussed in detail in pages 36-45 in Annex IIa.

Baseline coastal protection activities and investments in the North Coast

26. The GoE began addressing coastal zone management issues in 1992, but, the proper addressing of ICZM started in 1996 through issuing the Framework of ICZM by the EEAA. The recent growing awareness of existing and potential coastal problems have been manifested in several legislative and institutional developments designed to improve adaptive capacity and enhance resilience of both coastal communities and institutions responsible for management coastal resource. The Law for the Environment (Law No 4 for the year 1994) regulated protection of the marine environment; mandated environmental impact assessment (EIA) for any new project, authorized construction of coastal structures to protect some vulnerable coastal areas from erosion; established environmental monitoring networks; facilitated management and supervision of natural protectorates; called for ICZM; and established a Coastal Zone Management Committee (CZMC) for the proper management and coordination among concerned authorities (El-Raey, 2004).¹¹ As the law establishes the Secretariat of this Committee under the Environment Management Sector of the EEAA, EEAA has the authority to engage with the concerned agencies and ministries in the preparation of a National Integrated Coastal Zone Management Plan for Egypt's Coastal Zone.
27. Up through the mid-1990s, government programmes and investments in protective measures along the Nile Delta coast have included an emphasis on "hard" coastal structures, such as sea walls, jetties, and detached breakwaters. Evidence is growing, however, that structural solutions are also leading to unintended adverse outcomes. For example, while the stabilization of the tip of the Damietta promontory with seawalls has protected the properties directly behind it, the sea walls have led to the scouring of the seafloor and steepening of the beach profile in front of the wall. West of the seawall, the constructed breakwater system has affected the bathymetry of the seafloor in the area; with shoaling and submerged spits being formed in the shadow of each breakwater unit. The gaps between the breakwater units have attained deep depths and steep slopes (M. El-Banna 2006). Given the exacerbation of these dynamic coastal processes with sea level rise, the SPA has demonstrated a

¹¹ El Raey, M. (2004). Adaptation to Climate change for Sustainable Development in the Coastal Zone of Egypt. Global forum on Sustainable Development 11-12 Nov. 2004 Paris

growing interest in evaluating the potential of soft coastal protection measures linked to a broader coastal planning framework.

28. The table below provides a summary of all baseline coastal protection investments (i.e., non-climate change adaptation-related, per se) since 2012 that aim to protect the North Coast against flooding and erosion by means of hard coastal protection structures, totaling about US\$39.7 million. These investments are summarized to demonstrate that the proposed project builds upon a record of ongoing parallel coastal protection activities.

The GoE has also been undertaking long term maintenance dredging of coastal lakes and the marine environment. This work includes the removal of sediment from lakes (including protected areas) to ensure water quality is maintained. Maintenance dredging of coastal ports is also undertaken. All sediments are checked for contaminants prior to any disposal.

Table 2 Baseline coastal protection investments (non-climate change related)

#	Project location	Funder	Time Scale	Investment (million US\$)	Description
1	Marsa Matrouh beach	SPA	2013/2014	0.04	Revetment 120 m long
2	Abu Kir	SPA	2012/2016	1.0	Maintenance of seawall front of Naval Forces
3	Abu Bakr	SPA	2014/2016	0.3	Maintenance of seawall west of the power station
4	New Gameel Bugaz	SPA	2013/2015	0.6	Protect the area of west of the location's infrastructure
5	Alexandria	SPA	2015/2018	11.0	Submerged detached breakwater system (first stage)
6	Malaha lake	SPA	2014/2017	2.1	Protection of coastal strip in front of Malaha lake (Phase I)
7	Ras Al Bar	SPA	2014/2017	1.1	Protection of area east of Damietta port in Ras Al Bar (phase II)
8	Kuchner	SPA	2014/2018	1.4	Protection of the mouth of the main Western Bank
9	Burulus	SPA	2015/2016	0.2	Protect the area from the west of the fishing port of Burulus until the east of the Groins
10	Manzala lake	SPA	2015/2016	0.8	Construction of a radiant canal south of Bugazat Eshtum al-Jamil al-Qadim
11	Manzala lake	SPA	2015/2017	0.4	Dredging Bogaz of the Diba Triangle
12	Manzala lake	SPA	2016/2018	5.8	Dredging of region south-east of Bogaz, Diaba triangle
13	Manzala lake	SPA	2016/2018	6.0	Dredging of region south-west of Bogaz, Diaba triangle
14	Manzala lake	SPA	2014/2016	3.1	Protection and Development of Manzala Lake (Phase I)
15	West Damietta port	ACCNDP SPA - GEF- UNDP	2015/2016	0.3	The use of the output of the sea ports (establishment of sedimentation ponds of Damietta port) (ACCNDP pilot sits)
16	Mastrou, Kafr Elshikh	ACCNDP SPA - GEF- UNDP	2015/2016	0.2	Soft structure dikes (ACCNDP pilot sits)
16	Abu kir	SPA	2016/2018	1.2	Protection of the scaffolding area in front of naval forces
17	Rashid	SPA	2016/2018	0.1	Protection of the East Nile Bridge to the Rasheed branch, with a length of 400 m in the building of Burg Moghizel
Total investment				\$39.7	

Ongoing and past climate change adaptation initiatives in Egypt

29. There are several recent donor-assisted initiatives in Egypt that address adaptation to climate change in coastal zones (see Annex IIa). In 2011, the National Strategy for Adaptation to Climate Change and Disaster Risk Reduction (NSACC) was issued. The NSACC primarily adopts accommodation and protection as the basis for adaptation to the risks resulting from climate change, while taking into consideration systematic retreat. This is based upon plans that are prepared in anticipation of any

potential exposure of the coastal zones to extreme climatic events. There are five major components of the strategy, namely; 1) detailed studies on the effectiveness of any proposed adaptation measures to address sea levels rise and other climate change threats; 2) new rules for coastal development that incorporate climate change threats; 3) construction of protection works, including hard and soft measures, to prevent flooding of population centers and damage to economic infrastructure; 4) rehabilitation/strengthening of existing coastal protection such as the International Coastal Road (Rafah to Salloum), the Mohammad Ali sea wall, and the embankments of Al Salam Canal (from Damietta to Sinai); and 5) maintaining soft protection measures such as sand dune stabilization through the cultivation of wild plants and wooden barriers, as well as preserving natural defenses against sea encroachment or sea level rise.

30. Egypt's Third National Communication Report (TNC) under the UNFCCC builds on the NSACC by addressing additional coastal threats associated with climate change, including extreme events, risks of torrential rains and floods, erosion and socio-economic factors. Specifically, the TNC established a framework for addressing coastal adaptation planning intended to guide future decision-making. In 2010, Egypt's first coastal adaptation project began major activities which continue to this day. The "Adaptation to Climate Change in the Nile Delta through Integrated Coastal Zone Management in Egypt (ACCNDP)" is an initiative of the Coastal Research Institute (CoRI) and the Shore Protection Authority (SPA), assisted by UNDP. It is funded by the Egyptian MWRI and UNDP with support from the GEF by means of the Special Climate Change Fund (SCCF) grant (GEF ID 3242). The goal of the project, is to enhance Egypt's resilience and reduce vulnerability to Climate Change impacts, with the core objective to integrate the management of sea level rise risks into the development of Egypt's LECZ in the Nile Delta, by taking an "adaptive capacity approach" for both human and natural systems.
31. The proposed project complement these investments while addressing important gaps in the activities. Hence, GCF funding is targeted to the additional costs and activities that not only complement but enhance the variety of baseline investments related to coastal zone management under climate change. The initiatives summarized in the table below demonstrate that the proposed project builds upon a record of past coastal adaptation activities and as such will leverage the knowledge gained into the proposed project.

Table 3 Baseline investments (climate change related)

#	Project title	Executing entities	Time Scale	Description of main results
1	National Strategy for Adaptation to Climate Change and Disaster Risk Reduction	IDSC/UND P	2009- 2011	Development of a framework for addressing coastal adaptation planning intended to guide future decision-making
2	Adaptation to Climate Change in the Nile Delta through Integrated Coastal Zone Management in Egypt	SPA, MWRI, CoRI UNDP/SC CF	2010- 2017	Enhanced resilience to climate change impacts by integrating sea level rise risks within an adaptive capacity approach for human/natural systems
3	Climate change adaptation and preparedness for natural disasters in the coastal cities of North Africa	SPA, MWRI	2008- 2011	Identification of main challenges associated with the protection of 60 million people currently living in Mediterranean cities Enhanced decision-making capacity for
4	Monitoring the risks of climate change and sea level rise above that of groundwater and agriculture in the Nile Delta	MWRI	2009- 2012	predicting and mitigating climate change impacts on agriculture and the environment along the Nile Delta coast Identification of migration and human
5	Assessment and development of a strategy to address the impact of sea level rise on human movement in Egypt	EEAA, MWRI, MMM	2010- 2015	security dimensions in the development of policies and planning in support of GoE's efforts to address climate change
Total ongoing investment				

Key barriers addressed by the proposed project

32. To reduce vulnerability to sea level rise, GCF funding will also be direct to overcoming a number of key barriers, including the following:
- (a) Lack of high quality data to inform planning decisions
33. One of the most challenging tasks when developing coastal initiatives in Egypt is the lack of reliable and homogeneous data along the Egyptian coast. Therefore, there is a need of creating accessible databases to obtain the necessary data to assess hazards and vulnerabilities of the coastal area. These databases should contain data from monitoring systems, as well as future predictions of climate change impacts obtained through statistics and modelling techniques. Currently, there is a lack of information in the West and North Sinai coasts related to environmental, physical, land use and coastal infrastructure. For the Nile Delta coast, where there exists a greater amount of information, there is a need to standardize and improve description fields of georeferenced information. For all areas along the North Coast, comprehensive databases are unavailable regarding population, economy, infrastructure and vulnerability indices that could be used to populate numerical tools to conduct high resolution analysis of physical impacts for different timeframes (climate change simulations and predictions) in priority areas in support decision-making. Specific data gaps correspond to coastal processes and hydrodynamics such as erosion (shoreline retreat) and sedimentation, as well as flooding due to sea level rise-induced storm surge and salt water intrusion. Much of these data gaps exist due to the fact there is not currently in place an adequate national observation system for the coastal environment. Such a system would need to include, inter alia, oceanographic sensors (e.g., tide gauges, conductivity/temperature/depth probes); Land-level observation equipment (e.g., optical remote sensing Instruments, airborne radar deployment instruments); and environmental sensors (e.g., moored water profiler, remote access sampler). To overcome a lack of high quality data to inform planning decisions, it will be important to engage government authorities and relevant agencies in a consensus-driven stakeholder engagement approach to coordinate data collection/analysis responsibilities,
- (b) Lack of a suitable framework for implementing integrated approaches to coastal adaptation
34. Several planning barriers currently prevent the implementation of adaptation options (i.e., coastal protection, preparedness and recovery options) in the north coast of Egypt; and integration of such options into an ICZM Plan. First, there has not yet been any high-resolution analysis of coastal issues and risks. While the main climate change threats along the North Coast have been identified, including mid- to long-term physical, environmental and socioeconomic issues, a high-resolution assessment of coastal threats from climate change has still not been carried out for the Nile Delta coastal region. A high resolution multi-hazard risk assessment of coastal areas and potential harm caused under sea level rise and other climate change threats under different scenarios is essential for informed decision-making under uncertainty. This would necessarily involve periodic mapping and updating of vulnerable areas considering implementing coastal protection measures, including sensitivity and resilience analyses of different coastal dimensions: human, infrastructural and environmental. Second, there has not yet been a systematic identification and assessment of climate change adaptation options. This is partly due to the lack of a consensus set of criteria to apply to hazard, vulnerability and risk mapping and assessment, including damage costing. It is further attributed to a history of reliance on hard coastal protection as the preferred engineering solution, diminishing the prospects within the coastal planning community for systematically exploring the effectiveness of the full suite of adaptation options. To overcome the lack of a suitable framework for coastal adaptation, it will be important to facilitate the introduction and sustainability of an integrated coastal zone management framework that account for the full range of competing priorities and visions for the development/protection of the Nile Delta under climate change.
- (c) Weak institutional coordination to build coastline resilience to sea level rise impacts
35. Past approaches to coastal vulnerability reduction in Egypt can be characterized as institutionally autonomous, and hard coastal protection-oriented. It has typically involved little coordination and data sharing across between government ministries and agencies, not to mention between government entities and local communities. The underlying reasons for this current situation can be largely explained by three institutional barriers that render the management of new coastal threat problematic.

First, there does not exist a single unifying vision across responsible institutions regarding how to meet coastal zone challenges. Some agencies continue to favor traditional hard engineering shoreline protection despite their adverse outcomes while other agencies favor the consideration of a broader scope of intervention options. Second, there is no single agency in charge of monitoring and updating coastal data. The result is a set of monitoring activities distributed across various agencies and not accessible through well-regulated data sharing networks. Third, there is an underappreciation for the role of natural habitats in coastal protection outside of the EEAA. This is evidenced by the absence of valuation, and/or the undervaluation of natural resources, in the design of coastal protection measures. To overcome weak institutional coordination to build coastline resilience to sea level rise impacts, it will be important to acquire a near-term commitment from relevant government authorities to facilitate the implementation of urgently needed coastal protection measures, as well as to secure a commitment to enact the necessary regulatory/legislative changes to ensure long-term sustainable development in the vulnerable Nile Delta.

(d) Low institutional capacity to confront sea level rise impacts

36. Linked to the barriers outlined above is the lack of technical capacity relative to its regulatory, institutional, and stakeholder dimensions. Low capacity inhibits an empirical evidence-based decision making process as coastal protection decisions are often determined by near-term budget considerations rather than long-term sustainability criteria. Regarding regulatory capacity, the existing system includes many regulations regarding the management of the coastal area and its resources. While these laws and regulations have been updated recently to move towards the adoption of ICZM principles, the current regulatory framework is unable to resolve existing gaps and overlaps in coastal management, or to directly address emerging climate change adaptation needs. Regarding institutional capacity, there is not the level of technical capacity to conduct the kinds of high resolution modeling required to understand coastal flooding threats associated with sea level rise projections. Regarding stakeholder capacity, wide-ranging participation is fundamental to processes for building coastal resilience and is the central element of ICZM. Although stakeholder participatory activities are common within coastal management initiatives in Egypt, there are no established protocols or regulations that ensure an active participation of government authorities and civil society groups in climate change adaptation. To overcome low institutional capacity to confront sea level rise impacts, it will be important to address critical technical capacity needs in government planning agencies.

(e) Beneficial Reuse of existing dredge spoil

37. The GoE has been undertaking maintenance dredging of numerous locations over many years. The project will utilize material that is currently being dredged to allow for the development of the project. In the past, the dredged material has been disposed offshore and as such, the project will ensure the beneficial reuse of material and avert the environmental and social impacts of dredge spoil being placed offshore.

The proposed GCF project will address and overcome these barriers that prevent the GoE from reducing its vulnerability to climate change induced coastal flooding in an urgent, effective and sustainable manner. These barriers will be addressed within the context of an integrated approach to coastal resiliency development and management. In so doing, the proposed project will fill in gaps identified in the baseline scenario and investment activities, thus ensuring that overall coastal resilience is achieved first in the hotspot sites and then scaled up/replicated within an integrated coastal zone management process using GCF funds. As such, the proposed project not only fills gaps, but also adds on to what has already been accomplished through the “paradigm shifting” approach described in Section E.2. For all these reasons, the proposed project is different than the baseline shore protection activities.

38. The objective of the multiphase proposed GCF project is to enhance the resilience of the Northern coast and Nile Delta in Egypt to increasing climate risks through integrated coastal management and scaling up the use of soft engineering solutions and ecosystem-based adaptation measures. The proposed project seeks to address the urgent climate adaptation needs in the Delta's most vulnerable areas, while also addressing the above barriers and looking to broader challenges impacting the sustainable development in the area. The challenges addressed by the proposed project are high priorities in Egypt's national strategy for adaptation to climate change that have been identified through a direct stakeholder engagement and consultation process (see Annex IIa). The proposed project is thus structured across two complementary outputs that reflect strong stakeholder support:

- Output 1: Reduced vulnerability of coastal infrastructure and agricultural assets to coastal flooding damage in hotspot locations in Nile Delta.
- Output 2: Development of an integrated coastal zone management (ICZM) plan for the entire North Coast of Egypt.

39. Construction activities associated with the construction of soft coastal protection structures (Output 1) will focus on 5 governorates, namely Port Said, Damietta, Beheira, Dakahlia, Kafr El-Sheikh as the governorates with coastal zones overseeing Mediterranean Sea within the Nile Delta. Institutional coordination and other activities associated with the development of an ICZM plan for the North Coast (Output 2) will engage the range of stakeholder across governmental institutions and civil society organization in a consensus-building process. The linkage between Outputs 1 and 2 is premised on the fact that the ICZM process aims to promote climate-resilient sustainable coastal development within the context of environmentally-compatible soft coastal protection that complements the coastal protection hard structures.

Output 1: Reduced vulnerability of coastal infrastructure and agricultural assets to coastal flooding damage in hotspot locations in Nile Delta

40. The proposed project will enable reducing vulnerabilities of assets and populations through promoting and scaling up a set of "soft engineering solutions" and ecosystem-based coastal protection measures that can sustain proper ecosystem functioning and productivity in each of the coastal lagoons such as the conservation of existing wetlands and enhancement of their functionality. A UNDP-GEF-SCCF Climate Change Adaptation in the Nile Delta Project has tested the design and feasibility of several soft engineering solutions for coastal protection (namely beach nourishment and using of geotubes and low cost soft dikes to alleviate impacts of extreme weather events on infrastructure and human settlements) per the geomorphologic, climatic, and development characteristics of the Nile Delta area. The initial results confirm the effectiveness of these designs and have been accepted by the Egyptian coastal engineering community.

41. The proposed GCF project will scale up the use of soft engineering solutions and ecosystem-based approaches to coastal protection. The proposed interventions are no-regret interventions that need to be done no matter what priorities emerge from the ICZM plan given the incidence of coastal flooding that is currently occurring. It will support the implementation of specific measures include developing a 'vegetative buffer' structure for coastal protection, re-nourishing beaches, reinforcing sand dune systems as a defense mechanism, re-vegetation to stabilize seabed sediment, wetland restoration and the establishment of conservation zones to preserve essential coastal habitats. This will build on the results by the Adaptation to Climate Change in the Nile Delta Project that would enable selecting the most suitable sites for these measures within the framework of the developed ICZM plan to enable reducing vulnerabilities to communities and infrastructure, and enhancing the resilience of coastal ecosystems, particularly the lagoons, which in turn help reduce impacts of extreme storms and sea level rise particularly indirect ones such as salt water intrusion and water quality.

Importantly, the GCF project will rely on material being provided from existing and permanent long term maintenance dredging campaigns. The dredging is a long term strategy by the GoE to enhance water quality within the dredged locations. No new dredging will be required.

42. Approximately US\$24.9 million or 79% of the total resources requested from the GCF will be used to enhance coastal protection in five segments of the Nile Delta where climate change-induced sea level

rise is already causing localized flooding during storm events. At the end of the proposed project, a total of 69 km of vulnerable coastlines will be equipped with specific types of soft coastal protection solutions designed to reduce the risks of storm-induced flooding which are expected worsen under sea level rise scenarios.

43. The total 69 km length of coastal protection consists of five (5) priority hotspots that have been identified and characterized on the basis on an engineering scoping assessment. The total length of proposed coastal protection is about one third of the total shoreline length of the Nile Delta. Figure 1a provides a map of their locations within the overall spatial context of the Nile Delta; Figure 1b provides land use maps for the region surrounding each of the hotspot areas (see Annexes IIa and VI for more details). Table 1 summarizes location and protected length details. An overview of each hotspot is provided in the paragraphs that follow.

Table 4 Locations of the hotspot areas and lengths of soft coastal protection

Area #	Governorate	hotspot areas coordinates			Length (km)	
			E	N	per hotspot	Total
1	Kafr El-Sheikh	from	30°49'14.91"	31°32'22.86"	27	69
		to	30°31'34.76"	31°27'24.55"		
2	Port Said	from	32°9'45.24"	31°18'44.30"	12	
		to	32°3'13.30"	31°22'5.83"		
3	Behira	from	30°21'40.43"	31°26'38.85"	6	
		to	30°20'15.77"	31°23'37.08"		
4	Damietta	from	31°42'39.68"	31°28'7.74"	12	
		to	31°35'14.32"	31°26'33.56"		
5	Dakahlia	from	31°30'42.40"	31°27'14.16"	12	
		to	31°24'45.46"	31°29'52.56"		

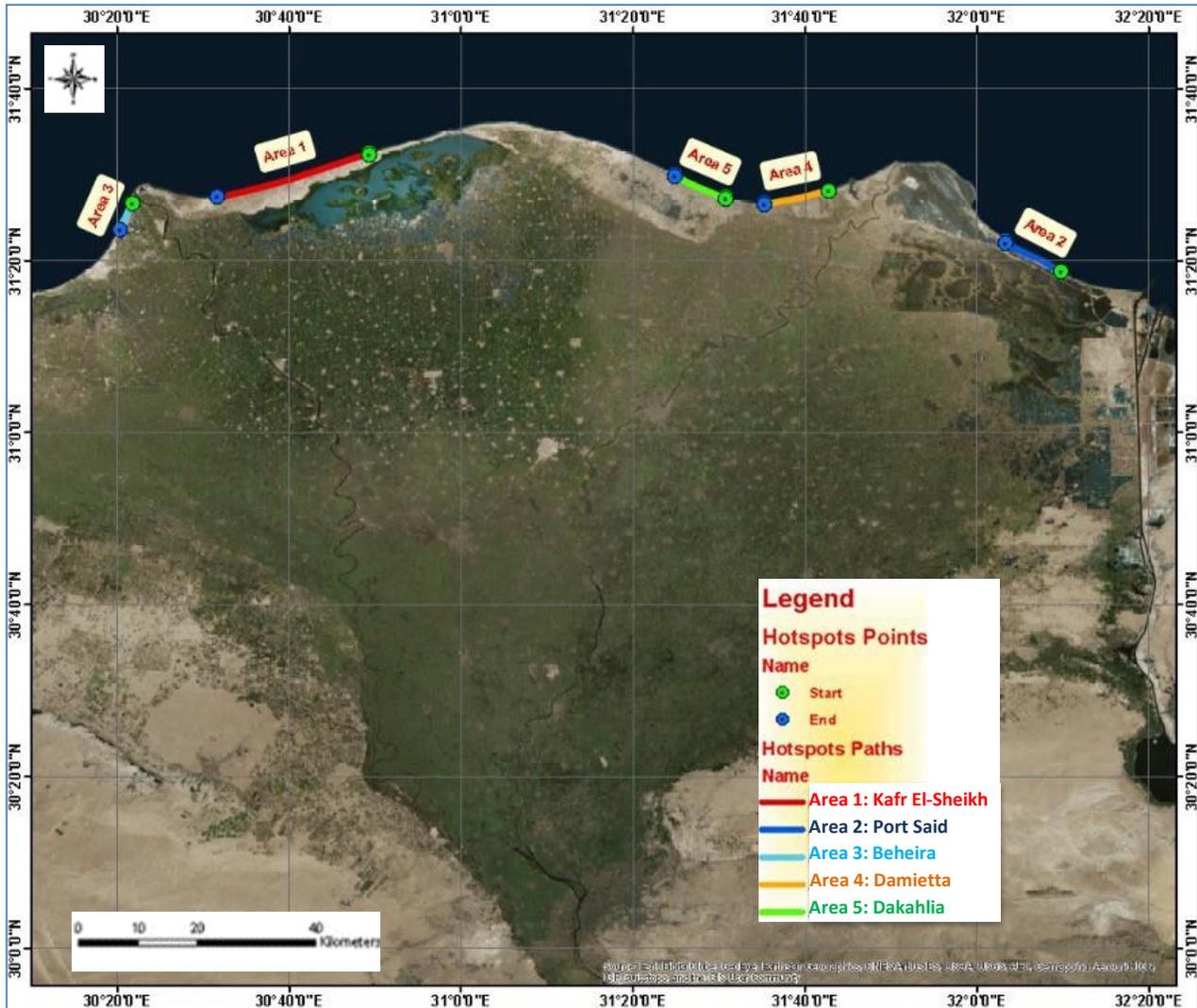
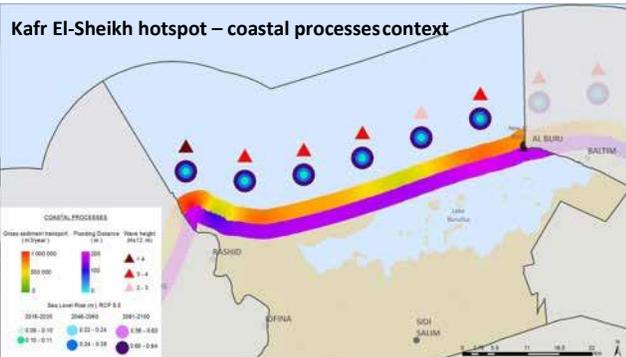
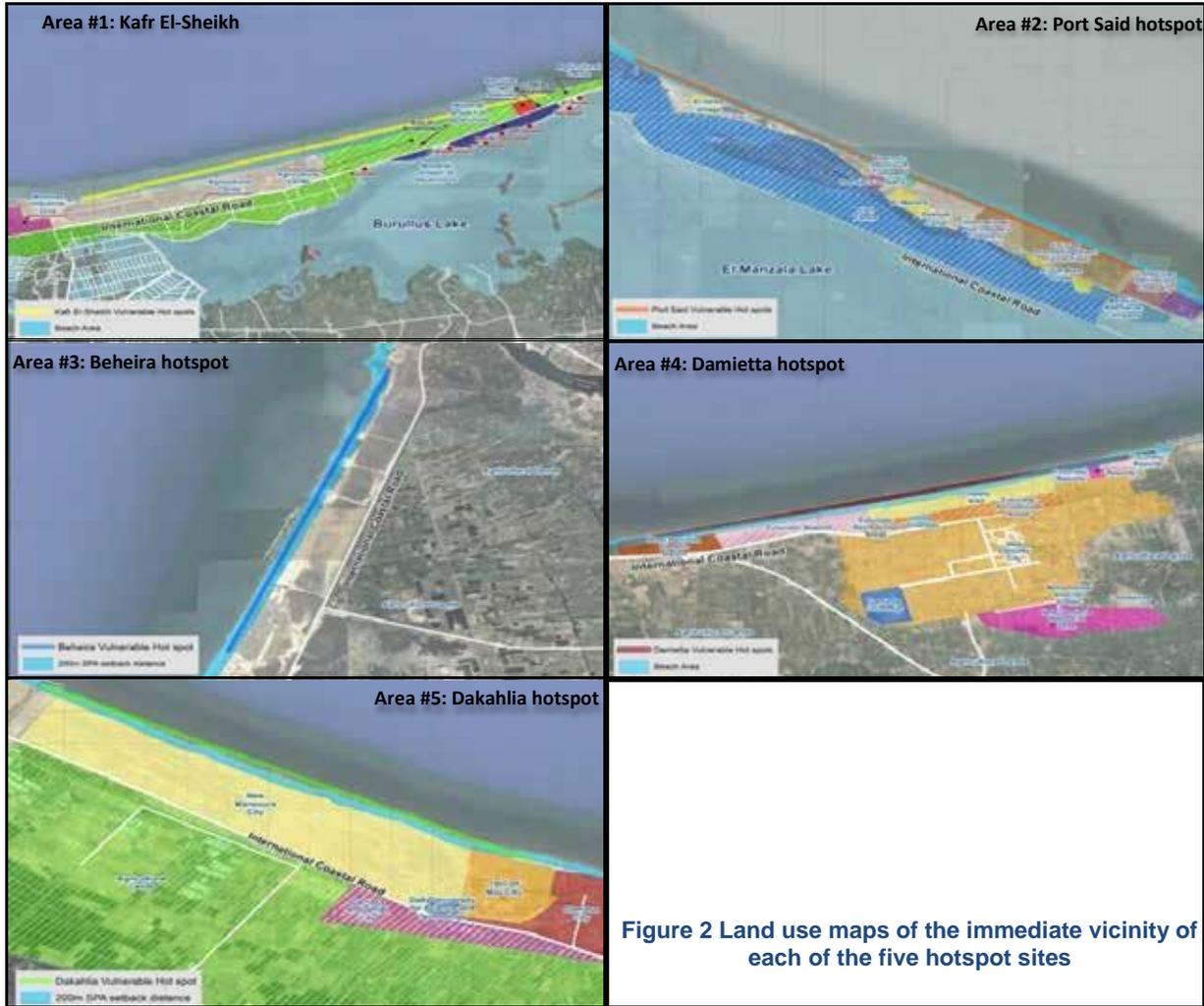


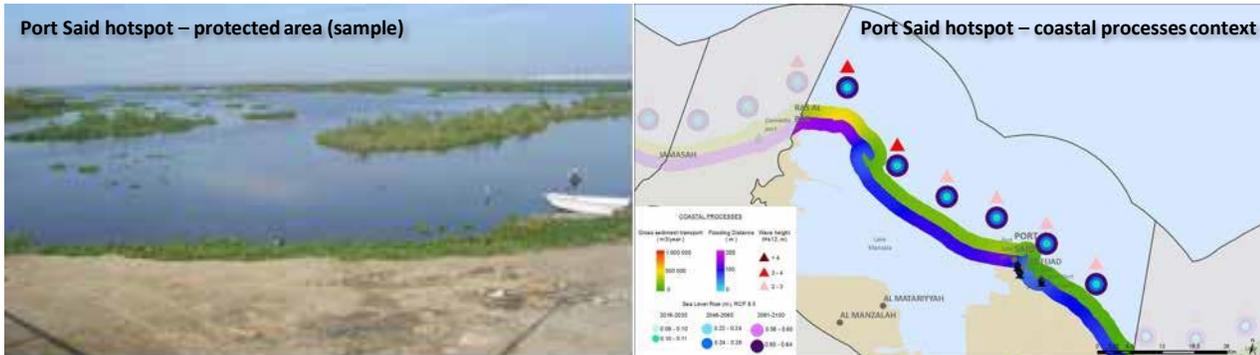
Figure 1 Map of priority hotspot locations

44. Technical details of the engineering assessment justifying the selection and location of these specific sites are provided in the Technical Feasibility Study (Annex IIa). For assessment purposes, the coastline from Alexandria to Port Said was broken out into coherent segments for analysis. Within each of the segments, specific vulnerable hotspots were identified through a strength-weakness-opportunity-weakness (SWOT) analysis combined with an assessment of ecological systems, planned development activities, socioeconomic characteristics, and coastal processes at work. To undertake the assessment, a range of data was assembled including wave data, topography, erosion trends, storm surge characteristics, sea level rise rates, land subsidence rates, and other data necessary for developing the site characterization plan. This information was used to compare climatic changes (i.e., frequency of storm events, wave energy, storm surge, and sea level rise) to baseline conditions. The paragraphs below provide a brief selective summary of the major characteristics of each priority hotspot.

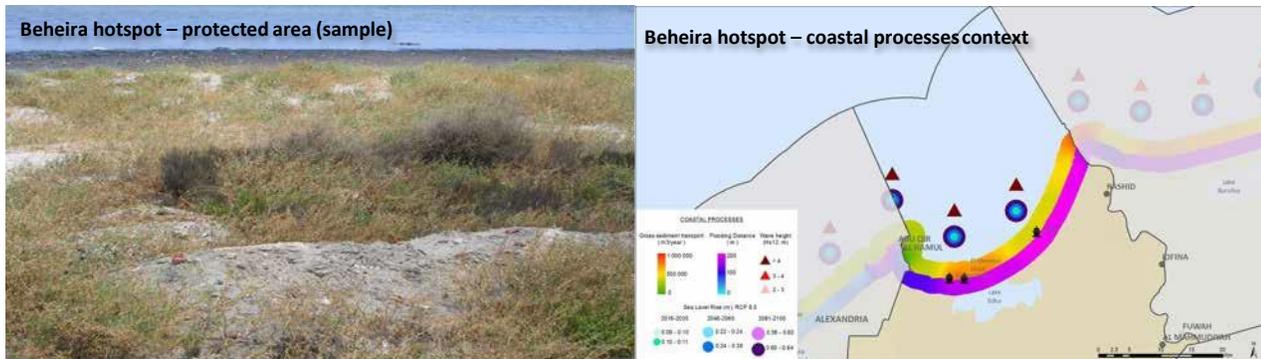


45. **Area #1 - Kafr El-Sheikh:** Located near the Area #1 – Kafr El-Sheikh: West Burullus inlet, the coastal unit extends from Rosetta channel entrance up to Burullus inlet. It contains the Burullus lagoon that is separated from the sea by a 65 km long sand ridge with a minimum width of 500 meters close to the lagoon inlet. A coastal dune system acts as natural protection. It is characterized by low-lying, weakly subsiding land. The area is exposed to sea level rise without protection. The range in land subsidence rate is estimated to be between 0.0 to 1.0 mm/year while the rate of sea level rise is estimated at 1.0 mm/year. The currently observed high erosion rates will increase in all the scenarios principally due to shoreline retreat due to sea level rise. Also, the presently currently high flooding risk will increase in all

the scenarios. For the overall shoreline area in which the Kafr El-Sheikh hotspot is located, the major coastal processes and sea level rise scenarios considered in the assessment are illustrated in the figure at right. Within the overall area, the total protected area is 27 km, or about one third of its total length.



46. **Area #2 - Port Said:** Located near West new Ashtom Elgamil Boughaz, it extends from the main Damietta channel entrance (Damietta promontory) to the east end of Sahl El Tina. It includes Manzala lagoon whose main drainage channel is located at El Gamail strait, and Sahl El Tina low-lands east of Port Said. From west to east, the coastline is characterized by low-lying, highly subsiding land. The area is exposed to sea level rise without protection. Beaches are long open sandy beaches with gentle slope and fine deltaic sediment along the entire unit (except at Port Said where beaches are almost inexistent). Beach width is limited all along the unit because of the rigidification of the different sand barriers. The range in land subsidence rate is estimated to be between 3.0 to 5.0 mm/year while the rate of sea level rise is estimated to be around 2.0 mm/year. Erosion issues are expected to increase because of the strong shoreline retreat related to sea level rise. It will remain globally high. The currently observed high flooding will increase in all scenarios due to sea level rise. For the overall shoreline area in which the Port Said hotspot is located, the major coastal processes and sea level rise scenarios considered in the assessment are illustrated in the figure at right. Within the overall area, the total protected area is 12 km, or about one fifth of its total length.

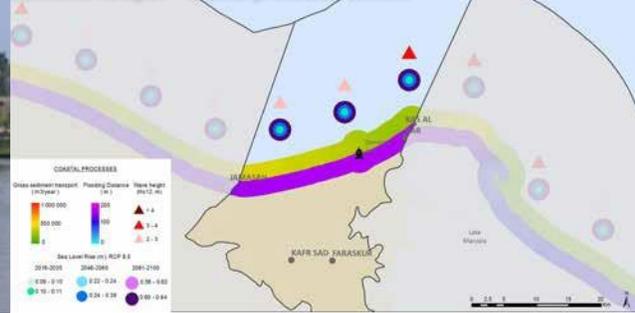


47. **Area #3 – Beheira:** Located near West Rosetta estuary, it extends from Abu Qir headland to the Rosetta promontory and includes the Idku lagoon which drains into the sea at Maadia (Idku strait). It is characterized by low-lying, highly subsiding land. The area is experiencing severe erosion due to groin construction. Erosion issues remain severe over the long-term (high from Maadia to Rosetta promontory), with problems being exacerbated due to shoreline retreat. Flooding is projected to be high all along the shoreline due to projected sea level rise affecting lower areas. The range in land subsidence rate is estimated to be between 3.0 to 4.0 mm/year while the rate of sea level rise is estimated to be around 1.6 mm/year. For the overall shoreline area in which the Beheira hotspot is located, the major coastal processes and sea level rise scenarios considered in the assessment are illustrated in the figure at right. Within the overall area, the total protected area is 6 km, or about one tenth of its total length.

Damietta hotspot – protected area (sample)



Damietta hotspot – coastal processes context

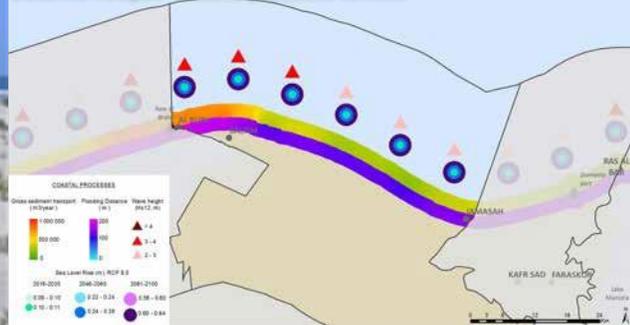


48. **Area #4 – Damietta:** Located east of new Damietta city. It includes the well-preserved coastline of New Damietta City, the New Damietta harbor and the coastline of Ras Al Bar. Characterized by low-lying, moderately subsiding land. The area is exposed to sea level rise with only limited protection. The range in land subsidence rate is estimated to be between 1.0 to 2.0 mm/year while the rate of sea level rise is estimated to be around 2.3 mm/year. The currently observed high erosion rates will increase in all the scenarios principally due to shoreline retreat due to sea level rise. Also, the presently currently high flooding risk will increase in all the scenarios. For the overall shoreline area in which the Damietta hotspot is located, the major coastal processes and sea level rise scenarios considered in the assessment are illustrated in the figure at right. Within the overall area, the total protected area is 12 km, or about two fifths of its total length.

Dakahlia hotspot – protected area (sample)



Dakahlia hotspot – coastal processes context



49. **Area #5 – Dakahlia:** Located west of new Gamasa city, it encompasses the eastern part of the Nile Delta, between the apex and the Damietta spit. It is characterized by low-lying, moderately subsiding land. The area is exposed to sea level rise without protection. The range in land subsidence rate is estimated to be between 0.5 to 1.0 mm/year while the rate of sea level rise is estimated to be around 1.0 mm/year. Erosion is high near Burullus town and the Baltim beaches due to strong sediment transport associated with highly vulnerable deltaic sandy coast, strong past shore line retreat and concentrated coastal protections which have caused side effects (e.g. east of Kitchener drain). Erosion rates will increase in all the scenarios principally due to shoreline retreat due to sea level rise. Also, the presently currently high flooding risk will increase in all the scenarios. For the overall shoreline area in which the Dakahlia hotspot is located, the major coastal processes and sea level rise scenarios considered in the assessment are illustrated in the figure at right. Within the overall area, the total protected area is 12 km, or about one fifth of its total length.
50. There are three major activities associated with the construction of the soft coastal protection as well as numerous sub-activities, as outlined below.
51. Activity 1 of Output 1 focuses on the development of soft coastal protection (pre-construction) detailed designs, and site-specific assessments undertaken for protecting 69 km of the Nile Delta in 5 vulnerable hotspot locations. It will involve the following major sub activities:

- Sub-Activity 1.1.1: Generation of local data needed to characterize the vulnerable hotspot locations including, but not limited to, digital elevation maps, geomorphology, wave characteristics, storm

events, erosion/accretion trends, and other data needed to assess the suitability of soft coastal protection measures subject to the combined impact of sea level rise and extreme storm events.

- Sub-Activity 1.1.2: Use of the local data generated to undertake flood modeling with and without soft coastal protection in order to establish detailed design characteristics for each of the hotspot locations
- Sub-Activity 1.1.3: Finalization of all in-depth design documents, specifications, and engineering drawings necessary for the development of a comprehensive bill of quantities for the soft protection measures.

52. Activity 2 of Output 1 focuses on constructing location-specific coastal soft protection structures at the 5 vulnerable hotspot locations. It will involve the following major sub activities:

- Sub-Activity 1.2.1: Initiate a tendering process to select local contractor(s) to construct the coastal protection measures, including quality control requirements, based on the finalized design documents and bill of quantities.
- Sub-Activity 1.2.2: Carry out all site preparation activities associated with clearing, grubbing, stripping, dewatering and any other activities associated with site preparation at the five locations.
- Sub-Activity 1.2.3: Construct the 5 coastal protection measures, including all excavation, fill placement/compaction, rip-rap placement, geotextile placement, and final grading.
- Sub-Activity 1.2.4: Conduct and maintain records for site inspection during the construction period, including environmental safeguard monitoring during the lifetime of the coastal protection works

53. Activity 3 of Output 1 focuses developing and implementing an operations & maintenance programme for the installed soft protection structures. It will involve the following major sub activities:

- Sub-Activity 1.3.1: Develop a soft coastal protection maintenance manual to govern future maintenance and rehabilitation activities, tailored to Nile Delta conditions.
- Sub-Activity 1.3.2: Codify the procedures in the manual within the governing regulations of the SPA.
- Sub-Activity 1.3.3: Conduct operations and maintenance activities over the lifetime of the project consistent with the coastal protection maintenance manual.

Output 2: Development and implementation of an integrated coastal zone management plan (ICZM) for the entire North Coast of Egypt.

54. The impacts of climate change on the north coast, especially regarding sea level rise, will further place the Nile Delta and the entire North Coast at risk. On the one hand, impacts such erosion and flooding will increase under different climate change scenarios with sea level rise, causing damages and losses in the coastal system (infrastructures, housing, livelihoods, coastal resources, etc.) leading to human migration outside and inside the country. On the other hand, key stakeholders will need stronger mechanisms to collaborate and join forces to face climate change challenges. A shift away from business-as-usual practices in coastal management is needed urgently to cope with sea level rise which is already occurring. The goal of long-term resilience building and risk reduction under climate change threats in the north coast requires a new planning paradigm, one offered by the implementation of the ICZM plan. In this regard, the Government of Egypt has completed initiation steps on the development of an ICZM Strategy with the preparation of local ICZM Plans in Marsa Matruh and Alexandria and the development of the ICZM Scoping Study under the GEF SCCF project.

55. The proposed project will build on these activities by implementing portions of the ICZM cycle for the entire North Coast. The entire ICZM process is illustrated by stages shown on the Figure at right and discussed in detail in Annex IIa. Diagnosis, preparation of the ICZM plan, implementation of the plan, and monitoring and evaluation.

56. Only the first two steps in the cycle are addressed by the proposed project, as outlined below.

- “1. Diagnosis” - The “diagnosis” stage has been mostly completed by a Scoping Study described earlier. Nevertheless, the preparation of the ICZM Plan for the entire coast will require additional diagnosis activities consisting of high-resolution analyses of coastal impacts derived from climate change modeling, especially the assessment of coastal vulnerabilities.
- 2. “Preparation of the ICZM plan” – This stage will be carried out through the preparation of a comprehensive ICZM Plan that (i) defines the necessary engineering and management measures for climate change adaptation; (ii) establishes the necessary management framework to ensure the effective and sustainable implementation of that measures; and (iii) sets up the procurement and installation of a national observation system to track unfolding climatic changes in coastal zones.

57. The last two stages of the ICZM, “Implementation” and “Monitoring and Evaluation” are beyond the scope of the proposed project and will be taken up by the SPA upon conclusion of the project.

58. Upon full completion of the diagnosis stage, the planning stage will focus on the preparation of the ICZM plan itself. The plan will define strategic and operational objectives to be achieved through a set of actions; and its implementation strategy (roadmaps, budget, and monitoring system). The ICZM Plan itself will reflect all the hazard, vulnerability and high-resolution risks assessment of erosion and flooding under climate change scenarios and comprise the following elements:

- **Shoreline Master Plan (SMP):** This document defines the preferred risk reduction/climate change adaptation measures for the priority areas. These measures include coastal protection measures (nature- based and traditional engineering measures at a pre-design level of detail), coastal planning measures as setbacks or building codes and standards for the entire north coast.
- **Coastal Management Plan (CMP):** This document defines the necessary management actions to ensure a sustainable framework to develop climate change adaptation measures. Management actions include measures to improve institutional and regulatory framework, promote stakeholder participation and capacity building, among others.
- **Capacity strengthening:** This will involve a training programme to build capacity in the application of high resolution modelling techniques, maintenance of soft coastal protection structures, and maintenance of all coastal monitoring equipment.
- **National Observation System (NOS):** This will involve the design and installation of elements of the NOS. Such as system offers the long-term benefit of being able to monitor changes in the coastal environment through an integrated data collection system.

59. There are four major activities associated with the development of the ICZM plan for the North Coast as well as numerous sub-activities, as outlined below.

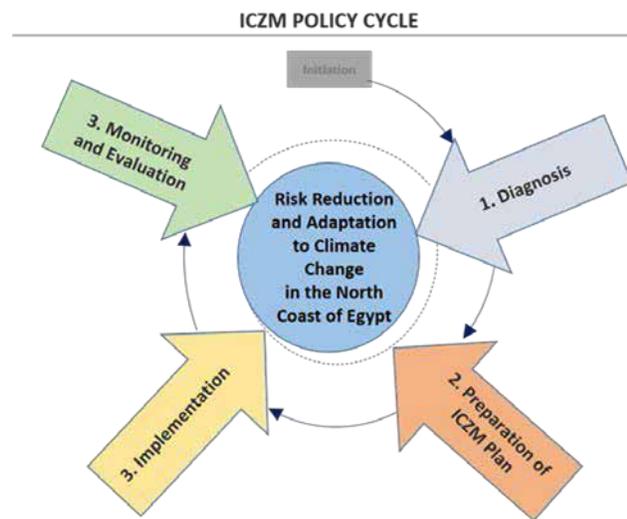


Figure 3 ICZM policy cycle

60. Activity 1 of Output 2 focuses on the development of national capability to conduct long-term climate change risk-induced hazard, vulnerability and risk high resolution assessments of erosion and flooding under climate change scenarios on an ongoing and iterative basis. This activity will include training in methods/ for the characterization of marine dynamics, establishment of databases and tools to model shoreline dynamics, high-resolution (HR) hazard assessment, and HR exposure, vulnerability and risk assessment. The assessments will be performed for different scenarios: current situation and long term scenarios (considering climate change and future coastal developments). The risk assessment will be performed at two different geographical scopes and scales: national for the whole north coast (based on the hazard assessment performed under the ICZM Scoping Study) and local at selected priority areas. The results of the process will lead to the selection of the next set of priority areas. It will involve the following major sub-activities:

- Sub-Activity 2.1.1: Characterization of marine dynamics based on the numerical modelling of wind, waves, currents and sea level change in the future.
- Sub-Activity 2.1.2: Establishment of coastal modeling systems consisting of databases, methods and tools suitable for modeling shoreline dynamics in the North Coast context.
- Sub-Activity 2.1.3: Conducting high-resolution hazard assessment under a set of climate change scenarios to develop flooding maps that account for storm surge inundation levels that factor in projected sea level rise.
- Sub-Activity 2.1.4: Conducting of vulnerability and risk high resolution assessment under climate change scenarios to integrate the exposure of coastal areas and their sensitivity to flooding and erosion impacts.

61. Activity 2 of Output 2 focuses on the development of a climate change risk-informed ICZM plan to include a shoreline management plan and a regulatory/legislative/institutional framework. This is the core activity of the ICZM policy cycle where the ICZM plan for the North Coast of Egypt is developed. It is estimated that the complete process for the development of the ICZM plan including the supporting frameworks will need five years. However, it is expected that there will be outputs from the ICZM plan starting from the third year of the project. Accordingly implementation of the urgent coastal protection measures will overlap with the development of ICZM plan. The ICZM Plan is essentially a planning tool that defines the objectives and measures necessary to achieve a climate-resilient development of the North Coast. It will consist of a Shoreline Management Plan (SMP) and a Coastal Management Plan (CMP), as mentioned earlier. It will involve the following major sub-activities:

- Sub-Activity 2.2.1: Development of a Shoreline Management Plan for climate change adaptation to define the most promising shoreline management measures for climate change adaptation, and their implementation strategy.
- Sub-Activity 2.2.2: Development of a regulatory and legislative framework to ensure the effective implementation of climate change adaptation activities under ICZM principles.
- Sub-Activity 2.2.3: Development of an institutional governance mechanism at the national and governorate levels to ensure a shared ownership of the ICZM Plan with concerned authorities and civil society groups in the planning process.
- Sub-Activity 2.2.4: Establishment of the monitoring and evaluation system to enable managers to take appropriate corrective actions to achieve the expected results of the plan by evaluating the progress of the plan implementation.
- Sub-Activity 2.2.5: Initiate implementation of the coastal protection measures generated from the ICZM plan

62. Activity 3 of Output 2 focuses on the development of a capacity building program on climate change risk management for institutions involved in the long-term management of the north coast. The program will create the basis for a thorough understanding of various aspects of coastal management, including climate change adaptation and ICZM, as well as promoting collaborative networks equipped with the necessary skills, knowledge and attitudes to undertake different tasks involved in the climate

change adaptation and planning of the coastal areas of Egypt. The framework for the program will aim to identify gaps and corresponding capacity needs relative to key ICZM implementation issues, and to build capacity of individuals and institutions to implement the ICZM Plan. It will involve the following major sub-activities:

- Sub-Activity 2.3.1: Assessment of capacity needs for ICZM planning to catalog on-going coastal management capacity building activities, and to identify gaps in skills, knowledge and attitudes for the practice of ICZM and climate change adaptation.
- Sub-Activity 2.3.2: Transfer of coastal observation and modelling systems to coastal management to ensure that staff from selected institutions have the necessary scientific knowledge to assimilate and integrate both the coastal observation and modelling systems.
- Sub-Activity 2.3.3: Design and implementation of modular training program for MWRI/SPA and EEAA to build skills for professional development of coastal management practitioners, in a diversity of capacities (e.g. policy positions or day-to-day management).
- Sub-Activity 2.3.4: Design and implementation of the modular training program for other stakeholders to be able to collaborate and actively participate in the implementation of the ICZM Plan.
- Sub-Activity 2.3.5: Monitoring and evaluation of the capacity building program's results.
- Sub-Activity 2.3.6: Design and implementation of a programme to promote sustainable livelihoods of poor women in hotspot areas for household income diversification and other community development activities

63. Activity 4 of Output 2 focuses on the implementation of specific components of a national observation system. The National Observation System has already been designed (see Annex IIa). It will involve the following major sub-activities:

- Sub-Activity 2.4.1: Procurement and installation of an observation/monitoring equipment relative to meteorological, oceanographic, networking, and other operational objectives for coastal zone management of climate change induced risks on coastal areas.
- Sub-Activity 2.4.2: Development and implementation of a capacity building programme for MWRI/SPA and EEAA that focuses on training in the operation of all elements of the national observation system, including systems for coordination with coastal zone analysts/modelers who will use the data generated.
- Sub-Activity 2.4.3: Design and implementation of a quality control/assurance programme amongst the participating institutions and agencies for the collection, evaluation, and distribution of data generated from the various components of the national observation system.

C.4. Background Information on Project / Programme Sponsor (Executing Entity)

64. The Ministry of Water Resources and Irrigation will be the National Executing Partner (Implementing Partner of UNDP). Within its mandate, the Ministry is also responsible for the protection of the Egyptian coasts through planning, design, construction, management, and maintenance of coastal and sea defense structures in the Mediterranean and Red Sea Coasts in Egypt. In addition, the Ministry will collaborate with the National Water Research Center (NWRC)/ Coastal Research Institute (CoRI) and the Egyptian Shore Protection Authority (SPA). An organizational map is provided on the figure that follows.

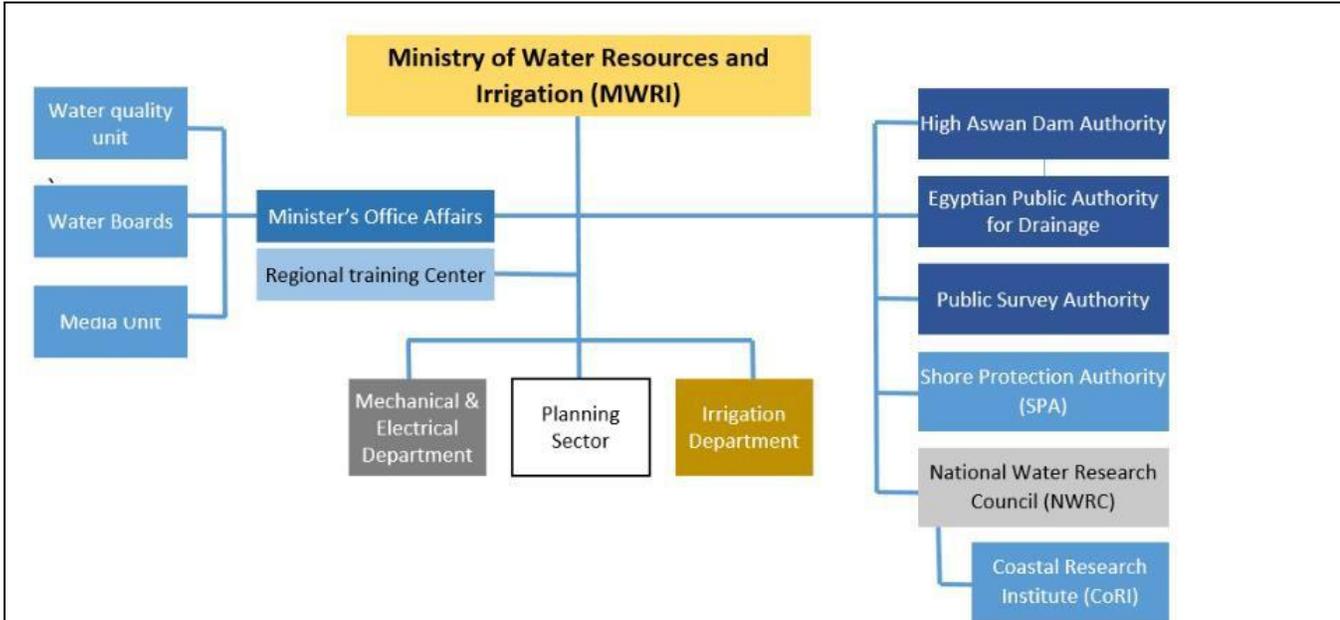


Figure 4 Structure of the Ministry of water resources and irrigation

65. As the Implementing Partner, the MWRI will provide project management support and parallel/in-kind contribution to project implementation through its technical and administrative staff and systems. It will also be responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of GCF resources. Specifically, the MWRI is responsible for: Hosting the PMU; Approving and signing the multiyear workplan; Approving and signing the combined delivery report at the end of the year; and, Signing the financial report or the funding authorization and certificate of expenditures. The MWRI has sufficient institutional capacities to perform all related tasks.
66. The SPA is the governmental authority under the MWRI that is responsible for managing the shoreline in coastal areas that have socioeconomic value or natural resource value that are threatened by erosion. It develops coastal zone management plans, designs projects for shore protection, and issues license for projects located in the coastal zone area. SPA falls directly under the MWRI and was established in 1981 by Presidential Decree N. 261. SPA has two branches: i) Research & Development and ii) Execution; and has seven administrations, four of them located at the north coast of Egypt near some of the hotspot sites. About 400 people work in SPA, 100 of them correspond to engineers who are actively engaged in monitoring conditions along the Mediterranean coast. SPA is responsible for the erosion control throughout the north coast of Egypt. The main responsibility of SPA is to manage the shoreline in those coastal areas, which have socioeconomic value or natural resource value that are threatened by erosion. The activities performed by SPA focus on designing projects and studies for shore protection, monitoring coastal processes, and issuing license for projects located in the coastal zone areas, in collaboration with EEAA. Additionally, SPA participates in the development of coastal management plans. The organization is a key player in the implementation of project activities because its experience in coastal protection structures and planning activities in the North Coast.
67. CoRI is responsible for investigating the coastal process along the Nile Delta as well as all the entire Egyptian coasts; monitor the evolution of the Egyptian coast, to study the dynamics of its shores and to find out efficient and cost-effective control methods to protect valuable coastal infrastructure from erosion. Through its mandate, CoRI has a primary responsibility to investigate coastal processes along the Nile Delta as well as the entire Egyptian coasts. It works closely with SPA on diagnosing coastal threats and has been at the forefront of calls for urgently protecting areas under threat from sea level

rise-induced flooding and for the implementation of an integrated coastal zone management process to guide future development plans along the North Coast.

68. The management team of SPA/CoRI has extensive experience, with a proven track record of effectively working together in pursuit of coastal protection objectives (see discussion in earlier Section C.2). Also, UNDP was closely engaged with CORI and SPA in the national implementation of the GEF SCCF Adaptation of the Nile Delta Project. Moreover, CORI is one of the institutes comprising the National Water Research Center. Together with SPA engineers, it has conducted the technical design of the soft coastal protection measures at the five hotspots (see Annex IIa). As a tandem, the quality of the management team is high, with sufficient technical capacity and cooperation mechanisms in place to ensure the project activities are implemented in an efficient manner.

C.5. Market Overview (if applicable)

69. Coastal protection fulfills the characteristics of “non-excludability” and “non-rivalry” and thus it is considered as a pure public good. Thus, there is no market and services of coastal protection that need to be provided through government interventions.

C.6. Regulation, Taxation and Insurance (if applicable)

70. All procurement conducted by the GoE will adhere to government procedures and will be subject to government policies including tax. Procurement conducted by UNDP (if imported) can receive the customs / duty exemption at the port. Otherwise, all procurement done in country is subject to the value-added goods and services tax with no exemption.
71. The Ministry of Finance and to a certain extent the State Council have central oversight of public procurement which is governed by the Civil Law with Civil Code regulating commercial contracts. Public contracts are governed by Law No. 89/1998 Promulgating the Law on Organizing Tenders and Bids which includes the Law on Organizing Tenders and Bids, and by the Decree No. 1367/1998 promulgating the Executive Statutes of Tenders Law issued by the Minister of Finance. The Decree includes the Executive Statutes of Tenders Law.
72. Law No. 4 states that the environmental impact of certain projects must be evaluated before any construction works are initiated or a license is issued by the competent administrative authority or licensing authority. The Executive Regulations relating to Law No. 4 identifies projects which must be subjected to an Environmental Impact Assessment based upon the following relevant principles: type of activity performed by the establishment and extent of natural resources exploitation. Since there are numerous projects subject to this provision, the GoE employs a flexible screening system to classify projects into three groups, A, B, or C reflecting different levels of environmental impact assessment required. An “A” classification corresponds to projects with minor environmental impact; a “B” classification corresponds to projects which may result in substantial environmental impact; and a “C” classification corresponds to projects which require complete EIA due to their potential impacts. The proposed project has been classified as an “A” project indicating minor environmental impact. Details regarding this designation is provided in Annex VI.
73. In addition to the national law and regulations, the project will be subject to the UNDP standard Social and Environmental Safeguards (SES) Policy and the screening procedure (SESP). Both ensure compliance with Egyptian national laws and regulations.

C.7. Institutional / Implementation Arrangements

74. The project will be implemented following UNDP’s NIM, according to the Standard Basic Assistance Agreement (SBAA) between UNDP and the GoE and as policies and procedures outlined in the UNDP POPP (see <https://info.undp.org/global/popp/ppm/Pages/Defining-a-Project.aspx>).
75. The national executing entity, also referred to as the national ‘Implementing Partner/Executing Entity’ in UNDP terminology is required to implement the project in compliance with UNDP rules and regulations, policies and procedures, including the NIM Guidelines. These include relevant requirements on fiduciary, procurement, environmental and social safeguards, and other performance

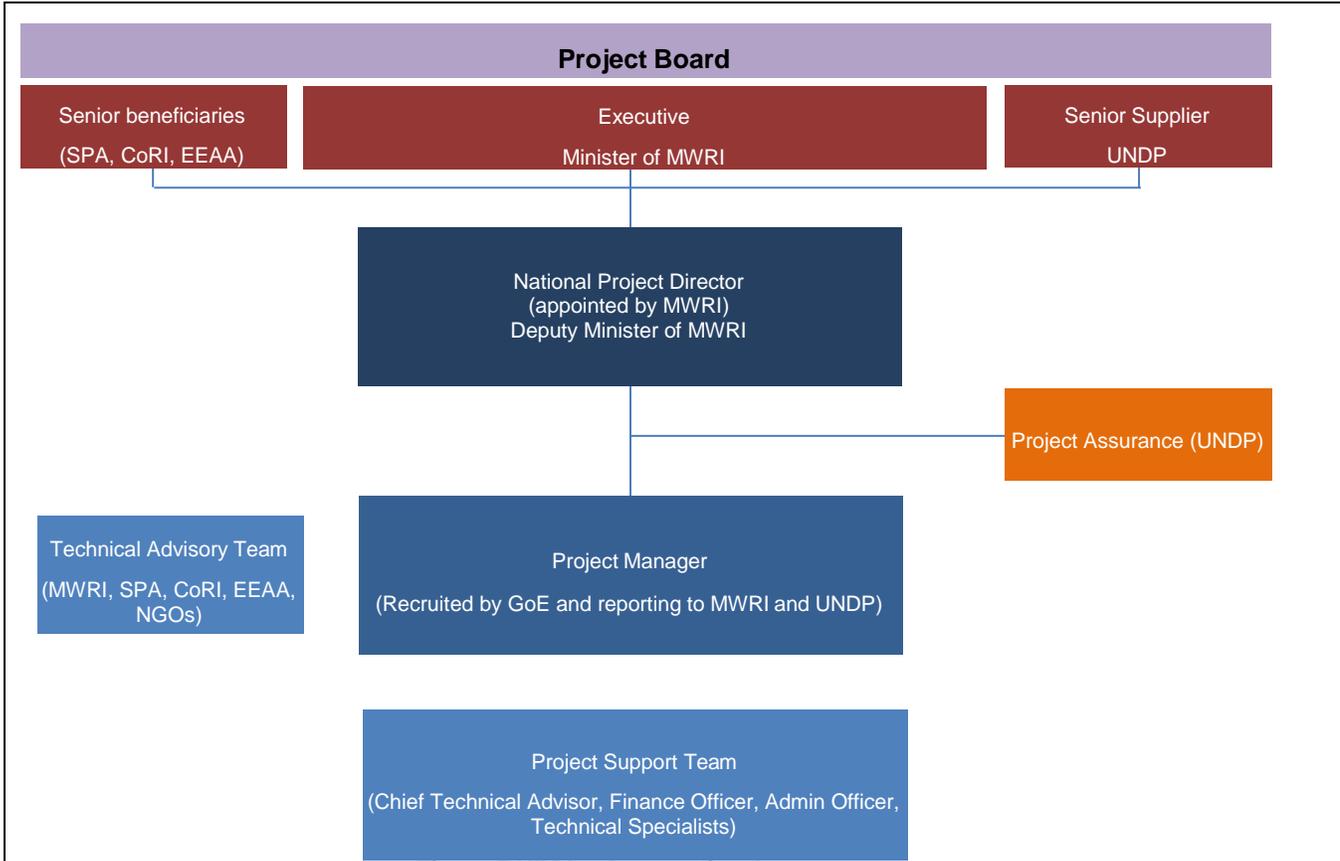


Figure 5 NIM Implementation Arrangements

standards. In legal terms, this is ensured through the national government’s signature of the SBAA, together with a UNDP project document which will be signed by the Implementing Partner/Executing Entity to govern the use of the funds. The SBAA was signed with the GoE in 1987.

76. **The (national) Implementing Partner/Executing Entity** for this project is the MWRI which is accountable to UNDP for managing the project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of resources made available by UNDP. The management arrangements for this project are summarized below:

Governance arrangements

77. UNDP provides a three – tier oversight and quality assurance role involving UNDP staff in Country Offices and at regional and headquarters levels. The quality assurance role supports the Project Board by carrying out objective and independent project oversight and monitoring functions. This role ensures appropriate project management milestones are managed and completed. Project Assurance must be independent of the Project Management function; the Project Board cannot delegate any of its quality assurance responsibilities to the Project Manager. The project assurance role is covered by the accredited entity fee provided by the GCF. As an Accredited Entity to the GCF, UNDP is required to deliver GCF-specific oversight and quality assurance services including: (i) Day-to-day oversight supervision, (ii) Oversight of project completion, (iii) Oversight of project reporting. The ‘senior supplier’ role of UNDP is to represent the interests of the parties, which provide funding and/or technical expertise to the project (designing, developing, facilitating, procuring, implementing). The senior supplier’s primary function within the Board is to provide guidance regarding the technical feasibility of the project.

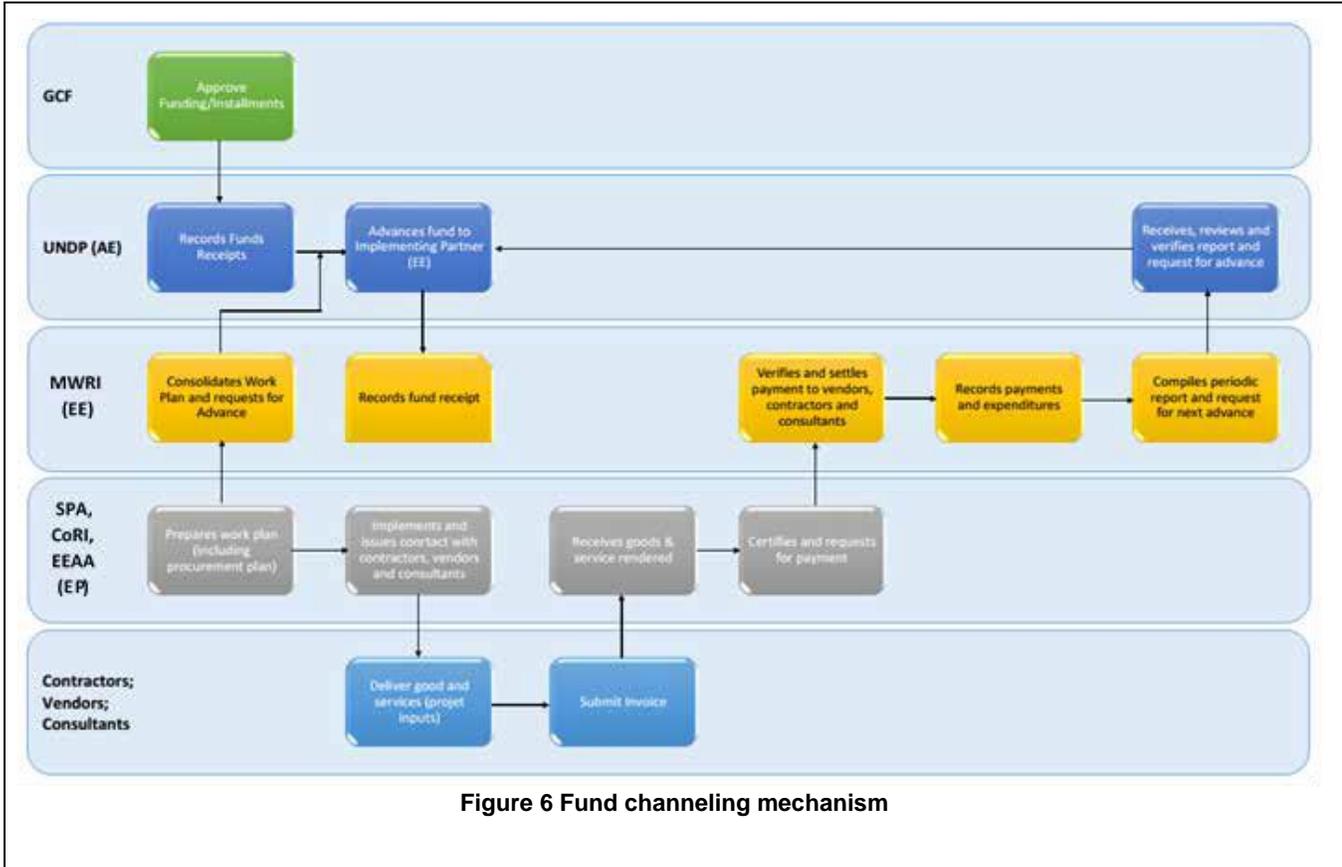
78. In addition, the Government of Egypt may request UNDP to provide direct project services for this project. The UNDP and Government of Egypt acknowledge and agree that those services are not mandatory, and will be provided only upon Government request and specified in the Letter of Agreement. If requested, the direct project services would follow UNDP policies on the recovery of direct project costs relating to GCF funded projects. Please see Annex XVIII and XIV for further details..
79. The project will be governed by a Project Board. The Board will consist of a group of representatives responsible for making consensus-based strategic and management decisions for the project. It will oversee the project implementation; review compliance with GoE, UNDP and GCF requirements; and ensure implementation of the management plan for the risks identified. The Board will be comprised of:
- An Executive (role represented by National Implementing Partner) that holds the project ownership and chairs the Board. The Executive will be the Minister of the MWRI.
 - A Senior Supplier representative providing guidance regarding the technical feasibility of the project, compliance with donor requirements, and rules pertaining to use of project resources. This role will be fulfilled by UNDP in its capacity as GCF Accredited Entity;
 - Senior Beneficiary representatives who ensures the realization of project benefits from the perspective of project beneficiaries; and
 - The National Project Director, a Focal Point from the MWRI who is responsible for overall direction, strategic guidance, and timely delivery of project outputs.
80. The Board will also include additional membership including representatives from the Ministry of Foreign Affairs and other relevant GoE ministries, Development Partners, NGOs and the Egyptian NDA for the GCF. The Board will meet once every six months and/or upon a call by the National Project Director.

Management Arrangements

81. Using established practice under NIM, GoE will designate a National Project Director (NPD) who will be from MWRI. The NPD will be responsible for the overall direction, strategic guidance, and timely delivery of project outputs. These positions are not remunerated by GCF resources but are Government financed positions.
82. MWRI jointly with UNDP will appoint a Project Manager (PM) through a competitive selection process who will be responsible for day-to-day operations.
83. The PM will be supported by a core team of technical and support staff forming the Project Implementation Unit (PIU) located at the MWRI to execute project activities, including day-to-day operations of the project, and the overall operational and financial management and reporting.
84. UNDP will play Project Assurance Role in line with the requirements outlined in the AMA. This includes management of funds, programme quality assurance, fiduciary risk management, timely delivery of financial and programme reports to GCF and other requirements as per the AMA.
85. The MWRI will enter into specific "letter of agreement" with relevant agencies for the implementation of the project. UNDP will manage the funds from GCF, and will disburse quarterly in advance against agreed work plans, to a project account managed by the MWRI based on UNDP direct payment requests. The MWRI PMU will deliver on behalf of MWRI reporting, auditing and M&E requirements of the government to UNDP, in line with UNDP requirements.
86. The Technical Advisory Team (TAT) consists of technical level staff from all Ministries and NGOs, represented on the Project Board. It will provide the platform for debate and contributions across the project outputs at a more technical and working level.

Fund Channeling Mechanism

87. The following diagram outlines the fund channeling mechanism for the project.



C.8. Timetable of Project/Programme Implementation

88. The implementation schedule with detailed activity progress timeline and output completion is provided in Annex X.

D.1. Value Added for GCF Involvement

89. The project is a strategic intervention designed to build long-term climate resilience in the North Coast of Egypt, with a focus on portion of the low-lying Nile Delta. It aims to implement activities that are innovative for Egypt and demonstrate value-added relative to GCF programming objectives. The GCF contribution is critical for the proposed project in as much that the successful implementation of these activities would be impossible without the financial assistance inherent in the GCF contribution. The GoE is proposing that GCF funds be devoted to this project because it is impossible for the government alone to cope with the magnitude of financial investment required to protect the Nile Delta from sea level rise related coastal flooding. The threat is too severe and the costs too steep. With GCF financing, the resilience and adaptive capacity of coastal zones will be built relative to their coastal zone management practices, and relative to current and future climate risks. Moreover, by its simultaneous focus on the implementation of coastal protection measures in the Delta's vulnerable hotspots that mirror natural coastal features and/or sand dunes while also launching a long overdue integrated coastal zone planning process for the North Coast, the proposed project brings together the crucial elements needed for both targeted effectiveness in the near-term and replication potential in other coastal zone of Egypt that will yield long-term benefits. There are two major reasons for GCF involvement, each of which is closely aligned with the GCF's mandate.
90. **Scale up investments in critically vulnerable hotspots through soft coastal protection measures:** The GCF will deliver local adaptation benefits, in terms of reduced vulnerability from coastal flooding events to one of the world's most vulnerable regions to climate change. A total of 69 km of soft coastal protection, mostly financed through GCF, will be put in place in sections of the Nile Delta that currently experiences severe flooding, imminent risks of agricultural land loss and damages to coastal infrastructure. GCF involvement in setting up coastal defenses in the Delta will promote risk reduction from the dual threats of sea level rise and intensifying storm activity. With current relative sea level rise rates ranging from 1.0 to 7.3 mm/year, sea level along some portions of the North Coast are rising faster than the global average of 2.8-3.6 mm per year. Any increases in the global rate of sea level rise will exacerbate what is already an existential threat to Egypt's survival. Without GCF involvement, building coastal resilience will continue in its piecemeal and uncoordinated fashion due to budget constraints and the lack of adequate national capacity to design and implement locally suitable coastal protection measures.
91. **Integration of climate change risks into long-term coastal development planning:** The proposed GCF project allows multifaceted barriers to be addressed in a comprehensive manner within a single programme framework which past donor support has not been able to accomplish. In particular, this project has an element of launching a new planning paradigm as an integral part of the project's long-term sustainability. Without the preparation of an integration coastal zone management plan, key infrastructure, and agricultural production assets, and coastal communities are subject to uncoordinated, potentially maladaptive coastal protection investments that may ultimately amplify the climate change threat and require otherwise unneeded flood response and reconstruction.

D.2. Exit Strategy

92. Developing an exit strategy for the GCF requires attention to two interrelated conditions: providing a strong basis for country ownership of the outputs and creating conditions favorable to the sustainability of the measures introduced. Each of these is discussed below.
93. **Country ownership:** The proposed project has been designed through extensive consultations and involvement of government officials at SPA, CoRI, and MWRI to ensure ownership of the interventions and effectiveness of their impact (See Annex IIa for the description and outcomes of community consultations that have taken place for the formulation of this project). Staff at the relevant government departments have been involved in the proposed design of the soft coastal protection measures and will be leading on implementation of these project interventions. Moreover, consultations with decision-makers at the highest levels of government have resulted in an understanding of the urgency of addressing sea level rise within an integrated coastal zone

management framework, reflected in a commitment to and ownership of the need to provide substantial new and additional co-financing devoted to implementing both outputs of the proposed project. As such, as seen in Annex IIa, there is a broad-based degree of acceptance towards the proposed project among the coastal protection community. Moreover, the GoE has committed to maintain the GCF investments in soft coastal protection upon completion of the project through the end of their useful life (see Annex I).

94. **Sustainability:** The way the sustainability of the proposed project will be ensured in the long run - after the project is implemented with support from the GCF and co-financing sources, is explained by the proposed project's focus on three factors. First, the government has made a commitment to finance the operations and management of the soft coastal protection measures to be constructed for the duration of their serviceable life. A letter of commitment to this effect is provided as part of Annex IV. Second, the GoE is committed to working with other countries in the Mediterranean Basin, in partnership with an EU initiative, to ensure that integrated coastal zone management is implemented as the core approach to building resilience to sea level rise and other climate change threats. Details about the EU initiative are provided in Annex IIa. Third, the project will remove key technical and institutional capacity barriers to enhance long-term coastal resilience in the North Coast. The technical capacity to monitor and assess dynamic coastal processes will be strengthened with CoRI and the SPA, while analysts at these institutions and others like the MWRI will participate in capacity building initiatives that address storm surge modeling, inundation analysis, data quality control/management, and other areas crucial to ensuring an ongoing technical capability to respond to climate change as it continues to unfold in the region. Meanwhile the ICZM plan that will be developed under the project and identified as a priority in the climate change Adaptation Plan will guide the coastal protection work in the North Coast for at least the next decade.

In this section, the accredited entity is expected to provide a brief description of the expected performance of the proposed project/programme against each of the Fund's six investment criteria. Activity-specific sub-criteria and indicative assessment factors, which can be found in the Fund's [Investment Framework](#), should be addressed where relevant and applicable. This section should tie into any request for concessionality made in [section B.2](#).

E.1. Impact Potential

Potential of the project/programme to contribute to the achievement of the Fund's objectives and result areas

E.1.1. Mitigation / adaptation impact potential

95. The proposed project builds on successes of past coastal adaptation initiatives in Egypt on managing coastal zone flooding risks due to sea level rise. At the planning level, these past initiatives have focused on the development of strategies to promote accommodation and protection as the basis for adapting to climate change in coastal zones, while accounting for systematic retreat where circumstances dictate and the benefits of environmentally-compatible soft coastal protection measures. At the intervention level, these past initiatives have focused on a range of civil works to maintain and repair existing protection defenses, such as enhancing the Mohamed Ali sea wall to protect the low-lying areas south of Abu Quir Bay and installing protection works for the low-lying area of El Malaha East of Port Said (Shark EITafreaah) which is subject to severe flooding risks.
96. Key lessons and success factors have been drawn from these initiatives and incorporated into the proposed project. Specifically, the design of the proposed project accounts for successful demonstrations of the effectiveness of soft protection measures in the Nile Delta; the viability of launching integrated coastal zone management processes in Egypt; and the feasibility of stakeholder engagement mechanisms for promoting inter-agency coordination on coastal zone management issues. The experience gained by the introduction of these previous initiatives - as well as the trust earned by decision-makers for integrated coastal planning process and the effectiveness of soft coastal protection measures - suggests that the proposed project is well-timed to take strategic advantage of the confluence of urgent coastal protection needs, the availability of innovative solutions, and a willingness on the part of Egyptian officials to work together across agencies.
97. The proposed project will yield adaptation benefits in both the near- and longer-term. On the one hand, the adaptation benefits of the proposed soft protection measures will be manifested immediately and extend over a period of at least the next 40 years. A total of 69 km of coastal protection will be put in place in the most vulnerable, low-lying zones in the Nile Delta. These measures will produce immediate adaptation benefits by eliminating the threat of storm- and sea level rise-induced flood damages to the international road, thousands of people living in scattered coastal communities, agricultural lands, and aquaculture activities. On the other hand, the proposed project will put in place an integrated coastal planning system that will develop an actual integrated plan for the entire North Coast. The process for developing the integrated plan will build the necessary capacity, as outlined for Activity 3.3 and corresponding sub-activities. This will lead to the strategic benefit of enabling monitoring/modeling of future sea level rise threats; developing appropriate responses, engaging stakeholders in decision-making in a way that addresses competing priorities; identifying essential regulatory and legislative changes required to be enacted by the Egyptian government; and establishing a system to update the plans as evolving conditions warrant.
98. Ultimately, the proposed GCF project will contribute to the achievement of climate-resilient sustainable development along the North Coast of Egypt. The construction-related activities of the proposed project in the most exposed/productive coastlines of the country will reduce

vulnerability of communities in the Nile Delta to future impacts of climate change including sea level rise, more frequent and intense storms and heightened/destructive wave energies that have caused significant damages to livelihoods and economic assets in the recent past. The soft protection measures will enable communities living in the vicinity to not have to bear the impact of unabated coastal inundation and associated damages. This will ensure that businesses/communities face lower risks of economic, social, cultural and psychological upheaval and can live without the threat of forced relocation inland. The planning-related activities of the proposed project will increase generation and use of information on coastal processes, oceans and climate in decision-making by strengthening institutional capacity, human resources, awareness and knowledge for resilient coastal management.

E.1.2. Key impact potential indicator			
<i>Provide specific numerical values for the indicators below.</i>			
GCF core indicators	<i>Expected tonnes of carbon dioxide equivalent (t CO2 eq) to be reduced or avoided (Mitigation)</i>	<i>Annual</i>	Not applicable
		<i>Lifetime</i>	Not applicable
	<input type="checkbox"/> <i>Expected total number of direct and indirect beneficiaries, disaggregated by gender (reduced vulnerability or increased resilience)</i>	<i>Total</i>	768,164 direct beneficiaries (of which 49% are female) 16.9 million indirect beneficiaries (of which 49% are female)
	<input type="checkbox"/> <i>Number of beneficiaries relative to total population, disaggregated by gender (adaptation only)</i>	<i>Percentage (%)</i>	direct and indirect beneficiaries represent about 18% of the Egyptian population (female: 49%; male: 51%)

<p><i>Other relevant indicators</i></p>	<p>Expected strengthening of adaptive capacity and reduced exposure to climate risks:</p> <p>Indicator: Number of staff involved in institutional capacity strengthening; type and extent of national infrastructure protected</p>																																								
<p>99. For Output 1, the construction of 69 km of soft coastal protection measures will benefit existing communities within the low-lying Nile Delta that is the most vulnerable to sea level rise and associated inundation during storm events. The identified number of direct beneficiaries who will benefit from coastal protection in the five hotspots was calculated based on a detailed demographic statistics and land use planning maps, made available by various ministries. These maps have identified the number of households located in low-lying areas on proximity to the coastline hotspots protected by the soft coastal protection measures. A breakdown by intervention site is summarized in the bullets below.</p> <ul style="list-style-type: none"> • Hotspot #1 (Kafr El-Sheikh) - West Burullus inlet (27 km): 3.2 million people of which 49% are female • Hotspot #2 (Port Said) - West new Ashtom Elgamil Boughaz (12 km): 0.7 million people of which 49% are female • Hotspot #3 (Beheira) - West Rosetta estuary, downcoast of the 9 groins (6 km): 5.8 million people of which 49% are female • Hotspot #4 (Damietta) - East of new Damietta city (12 km): 1.3 million people of which 49% are female • Hotspot #5 (Dakahlia) - West of new Gamasa city (12 km): 6.0 million people of which 49% are female <p style="text-align: center;">Table 5 Direct Beneficiaries</p>																																									
<table border="1"> <thead> <tr> <th>Hot Spot</th> <th>Coastal centers</th> <th>Total (2015)</th> <th>Male (2015)</th> <th>Female (2015)</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>Rashid (Rosetta)</td> <td>235,868</td> <td>119,718</td> <td>116,150</td> </tr> <tr> <td>1</td> <td>Motobas</td> <td>277,707</td> <td>141,502</td> <td>136,205</td> </tr> <tr> <td>1</td> <td>El Brolos</td> <td>216,908</td> <td>109,965</td> <td>106,943</td> </tr> <tr> <td>4</td> <td>New Dameitta</td> <td>32,222</td> <td>16,936</td> <td>15,286</td> </tr> <tr> <td>5</td> <td>Gamasa</td> <td>2,375</td> <td>1,215</td> <td>1,160</td> </tr> <tr> <td>2</td> <td>West Port Said</td> <td>3,084</td> <td>1,639</td> <td>1,445</td> </tr> <tr> <td colspan="2">Total</td> <td>768,164</td> <td>390,975</td> <td>377,189</td> </tr> </tbody> </table>		Hot Spot	Coastal centers	Total (2015)	Male (2015)	Female (2015)	3	Rashid (Rosetta)	235,868	119,718	116,150	1	Motobas	277,707	141,502	136,205	1	El Brolos	216,908	109,965	106,943	4	New Dameitta	32,222	16,936	15,286	5	Gamasa	2,375	1,215	1,160	2	West Port Said	3,084	1,639	1,445	Total		768,164	390,975	377,189
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<p>100. For Output 2, the development of an ICZM plan will benefit the communities of the Nile Delta in the longer-term. Aside from those directly benefitting from capacity building activities, it is not possible to identify a specific number of beneficiaries as in the previous outputs</p>																																									

because the benefits are less tangible from a physical infrastructure standpoint and will accrue over time as it eases pressure on the north coast of Egypt which has suffered from a number of problems including population growth, deteriorating social conditions, unplanned urbanization, land use conflicts, ecosystem pollution, shoreline retreat, flooding, and lack of appropriate institutional management system, among others. Traditional coastal management approaches have been tried, including the implementation of one-off coastal protection and adaptation measures, but these have proven inadequate based on experience. This is largely due to installing traditional hard coastal protection structures without adequately accounting for the adverse side effects of these structures. Additionally, many protection schemes in Egypt have failed and resulted in physical, environmental and socio-economic problems owing to improper design, construction and maintenance, and were often only implemented locally in specific places or at regional or jurisdictional boundaries, rather than at system boundaries that reflect natural processes. Integrated coastal zone management provides a framework to address the range of coastal threats, including climate change, in a holistic way.

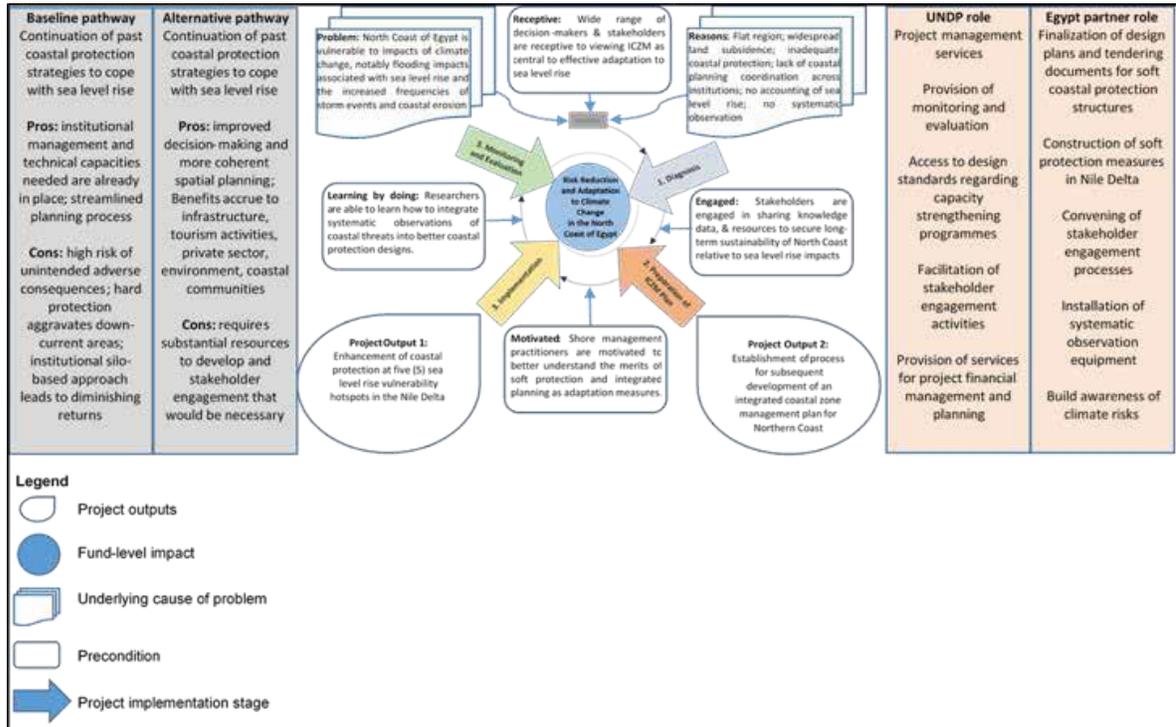
E.2. Paradigm Shift Potential

Degree to which the proposed activity can catalyze impact beyond a one-off project/programme investment

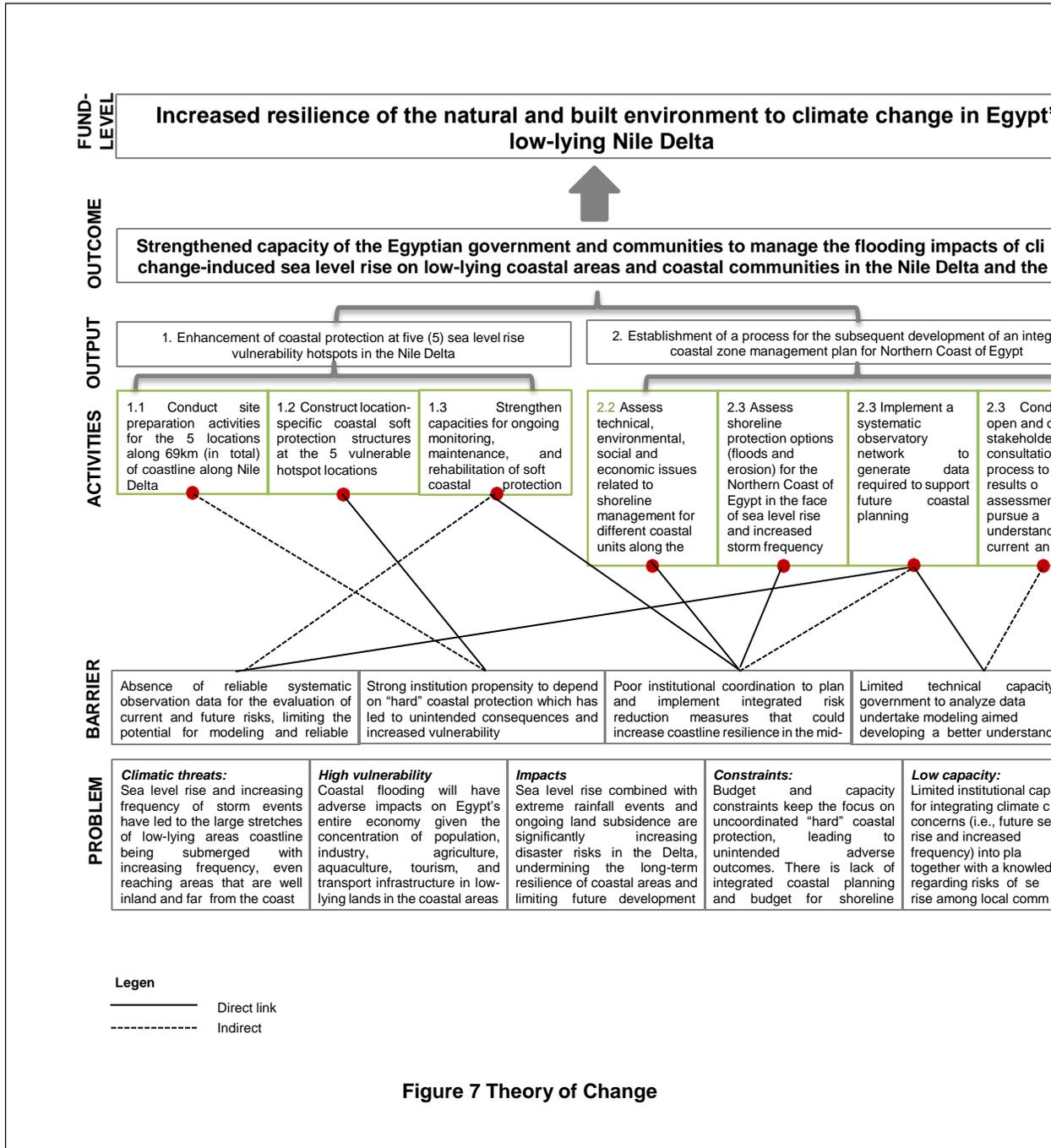
101. **Problem:** The North Coast of Egypt is particularly vulnerable to the impacts of climate change, notably flooding impacts associated with sea level rise and the increased frequencies of storm events and coastal erosion. Nowhere is the problem more evident than in the low-lying lands in the Nile Delta where the impacts from climate change constitute a long-term flooding threat to its built and natural environment, posing risks of damages to key infrastructure, agricultural lands, aquaculture ponds, industry, and local communities. Today, sea levels have already risen several centimeters relative to historical mean sea levels, resulting in routine flooding during storm events and extensive damage. In the long-term, sea level rise threatens to inundate large swaths of low-lying land along the Northern Coast potentially decimating Egypt's most productive lands. Urgent action is needed to cope with the already evident and worsening impacts of climate change.
102. **Key underlying reasons for the problem:** There are several underlying reasons regarding the vulnerability of Egypt's North Coast to climate change. First, the entire region is very flat with several large areas below sea level. Rising seas over the past decades has resulted in serious flooding events during storms, a situation that will worsen in the coming decades. Second, there is widespread land subsidence in the Nile Delta, a result of the loss of annual sedimentation carried by Nile waters due to the building of the Aswan Dam. Hence, not only are seas rising but land is subsiding, which amplifies the coastal threat. Third, apart from industrial facilities, there is inadequate coastal protection against the combined impact of sea level rise and storm events. What coastal protection structures are in place to prevent flooding are inadequate to cope with the increased wave energies and storm surges associated due to rising sea levels.
103. **Key structural reasons for the problem:** There are several key structural reasons regarding the vulnerability of Egypt's North Coast to climate change. First, there is a lack of coordination across governmental organizations that have a stake in coastal development planning. This has led to ad hoc construction activities in high risk areas. Second, there is not yet a serious accounting of the threat of climate change in planning for coastal zones. Shore protection is based on planning protocols that rely on a premise of a stable climate and historical sea levels. Thus, design storm events (e.g., the 1 in 100-year storm event) used in building/infrastructure codes do not account for changing climatic conditions. Third, there is a lack of a systematic observation system that is capable of monitoring changes in the marine environment and integrating that information in updates design storm events.

104. **Ideal solution:** The ideal solution to the threat posed by rising seas is through concerted action on near- and long-term adaptation priorities. In the near-term, coastal protection is urgently needed for those areas that are the most highly vulnerable to climate change. Such vulnerability hotspots are defined by routine and extensive flooding during current extreme weather events, a situation that has not been experienced in the region until recent years. In the longer-term, integrated coastal zone management that incorporates capacity building and accounts for all stakeholder perspectives is needed to establish a basis to address future development activities along the North Coast in a way that accounts for the existential threats associated with climate change. Only through a planning framework that aims to achieve sustainable management of coastal areas through a holistic understanding of the range of coastal threats and opportunities can maladaptive practices be avoided. Implicit in the ideal solution are the preconditions of receptivity, willingness to engage, duly motivated, and committed to learning by doing.
105. **Potential pathways for achieving the solution:** One pathway (Baseline pathway) toward risk reduction in the North Coast is a continuation of past coastal protection strategies to cope with rising seas. This involves installing hard (or armored) protection measures in areas considered to be at high risk. Planning for such interventions would be highly localized and focused on mitigating whatever is the presenting site-specific threat. Another pathway (Alternative pathway) towards risk reduction in the north coast is directly related to the implementation of the integrated coastal zone management cycle that consists of several projects stages, namely diagnosis, preparation of the ICZM plan, implementation of coastal protection measures, and monitoring & evaluation.
106. **Pros and cons of each of these pathways:** One major disadvantage of the Baseline pathway is the high risk of unintended adverse consequences. There is fairly strong agreement both in the literature and among shore management practitioners that bulkheads and other hard structures built to protect coastal infrastructure have caused changes to the coastal environment that adversely impact landscapes, public access, recreational opportunities, natural habitats, and fish populations. “Hard” structures are expensive, can cause unexpected erosion to beaches and dunes, require costly ongoing maintenance, adversely affect adjacent areas/properties, and disrupt natural water flows. One major advantage of the Baseline pathway is that the institutional management and technical capacities needed are already in place. One major disadvantage of the Alternative pathway is that it represents a planning approach that is new to Egypt and would require substantial resources to ramp up the various kinds of capacity, institutional coordination, and stakeholder engagement that would be necessary. One major advantage of the Alternative pathway are the various benefits of ICZM such as improved decision-making and more coherent spatial planning in the context of preparation for climatic impacts. Benefits would accrue to infrastructure, tourism activities, private sector, environment, coastal communities, among others.
107. **Rational for selected pathway for proposed project:** The pathway for the proposed project is illustrated in the diagram below. The pathway supports the paradigm shift discussed in Section C.1. It involves a diagnosis of coastal threats and areas at highest risk; preparation of a comprehensive ICZM Plan that defines the necessary engineering and management measures for climate change adaptation; implementation of such measures sequenced to account for urgently needed coastal protection; and development of a systematic observation network to monitor changing marine conditions and evaluate the effectiveness of coastal protection measures. There are several risks associated with the pathway for the proposed project. First, implementing a new coastal planning framework in a highly dense economic area is a challenge that could create resistance potentially manifested by a lack of agreement among key stakeholders on the eventual ICZM Plan. Second, low institutional capacity could

impede monitoring the effectiveness of the overall integrated plan. Third, there is a risk that the resulting investments (e.g. information systems, coastal protection measures) may not be sustainable in the long-term. Finally, project interventions may not adequately prevent the coastal flooding, resulting in increased vulnerabilities in urban and agricultural areas. Please see the diagram below.



108. The Theory of Change for the proposed project is shown in the diagram below. It illustrates how the development of project outputs will lead to an outcome of strengthened capacity of the Egyptian government and communities to manage the flooding impacts of climate change-induced sea level rise on low-lying coastal areas and communities in the Nile Delta and the rest of the Northern Coast. In the longer-term, the outputs will lead to a fund level impact of a reduction of climate change related disaster risks for the region through enabling a new coastal planning paradigm better able to manage the future range of climatic risks on the natural and built environment.



E.2.1. Potential for scaling up and replication (Provide a numerical multiple and supporting rationale)

109. The proposed project area of intervention (the Northern coast of Egypt and the Nile Delta) has a high potential to contribute to a national paradigm shift in adaptation and resilience planning. The project interventions in the area have the potential to demonstrate and bring about transformational changes in coastal, urban and infrastructure planning in one of the most densely populated areas of Egypt.
110. Output 1 scales up successful soft coastal protection measures from the current installation of less than 1 km to 69 km. This represents a sharp departure from past practice for shore protection in Egypt, signaling a commitment to a paradigm shift in the way shore protection systems in Egypt. To date, protecting coastal areas in Egypt has typically meant structures such as seawalls, groins, rip-rap, and levees. Due to emerging lessons from the ACCNDP project and the increased understanding of natural shoreline function improves, there is today a growing acceptance that "hard" shoreline protections are expensive, can cause unexpected erosion to beaches and dunes, require costly ongoing maintenance, adversely affect adjacent areas/properties, and disrupt natural water flows. While "hard" structures continue to be used for shoreline defense, "soft" stabilization methods such the ones proposed are becoming more prevalent in coastal areas, either as the sole method of protection or in conjunction with "hard" stabilization practices. Advancements in shoreline protection strategies now recommend that whenever structural protection is pursued, hybrid technology (such as combinations of low-profile rock, cobble berms, and vegetative planting, or combinations of marsh plantings and coconut fiber rolls) should be implemented alongside hard structures as a means of reducing the negative impacts of the structure.
111. Output 2 has strong potential for scaling up the soft coastal protection measures implemented under Output 1 along the 69 km of most vulnerable shoreline in the Nile Delta. This is because the development of an ICZM plan will directly lead to long-sought implementation initiatives of the ICZM plan for the North Coast, with its powerful attendant benefit of integrating sea level rise concerns directly into the coastal planning process. Relative to past planning practices, characterized by their lack of effective institutional coordination and data sharing, the ICZM process represents nothing short of a paradigm shift for Egypt. The development of the plan will develop critical information and support to a successful transition towards climate and risk-informed decision-making and planning in the coastal zone and beyond. This can influence future development programmes in public investments in urban planning and building infrastructures (roads, irrigation, electricity ports...), agriculture and water resources management. The development and implementation of the ICZM will also govern the national financing plan for shore protection in all of Egypt. Moreover, the success of this project will open opportunities for replication across Egypt and throughout the MENA and Eastern Mediterranean regions where countries are facing similar threats of climate change in the coastal zone.

E.2.2. Potential for knowledge and learning

112. The potential for knowledge generation is high due to several factors. First, stakeholder engagement and network building is a central feature of the Proposed Project. Details of the stakeholder engagement process that led to the specific activities in the proposed project are described in Annex IIa. Real-time results from the project will be disseminated within and beyond the hotspot intervention zones through several existing information sharing networks and forums. Second, the Proposed Project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks in the development of the ICZM plan, which may be of benefit to the broader adaptation community in the country and region. Third, the Proposed Project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects, particularly for Red Sea coastal zones. This will involve a dynamic, iterative process of integrating adaptation measures within broader development planning protocols in Egypt. Over the mid- to long-term, effective incorporation of knowledge-developed experiences, success stories, lesson learned, technical and institutional capacities, etc. will

E.2.3. Contribution to the creation of an enabling environment

113. This project responds to an urgent adaptation need (coastal protection of hotspots) and represents a planning response to a long-sought broad and comprehensive integrated coastal zone management strategy. The approach will work on the critical barriers identified earlier in a phased manner, starting with protecting priority hotspots in the Delta and then proceeding to a systematic effort to prepare a future adaptation plan through integrated management principles. Through various interventions in this project that focuses on environmentally-friendly soft protection measures, capacity building (both technical and knowledge-based), and introduction of a national observation system, an enabling environment will be created towards the achievement of the broader protection goals of the GoE for the Nile Delta under climate change conditions. It will also contribute towards upscaling and replication in the broader Mediterranean Basin as this project fits well within other coastal protection efforts in the region.

114. The coastal protection component of this project is focused on the most critical regions in the Nile Delta that are currently experiencing unprecedented flooding damage. Built within the project are numerous elements of capacity building that focus on building technical capabilities and know-how regarding the merits of soft coastal protection within essential GoE agencies like the SPA and CoRI. Such efforts will benefit future coastal protection projects as they will emerge from a climate change informed programmatic context. Furthermore, this project is specifically supporting the development of diagnostic and other studies for the North Coast with this goal in view. Such diagnostic studies will focus on coastal flood risk reduction measures that are necessary for optimal flood management, including options for flood-proofing the International Road. It will include all sectors associated with the build environment along the North Coast including drainage infrastructure, transport, and sanitation/sewage. These efforts will contribute to the removal of key planning barriers within the GoE.

115. The proposed project will develop a national observation system, thereby establishing a clear basis which to enable the ongoing assessment of climate change-related threats. With this system, those institutions and agencies within Egypt that have various capacities and responsibilities will be engaged in a programme to enhance current capabilities with a modern, calibrated, digital capability to make measurements that will conform to whatever monitoring requirements are called for the risk reduction goals set forth in the eventual integrated coastal zone management plan. Included in these capacities will be enhanced remote sensing capabilities, building on existing capabilities. In summary, the National

Observation System is an innovative approach that will contribute to the enabling monitoring environment by electronically integrating a range of coastal/climate data in support the eventual development of an early warning system.

116. This project is supporting coastal engineering professionals in Egypt, enabling them to access, understand, interpret and apply climate events to risk-specific outcomes, thereby increasing the capacity for coastal engineers and affiliated entities (private developers, government stakeholders, civil society groups) to improve the response to at-risk assets and populations residing in the coastal areas of the Nile Delta. Notably, the project will support the kinds of assessment that can eventually be integrated into updated building codes that address sea level rise risks and changes in the frequency and intensity of extreme storm events. These kinds of activities will directly lead to enabling climate-proofing of hazard prone areas and infrastructural elements, thus creating a better enabling environment for the articulation of risks and the enforcement of well-integrated solutions.
117. Finally, the potential for knowledge generation is high due to several factors. First, stakeholder engagement and network building is a central feature of the proposed integrated coastal zone management process. Real-time inputs to the project will be acquired within the intervention zones through information sharing networks and forums to be developed. Second, capacity building activities will be linked to the knowledge generation activities associated with the high-resolution assessments of coastal flooding under climate change scenarios. Third, the proposed project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks in the Mediterranean Basin, which may be of benefit to the broader climate change adaptation community in the country. Fourth, the proposed project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects in the Middle East and North Africa (MENA) region. Finally, there is an intensive capacity building programme built into Output 2 which will equip Egyptian analysts for undertaking the kinds of future modeling/diagnosis activities that will help ensure that unfolding climatic conditions are accounted for in planning. Combined, these factors will facilitate the development of an enabling environment for knowledge generation.

E.2.4. Contribution to regulatory framework and policies

118. The potential for the development of appropriate regulatory frameworks is high due to two major factors. First, the proposed project seeks to institutionalize adaptation planning within a robust ICZM planning framework through the development of a specific set of policy, legislative, and regulatory reforms. This aim is rooted on Egypt's existing ICZM Protocol and the amendment of Law No. 4/1994 by Law No. 9/2009 which encouraged the elaboration of the National ICZM Strategy for Egypt, which has been developed since 2008. Currently, the document of the National ICZM Strategy is almost finished, but its approval and formal adoption is still in process. Once adopted, the National ICZM Strategy will contribute to link the international commitments as the Protocol on ICZM in the Mediterranean with the implementation of regional coastal management plans.
119. Second, the proposed project contributes and enhances the existing policies/initiatives of Egypt in coastal management, including:
- *West of Alexandria.* The drain at the western Nobariya drain outlet is about 20 km to the west of Alexandria. Two jetties of 65 m length were constructed in 1986 to protect the exit from siltation, and they are functioning effectively. This project is located to the west of the Nile Delta well beyond the westernmost vulnerable hotspot.

- *Eastern harbor of Alexandria.* A 180-m extension of the existing west breakwater would narrow the gap between the west and central breakwaters from its existing 300 m width to 100 m (Tetrattech 1986). This decrease in gap width would reduce wave heights along the critical area of the Corniche. This project is located within the City of Alexandria and is just west of the westernmost vulnerable hotspot.
- *Abu Quir Bay.* The Abu Quir Sea wall was built in 1780 and has been maintained by placement of additional large concrete blocks. This wall was modified and reinforced in 1980 by constructing a sloping face (2:1) and placing 0.5 ton modified cubes as a layer of protection. This project is near the Beheira vulnerable hotspot.
- *West of El Gamil regulator and inform of El Fardos village.* In 1994, construction of 4 detached breakwaters was begun in the area to protect it from erosion. Each breakwater is 250 m long and is constructed from a barge-mounted plant at a water depth of 4 m. The cost of these 4 breakwaters is US \$3.5 million (Delft Hydraulics 1991). This project is near the Port Said vulnerable hotspot.
- *El Gamil outlet.* Two jetties of 225 and 200 m length on the western and eastern sides of El Gamil outlet, respectively, were constructed to protect this outlet from siltation and migration. The cost of these 2 jetties was US \$0.75 million (Delft Hydraulics 1991). This project is near the Port Said vulnerable hotspot.
- *Highway near El Gamil airport.* A small bituminous dike, about 4 km in length, was constructed to protect the low parts of the coastal road near the airport from flooding. The cost was US \$1.0 million (Delft Hydraulics 1991). This project is near the Port Said vulnerable hotspot.
- *“Soft” beach nourishment measures.* Government programmes and investments in protective measures along the Nile Delta coast have also included such measures for five Alexandria beaches, El Shatby, Stanley, Sidi Bishr, El Asafra, and El Mandra. These beaches were nourished by medium to coarse sand transported from the desert near Cairo. These interventions are located within the City of Alexandria and is just west of the westernmost vulnerable hotspot.

120. Hence, the proposed project is the mechanism by which past legislative activities on integrated coastal zone management will be operationalized. Specifically, the proposed project will contribute to the enactment of new regulatory initiatives to protect the Nile Delta through the following key points. Additional details are provided in Annex IIa.

121. **Strengthening ICZM policy**, by improving institutional mechanisms for ICZM at national and sub-national level. The proposed project will follow a set of steps in the preparation of the ICZM that will include: i) improving administrative links, ii) strengthening the statutory legal basis, iii) improving horizontal coordination among agencies, sectors and decision making committees, and iv) creating coastal groups and technical secretariats in coastal governorates.

122. **Providing a regulatory basis for planning a more sustainable use of coastal resources.** That is, the development of the ICZM plan will be based on environmental, administrative and physical criteria. As part of the project, detailed legal and institutional analysis will be carried out in order to define a solid and sustainable ICZM framework. These legal and institutional studies will be based on the preliminary assessments carried out under existing ICZM initiatives in the north coast of Egypt

123. **Promoting stakeholders' awareness.** The preparation of the ICZM Plan will involve all coastal stakeholders in an effort to build awareness of the value of coastal resources and issues, contributing to its involvement in long term shared goals. In this regard, existing ICZM initiatives have promoted stakeholder awareness and participation through the organization of workshops and launching an ICZM website and a geoviewer. These will be leverage by the project to develop the regulatory framework for a comprehensive Coastal Management Plan.

E.3. Sustainable Development Potential

Wider benefits and priorities

E.3.1. Environmental, social and economic co-benefits, including gender-sensitive development impact

124. Investments in coastal protection along the vulnerable hotspot locations in the Nile Delta are expected to generate near-term environmental, social and economic co-benefits, including those that particularly benefit local women. Investments in integrated coastal zone management planning are expected to generate long-term co-benefits, especially related to new and strengthened capacity to identify and mitigate climate risks.

Economic benefits

125. The most unambiguous economic benefits from the proposed project is avoided economic losses from coastal inundation events caused by storm surges. An economic analysis conducted for this project reveals that it can potentially reduce annual losses from sea level rise over 25-year time period (See Section F.1 and Annex XIIa). These economic benefits are derived from the protection that the soft coastal protection measures will offer for the hotspot areas in the Delta. An economic analysis has not been performed for the development of an ICZM Plan for the North Coast.

- Kafr El-Sheikh: Home to 0.6 million people, including farmers and fisherfolk, key infrastructure includes roads, government buildings, residential property; aquaculture activities in Burullus coastal lagoon; agricultural productivity nearby
- Port Said: Home to 3.1 million people, including farmers and fisherfolk, key infrastructure includes roads, government buildings, residential property; other protected services include aquaculture activities in Manzala coastal lagoon; agricultural productivity nearby.
- Beheira: Home to 5.8 million people, including farmers and fisherfolk, key infrastructure includes roads, government buildings, residential property; other protected services include aquaculture activities in Idku coastal lagoon; agricultural productivity nearby.
- Damietta: Home to 13.3 million people, including farmers and fisherfolk, key infrastructure includes roads, government buildings, residential property; other protected services include agricultural productivity south of the international road.
- Dakhalia: Home to 6.0 million people, including farmers and fisherfolk, key infrastructure includes roads, government buildings, residential property; other protected services include agricultural productivity south of the international road

Table 6 Direct Beneficiaries

Hot Spot	Coastal centers	Total (2015)	Male (2015)	Female (2015)
3	Rashid (Rosetta)	235,868	119,718	116,150
1	Motobas	277,707	141,502	136,205
1	El Brolos	216,908	109,965	106,943
4	New Dameitta	32,222	16,936	15,286
5	Gamasa	2,375	1,215	1,160
2	West Port Said	3,084	1,639	1,445
Total		768,164	390,975	377,189

126. In addition, this project will create short- and medium-term job opportunities for local labor force, especially youth and women. Numerous short-term jobs are expected to be created during the course of construction activities.

127. Given the lack of adequate flood disaster insurance and other financial instruments that can provide resources to recover from disasters in the Delta, the GoE and external donors have typically covered most of the recovery costs from recent storm-related natural disasters. By avoiding future damage to infrastructure and private assets from the installation of the coastal protection measures, the proposed project will help to ensure that government resources are allocated to priority development needs.

Environmental benefits

128. The proposed coastal protection structure will also generate co-benefits of coastal erosion prevention, especially when ecosystem-adaptation measures such as coastal vegetation are part of the design structures. Severe erosion has often been observed after strong storms causing losses of valuable natural resource and leading to siltation problems down current.

129. Other co-benefits include protection of groundwater quality. Coastal flooding events and subsequent waterlogging has been a cause of saline water intrusion into the coastal lagoons and into fragile groundwater resources as groundwater is used for drinking and irrigation purposes.

Social benefits

130. The proposed project will also generate a range of social benefits which will positively affect the overall well-being of citizens living in coastal areas of the Delta region. First, coastal inundation events have an adverse impact on public health through burdening limited public health facilities in the region. The installation of coastal protection measures will help to reduced disruptions of agricultural activities, education, public and medical services, thereby enhancing local perceptions of safety during aggressive storm events. GCF resources will contribute to the realization of these social benefits through the reduction of the number and magnitude of destructive coastal flooding events.

131. Second, the capacity building strategy adopted in the project is likely to have additional social benefits. The capacity building approach focused on coastal data collection/management, diagnosis/modeling of storm surge from sea level rise, and development of regulatory/planning protocols will address inherent development challenges of the Delta. Capacity building is focused on SPA and CoRI and will focus on the

introduction of new diagnostic methods and tools to integrate evolving knowledge and data about climate change-induced coastal threats generated by the national observation system, as well as regional and international bodies.

132. Lastly, the benefits of protecting the low-lying Delta from the combination of rising sea levels and land subsidence are existential in nature. They go well beyond what can be possibly be captured or quantified in the range of social benefits such as education, health, or even safety. The project will support the GoE vision to protect its most productive area and its cultural heritage by preventing, or significantly delaying, the scenario of the Delta becoming uninhabitable.

Gender-responsive development impact

133. The project is expected to bring about a range of desirable gender-responsive development impacts. First, there will be explicit rules in the tendering process for contractor to hire workers from the community without discrimination on the basis of gender, with targets established for the number of young people and women to be achieved under the contracting scheme. Second, a grievance mechanism will be established that will be accessible for both women and men to be able to voice complaints during the construction phase for the soft protection measures, with any grievances being recorded and investigated relative to potential age/sex discrimination during site inspections. Third, capacity building will include specific activities targeting women and the most vulnerable communities, including activities might include income generating activities and/ or literacy/numeracy and other types of skills development for adapting to climate change impacts. Finally, any regulatory and legislative changes that emerge from the ICZM development process will be gender responsive in that they will be based on stakeholder participation plans that include equitable representation of women and men in developing the ICZM plan, its regulatory framework, and subsequent monitoring plan and evaluation indicators.

E.4. Needs of the Recipient

Vulnerability and financing needs of the beneficiary country and population

E.4.1. Vulnerability of country and beneficiary groups (Adaptation only)

134. Despite its relatively negligible contributions to global greenhouse gas emissions, Egypt is disproportionately burdened with the need to cope with climate change risks. The root cause of this adverse condition is the high exposure of the Delta region to climate change hazards in the form of more frequent storms and rising sea levels, exacerbated by land subsidence and uncoordinated coastal protection approaches. Some of the key vulnerabilities identified in the north coast of Egypt through extensive stakeholder consultations among government agencies and coastal communities are as follows;

- High concentrations of people, businesses, and physical assets including critical infrastructure exposed in low-lying and unprotected coastal zones.
- High exposure and susceptibility of people, particularly children and elderly, as well as disabled in flood-prone areas.
- Particularly susceptible is the urban population with low income that is unable to get or afford housing that protects against flooding or insurance (vulnerability derived from status and income).
- Population groups living in informal settlements highly exposed urban areas suffer political and institutional marginalization and high poverty.

- The local government is unable or unwilling to give needed attention to disaster risk reduction (institutional vulnerability). Limited political interest in development and building adaptive capacity
- Local structures and networked infrastructure (piped water, sanitation, drainage, communications, transport, electricity, gas) are particularly vulnerable.
- Specific livelihoods like artisanal fishers has a high vulnerability due to their high dependence of the water and wetland ecosystems. On the same way, urban population with livelihoods or food supplies dependent on urban and periurban agriculture are especially susceptible.
- Poorly endowed farmers (high and persistent poverty) are susceptible since they have a very limited ability to compensate for losses in water-dependent farming systems and /or livestock.
- People highly dependent on rain-fed agriculture are particularly at risk. Persistent poverty among subsistence farmers and urban wage laborers who are net buyers of food with limited coping mechanisms.
- Agricultural wage laborers, small-scale farmers in areas with multidimensional poverty and economic marginalization, children in urban slums, and the elderly are particularly susceptible to increasing temperatures and heat waves.
- Culturally imposed gender roles.
- Multidimensional poverty, limited alternative livelihood options among poor households, and exclusion from institutional decision-making structures increase vulnerability.

135. Over and above baseline coastal development challenges, climate change risks are putting additional strains on the GoE's efforts towards attaining sustainable development. Despite the high level of exposure and vulnerability of the Delta's vulnerable coasts, there is no integrated coastal protection plan in place for confronting the future combined impact of sea-level rise and intensifying storms. Once extreme events strike, as seen during recent years in Alexandria, there are inevitable setbacks in terms of the well-being of communities.

E.4.2. Financial, economic, social and institutional needs

136. Egypt is one of the most vulnerable countries to potential impacts and risks of climate change. Egypt is vulnerable to SLR, which threatens the fertile valuable River Nile Delta lands with inundation and soil salinization. A UNDP supported study on the Potential Impacts of Climate Change in Egypt (2013), estimated that agricultural production to decrease by 16% in 2030 and up to 47% by 2060, with reductions in agriculture-related employment of up to 39% leading to millions of people losing their jobs. Welfare losses in agriculture in 2060 are estimated to range from 4.5 to 26.5 billion USD. Food prices could increase by 16 to 68% further threatening food security in the country.

137. Climate change induced sea level rise also threatens critical infrastructure for the Egyptian economy and trade such as roads and ports. Loss of beaches, and higher temperatures affecting coastal ecosystems could reduce annual tourist revenues by 10 to 12 billion USD. The study, although not comprehensive, estimates that billions of Egyptian pounds, about 2 to 6% of future gross domestic product, could be lost from effects on water resources, agriculture, coastal resources, and tourism.

138. The National Climate Change Adaptation Strategy (2011) stressed on the urgency of addressing adaptation and estimated the financing needs for adaptation projects over the next 20 years at about 2.25 billion USD.

E.5. Country Ownership

Beneficiary country (ies) ownership of, and capacity to implement, a funded project or programme

E.5.1. Existence of a national climate strategy and coherence with existing plans and policies, including NDC, NAMAs, NAPAs and NAPs

139. Project design is rooted in Egypt's priorities identified in the 2013-2017 United Nations Development Assistance Framework (UNDAF) and UNDP's Country Programme Action Plan (CPAP). It draws on the Egypt Vision 2030 sustainable development strategy document, the National Strategy for Adaptation to Climate Change and Disaster Risk Reduction (2011), the Strategic Framework for Economic and Social Development until Year 2022 (2012), and the Intended Nationally Determined Contribution (INDC) report. The project strategy is consistent with the priorities established as part of national action plans calling for shoreline protection and integrated coastal zone management.
140. Specific project activities build upon the successes of the ACCNDP and adhere to the strategic policy recommendations presented in Egypt's TNC. This includes, inter alia, establishing a systematic observation system and associated database and information exchange and data analysis system, carrying out needed regulatory reforms to promote enhancement of cooperation and coordination across responsible Egyptian institutions, and ensure adequate stakeholder participation through community-based consultative techniques and the application of a bottom-up approach.

E.5.2. Capacity of accredited entities and executing entities to deliver

141. The comparative advantage of the UNDP Cairo Office in Egypt in the implementation of this project lies in its experience with effective facilitation of partnerships with other UN Agencies and regional organizations. UNDP also has the required operational, financial and technical capacities to effectively manage and guide this project in Egypt under the 2013-2017 UNDAF and the UNDP's CPAP. Two of the focal areas of UNDP national level support to Egypt is climate change adaptation, particularly as it applies to mitigating impacts of sea level rise on the Nile Delta and the promoting the use of integrated coastal zone management.
142. Technical aspects of project implementation are supported by a dedicated technical advisor based in Cairo and a global senior technical advisor. The global network of the regional based advisors enables sharing and dissemination of knowledge beyond the country and region, drawing on best practices from projects with similar elements. UNDP's comparative advantage for GCF focal areas lies in its global network of country offices –such as the UNDP MENA Office in Istanbul – and its experience in supporting integrated

policy development, human resources development and institutional strengthening as well as promotion of NGO and community participation. This experience means that UNDP is well-placed to assist Egypt in designing and implementing this project in a manner that is consistent with the GCF's guiding vision as well as national development planning.

143. UNDP's added value is also evident as described below.

- **Accountability:** a track record of quality management of development finance as well as M&E and reporting on project implementation;
- **Technical Expertise:** many experienced and qualified staff with expertise in several relevant fields (e.g. climate change adaptation, development planning) in country offices and regional headquarters, as well as a world-wide knowledge network of specialists;
- **Regional and global cooperation:** experience with developing synergies and cooperation at the regional and global levels, including through initiatives for North-South and South-South collaboration; and
- **Coordination with other UN agencies:** a mandate to support coordination and collaboration between other UN agencies as leader of the UN Development Group.

144. UNDP has a proven ability to: i) formulate project proposals; ii) collaborate with development partners and donors; iii) mobilize resources for development implementation; iv) monitor, evaluate and report on results; v) support and further develop national/local capacities for implementation; and vi) contribute to ongoing learning and improvement of processes. UNDP's track record of effective coordination of development planning and implementation; both with GoE and other development partners, makes it ideally placed to support the implementation of this project.

E.5.3. Engagement with NDAs, civil society organizations and other relevant stakeholders

145. The proposed project is informed by the several rounds of discussions with stakeholders at the national and local levels on climate change adaptation options and priorities in the Nile Delta. The project builds on past and ongoing stakeholder consultations regarding the overall protection of the North Coast of Egypt from flooding and other threats. It has involved engagement, typically as part of consultative workshops, of representatives from MWRI, SPA, CoRI, other governmental agencies, UNDP, and representatives from local businesses and communities. In all, the project was designed based on the input generated from a total of 36 related stakeholder consultative workshops held over the period 2015-2016 (see Annex IIa). The most recent consultative workshop was organized on 17 August 2016 in Cairo at which the emerging project design was presented to stakeholders from SPA, CoRI, EEAA, GOPP, NCPST, TDA and coastal governorates.

E.6. Efficiency and Effectiveness

Economic and, if appropriate, financial soundness of the project/programme

E.6.1. Cost-effectiveness and efficiency

146. The proposed project provides a supplementary and important function in addressing key deficiencies faced by baseline coastal protection activities/projects. With GCF funding, the proposed project will be able to build on the recent baseline investments through integrated coastal management and scaling up the use of soft engineering solutions and ecosystem-based adaptation measures. GCF funding will play a key role in relation to the evident gaps in current baseline coastal protection investments. Together with the co-financing being mobilized for the proposed project, GCF funds will enable the GoE to address the urgent climate adaptation needs in the Delta's most vulnerable areas, while also addressing the above barriers and looking to broader challenges impacting the sustainable development in the area.

147. The amount of funding requested from the GCF is justified at four levels. First, extensive engineering scoping assessments have been conducted on the North Coast to identify specific areas of the coast that

are the most vulnerable to coastal flooding from the combination of sea level rise and more frequent/intense storms. Details of the scoping assessments are provided in Annex IIa. Second, GCF funds are only requested to protect priority vulnerable hotspot areas. That is, of the roughly 200 km of Nile Delta coastline between the outlet of the Rosetta branch of the Nile to the west and Port Said to the East, only 69 km of the most vulnerable coastline is targeted by this proposal. The funding gap between available government resources to protect these hotspot areas and total required resources to safeguard the communities and infrastructure in these regions is directly offset by GCF resources. Third, conceptual designs of the soft coastal protection measures have already been developed by the SPA for each of the 5 hotspot segments. Each design has been carried out relative to unique local topographical conditions, structural dimensions (i.e., crest height, slope angle, width) that account for sea level rise-induced storm surge, and fill material quantities required and their sources (see Annex IIa)

148. The proposed GCF project is fully aligned with national priorities and builds on existing government programmes. Co-financing will come from government organizations with the MWRI though SPA providing at least USD 73.8 million over the 7-year project duration. This figure is based on the current annual budget of SPA that is mainly spent on the protection works along the North Coast and in the Nile Delta. Additional co-financing levels are in process of being allocated for project activities under Outputs 1 and 2, as well as related shoreline protection efforts such as to protect the Manzala Lake in the north coast near the Port Said hotspot. The GCF support will mainly address critical building blocks to integrating climate change risks into government programmes, thereby providing needed information and capacity to making future government investments risk-sensitive. The results of the economic analysis are presented in Annex XIIa and XIIb.

E.6.2. Co-financing, leveraging and mobilized long-term investments (mitigation only)

Not Applicable

E.6.3. Financial viability

149. This investment project is of a public good nature and is not amenable to the generation of financial or fiscal revenues. As such a financial analysis is not applicable. However, the future operational viability of the soft protection measures will be ensured through the commitment of the GoE to operate and maintain the protection measures in perpetuity (see Annex I).

E.6.4. Application of best practices

150. The proposed project will integrate best practices and lessons learned from the ACCNDP project based on the design and implementation of soft coastal protection. Consequently, the investments in this project will not only be replicated in other vulnerable coastal segments in the North Coast, but will also catalyze further investments that will help scale up this approach to the Red Sea coast. In particular, the results from the quasi-experimental design pilot to analyze coastal protection benefits will be used to develop best practice guidelines. Lessons learned from the GCF project will provide the basis for detailed documentation of the coastal protection benefits for building climate resilience. This type of information will be shared nationally, through awareness campaigns as well as internationally to contribute to current knowledge on building climate resilience.

151. The project will also apply the best practices that have been compiled from the various past projects intended to advance integrated coastal zone management. Much of the challenge of ICZM lies in the need to put in place an effective collaborative management system among stakeholders, including public institutions, the research community, private entities, and the wider public. Lessons have been learned in this regard, such as the need to secure commitment to an engagement process, need for clearly defined stakeholder roles/responsibilities, and involvement of the private sector, among others. The preparation of the ICZM plan will take place based on the experience and lessons learned over the past decade of efforts to introduce an integrated coastal zone planning framework.

E.6.5. Key efficiency and effectiveness indicators	
GCF core indicators	Estimated cost per t CO ₂ eq, defined as total investment cost / expected lifetime emission reductions (mitigation only)
	Not applicable
	Expected volume of finance to be leveraged by the proposed project/programme and as a result of the Fund's financing, disaggregated by public and private sources (mitigation only)
	Not applicable
Other relevant indicators (e.g. estimated cost per co-benefit generated as a result of the project/programme)	Not applicable

* *The information can be drawn from the project/programme appraisal document.*

F.1. Economic and Financial Analysis

Economic Analysis

Approach and Methodology

152. The economic analysis of the proposed project was carried out in accordance with the *Guidelines for the Economic Analysis of Projects of United Nations Development Program*.¹² The economic efficiency of the investment was determined by computing the economic net present value (NPV) with an assumed 10% discount rate, and the economic internal rate of return (IRR). For consistency purposes, all proposals developed with the support of UNDP have opted to use a 10% discount rate, in line with the existing practice of multilateral development banks.

153. Economic values (costs and benefits) are all measured in real terms of 2017. Economic costs of the project are net of taxes, duties, and price contingencies. Furthermore, the analysis assumes a shadow wage rate of 1.00 for unskilled and semi-skilled labour in Egypt. Provided that the economic cost of labour in Egypt is expected to be lower than the market wage rate (financial cost)¹³, we expect this assumption leads to significantly over-estimating the economic cost of the project, and under-estimating the true net economic value of the project.

154. As is common when undertaking the economic analysis of investment projects, numerous assumptions were used to delineate the “with project scenario” from the “without project scenario”. These assumptions are presented and discussed in details below. Assumptions were always made so as to under-estimate the true net economic value of the proposed investment project.

Outcome of the Economic Analysis

155. The analysis of the economic benefits relies significantly on the detailed study of the impacts of sea-level rise in the Nile Delta presented in Smith et al. (2013).¹⁴

156. The economic benefits of the proposed investment project include the reduction in the quantity of agricultural land which may be impacted by sea-level rise, and the mitigation of the economic cost to housing units and roads. The estimation of the benefits has been done for two sea-level scenarios, middle and high (corresponding to the B1 and A1FI SRES emissions scenarios).

157. The resulting NPV and IRR are shown in the Table below. The project shows a positive NPV and a IRR in excess of the discount rate for both middle and high SLR.

¹² UNDP. 2015. *Guidance on the conduct and reporting of the Economic and Financial Analysis of Climate Change Adaptation and Mitigation Projects and Programmes*. UNDP.

¹³ In January 2017, unemployment in Egypt reached approximately 12.1%. Source: World Bank. 2017. *World Bank Development Indicators*. Washington, D.C.

¹⁴ Complete reference is: Smith, J., McCarl, B., Kirshen, P., Malley, J, and M. Abdrabo. 2013. *Potential Impacts of Climate Change on the Egyptian Economy*. Prepared for the United Nations Development Programme. Cairo, Egypt.

Table: NPV and IRR

	NPV (USD)
Middle SLR	124,759,388
High SLR	297,960,549
	IRR
Middle SLR	20.2%
High SLR	26.4%

158. A sensitivity analysis was conducted with the following three scenarios: an increase in cost of 20%, or a decrease in benefits of 20%, or a combination of these two scenarios. The NPV and IRR for both scenarios are presented in the table below. In both middle and high SLR scenarios, the NPV remains positive, and the IRR above 10%.

Table: Sensitivity Analysis

20% cost increase		NPV (USD)
	Middle SLR	110,482,619
	High SLR	283,683,779
		IRR
	Middle SLR	18.2%
	High SLR	24.2%
20% benefits decrease		NPV (USD)
	Middle SLR	85,530,741
	High SLR	224,091,670
		IRR
	Middle SLR	17.7%
	High SLR	23.8%
20% cost increase and 20% benefits decrease		NPV (USD)
	Middle SLR	71,253,972
	High SLR	209,814,900
		IRR
	Middle SLR	15.8%
	High SLR	21.7%

F.2. Technical Evaluation

159. There are four (4) types of soft coastal protection designs, or models (i.e., Model 1, Model 2, Model 3, and Model 4). The model designs are primarily differentiated relative to the elevation of the low-lying areas they are designed to protect. Nevertheless, the choice of which model to construct at a given hotspot site depends on several other factors, including sea level rise projections, anticipated height of storm surge above mean high tide during extreme events, site geomorphological characteristics, nearby bathymetry, etc. Annex IIa, Section 7 provides a discussion of the various details that were involved in finalizing the four model designs.

160. The cross sections of Model 1 designs are presented in Figure 1. This design will be constructed in areas where the adjacent land elevations are up to 1.5 meters above mean sea level. With the Model 1 design are three different sub-designs, A, B, and C. Each of the designs will use sand from site excavation activities as fill material. There are no large stone face coverings included in any of the sub-designs. The sub-designs are distinguished by the quantities of dredging material coming from Lake Burullus. Sub-design A requires the least amount of dredged material and sub-design B requires the largest amount of such material. All three sub-designs require the use of geotextiles as a barrier between sand fill and the substratum.

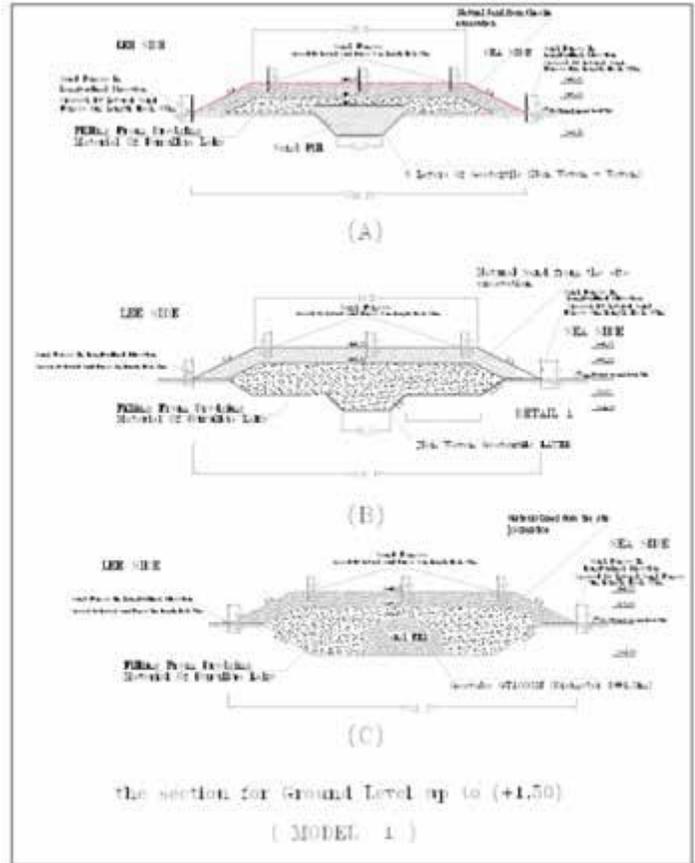


Figure 1: Model 1 designs

161. The cross sections associated with the design of Models 2, 3, and 4 are shown on Figure 2. The Model 2 design consists entirely of dredged materials from the nearest lake. This design will be constructed in areas where the adjacent land elevation is higher than 1.5 meters above mean sea level. It will be restricted to areas in the front of beach cities and villages. The Model 3 design will be constructed in areas where the adjacent land elevations are less than 1.0 meters above mean sea level. The design will use sand from site excavation activities as fill material as well as large dolomite stone (i.e., up to 100 kg stones) covering the slope on the seaside of the structure. The Model 4 design will be constructed in areas where the adjacent land elevations are higher than 1.5 meters above mean sea level. The design involves the construction of interlocking wooden fence that will serve to capture shifting sand in the coastal areas. Based on existing piloting of these measures, within a period of approximately 2 years enough sand will be accumulated within the interlocking fence that it will resemble natural sand dune. At that point, the structure will be stabilized with local vegetative species to thwart future shifting of the sand. Please refer to pages 190-209 of Annex IIa for further information on technical details.

162. Details regarding the location and key characteristics of the priority hotspots are provided in pages 36-45 of Annex IIa, including information regarding the selected model design for each segment. The current land use to be protected by the soft coastal protection ranges from agricultural lands to permanent infrastructure to touristic areas. The actual lengths constructed using Model Design 1A; Model Design 1B; Model Design 1C; Model Design 2; Model Design 3; and Model Design 4 will be determined based on the results of the

pre-construction finalization of specifications and engineering drawings. The criteria used for specifying certain designs for certain areas are described in pages 190-209 of Annex IIa, together with additional details regarding the rationale underlying the development of engineering specifications for each of the five coastal segments.

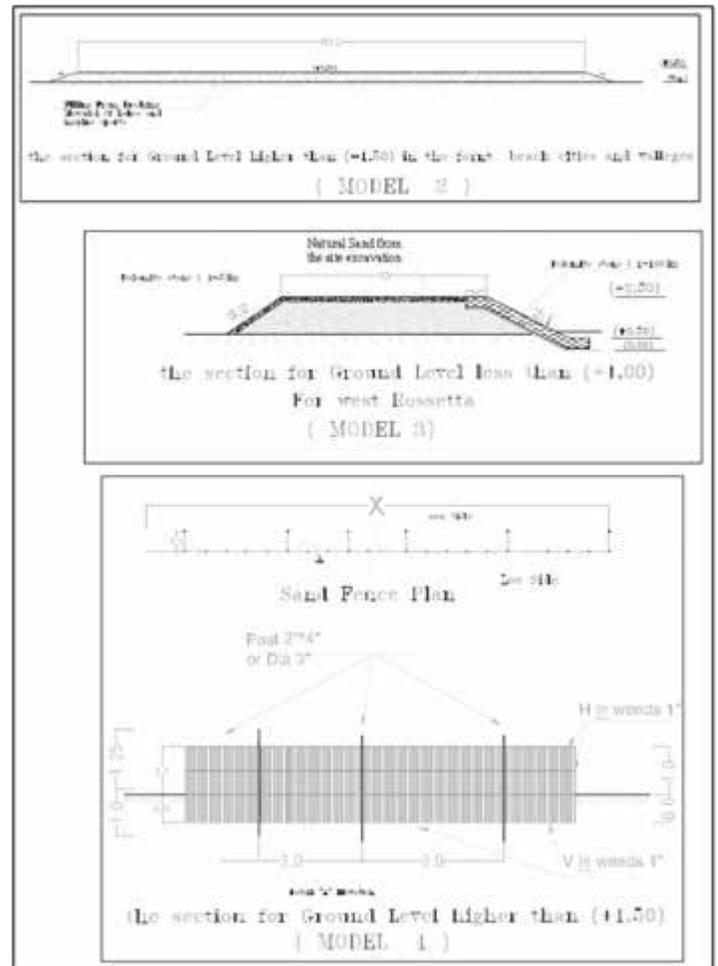


Figure 2: Model 2, 3, and 4 designs

F.3. Environmental, Social Assessment, including Gender Considerations

163. This project has completed the UNDP environmental and social management framework (see ESMF attached as Annex VI). This assessment was undertaken to ensure that the proposed project complies with UNDP’s Social and Environmental Standards. UNDP’s Social and Environmental Standards were reviewed by the GCF accreditation panel and deemed sufficient to accredit UNDP to submit low and medium risk projects. Based on the ESIA, the overall social and environmental risk category for this project is Moderate. It is highly unlikely that the project will have any medium to long term and/or irreversible impacts, and potentially moderate risks associated with the proposed construction of coastal protection structures and dredging of materials can be sufficiently managed. Specific project risks are listed in Section G below, together with appropriate mitigation measures. There are several key factors that determine that this project is classified as a Category B (or Moderate Risk) project:

- The proposed project will not be undertaken in pristine or protected areas where the construction of a built structure could potentially cause irreversible changes to the biological, ecological and physical environment. The project will be undertaken in areas that have been impacted by

anthropogenic (e.g., numerous hard coastal protection structures) and natural processes (e.g. extreme storm events) in the recent past.

- None of the project sites are located in proximity to important archaeological or other type of cultural heritage site. Notwithstanding, in the case of any chance find, necessary measures have been included in the ESMF in order not to damage the archaeological artifacts.
 - The soft coastal protection measures have been designed to mirror natural coastal features and/or sand dunes. They will be parallel to the existing beach profile and coast line. These structures are expected to have negligible impact on coastal hydrodynamic processes as they will follow the existing coastal profile. .

Environmental considerations

164. The project is expected will have moderate environmental and social impacts, although these with be spatially and temporally restricted to the project footprints. To ensure the environment is managed effectively, an ESMF has been prepared for the project. The environmental and social impacts are likely only as a result of the structural interventions (eg there are unlikely to be any impacts through the development of the ICZM Plan). Specific issue management plans have been developed and are contained in the ESMF to avoid, and where not possible, to mitigate the environmental and social impacts. Based on the assessment, the project is considered to have a moderate risk, and less so with the management plan actions include the development of an Erosion, Drainage and Sediment Control Plan (EDSCP).

165. None of the projects require establishing construction camps and thus; environmental impacts from campsites are not expected. All structural interventions include sediment placement and any earth excavation works will be undertaken by heavy machinery. These activities may create such environmental and social impacts which may result in deleterious short term and spatially restricted impacts including dust, traffic and noise, pollution of land, water and air from vehicle exhausts, used oils, excavated soil, river bank and bed erosion and degradation of floodplain vegetation and landscapes. The ESMF includes measures that will be implemented to control adverse impacts.

166. The ESMF also requires the contractor to undertake all activities and adhere to environmentally sound site management practices, by planning and implementing activities in a way to reduce traffic, keep strongly the site boundaries/limits, not carry out earth and construction works during rainy days, install soil erosion control structures (embankments, collectors, etc.). Further, it is necessary to implement site rehabilitation measures, including re-vegetation at some sites after completion of construction works. Necessary measures have to be taken to avoid over-surface runoff and drainage of soil and turbid water into natural water bodies by stabilizing the soil piles and by avoiding construction works during rainy days.

167. The ESMF developed during the project design phase will be implemented by the contractor and supervised/monitored by relevant authorities in accordance with procedures outlined in the ESMF. A Grievance Redress mechanism contained in the ESMF will be applied where and when it is necessary (Please refer to Annex VI (b)).

168. The project does not require land acquisition and/or resettlement of local population.

169. Environmental complaints by communities and people affected by the project can be submitted to UNDP's Social and Environmental Compliance Unit (SECU). SECU will respond to claims that UNDP is not in compliance with applicable environmental and social policies. Complaints can be submitted by e-mail to project.concerns@undp.org or the [UNDP website](#). Project-affected stakeholders can also request the UNDP Country Office for access to appropriate grievance resolution procedures for hearing and addressing project-related social and environmental complaints and disputes. Environmental and social grievances will be monitored and reported in the Annual Project Report.

Social considerations

170. The project has been designed with the assistance of stakeholders and aims to provide benefits to the broader community. There are limited social impacts associated with the coastal protection infrastructure. Notably, neither involuntary resettlement or land acquisition are required. Any adverse impact on surrounding lands during construction activities which will be temporary in nature.

171. Stakeholder consultations will be undertaken when assessing the sites that might be utilized for the supply of dredging materials. The dredging program of lakes and ports is an ongoing GoE maintenance program and as such, it is unlikely to have impacts on new people given this is a long term existing activity operating under a GoE approval. This risk, while highly unlikely, could potentially materialize with the release of reduced water quality from the dredge location through interfering with fishing grounds during the sourcing of materials.

172. To ensure there is limited impact on communities, consultation will be undertaken to ensure dredging does not impact important fishery areas. Where available, local people will be employed to provide materials (e.g., reeds that can be woven by women at their homes (after drying) and supplied to the project) and/or undertake construction and maintenance of the coastal protection infrastructure, thereby providing social benefits to the surrounding communities.

An ongoing Stakeholder Engagement Process will occur during project implementation.

Gender considerations

173. The proposed project addresses gender dimensions within the project design and implementation in order to identify and integrate interventions to provide gender responsive and transformative results. As women are key players in managing basic household resources, as care takers, as well as participants in income generating activities, the design of the proposed project addresses the cultural, the physical, as well as the information and capacity related obstacles preventing women from being actively engaged in, supporting, promoting and maintaining the mitigation and adaptation solutions that the project will be implementing. To this end, a gender analysis and action plan was prepared (see Annex XIII) that accounts for gender and social inclusion implications, including the level of awareness, commitment and accountability of all stakeholders to ensure the participation by women in climate resilience processes. Specifically, the following components are included in the project to mainstreaming gender into project activities.

- Conducting micro level consultations in the hotspot governorates ensuring that all segments of the population, including women, youth, the elderly and the disabled are equitably represented.
- Setting explicit rules in tendering process to ensure gender equality and equal participation of women in the contracting schemes.
- Establishment of grievance mechanisms, accessible for both women and men, to be able to voice complaints during the project construction phase.
- Development of capacity building trainings, communication campaigns and awareness raising messages in relation to gender and social inclusion mechanisms that are contextually relevant to the subject of climate change while being both culturally and gender sensitive.
- Involvement of national gender-based institutions and organizations as main stakeholders and ensure engagement between the National Council for Women (NCW), Equal Opportunities Units (EOUs) and climate change units in the relevant Ministries.

- Development of stakeholder participation plan, as well as gender-responsive monitoring plan and indicator, and ensuring equitable representation of women and men in the development of the ICZM plan.
- Ensuring empowerment through women-led community stewardship committees tasked with shoreline protection and stabilization, restoration work, creation of coastal green buffer zones and maintenance of beach and dune systems and beach vegetation.
- Preparation during project implementation, of qualitative assessments on the gender-specific benefits that can be directly associated to the project. The results of such assessments will be incorporated in the annual Project Implementation Report, Mid-Term Report, and End of Project Evaluation Report.
- Development of indicators to quantify the achievement of project objectives in relation to gender equality. These will include, but not be limited to, i) include men and women who had access to affordable solutions, ii) number of men and women employed from the jobs created by the project, iii) number of women and men who were trained, and iv) knowledge management and information dissemination.

F.4. Financial Management and Procurement

174. The financial management and procurement of this project will be guided by UNDP financial rules and regulations available here: https://info.undp.org/global/documents/frm/Financial-Rules-and-Regulations_E.pdf. Further guidance is outlined in the financial resources management section of the UNDP Programme and Operations Policies and Procedures available at <https://info.undp.org/global/popp/frm/Pages/introduction.aspx>. UNDP has comprehensive procurement policies in place as outlined in the 'Contracts and Procurement' section of UNDP's Programme and Operations Policies and Procedures (POPP). The policies outline formal procurement standards and guidelines across each phase of the procurement process, and they apply to all procurements in UNDP. See here: <https://info.undp.org/global/popp/cap/Pages/Introduction.aspx>.

175. The project will be implemented following the National Implementation Modality (NIM) following NIM guidelines available here:

176. http://www.undp.org/content/dam/undp/library/corporate/Programme%20and%20Operations%20Policies%20and%20Procedures/NIM_for_Government_english.pdf. UNDP will ascertain the national capacities of the implementing partner by undertaking an evaluation of capacity following the Framework for Cash Transfers to Implementing Partners (part of the Harmonized Approach to Cash Transfers - HACT). All projects will be audited following the UNDP financial rules and regulations noted above and applicable audit guidelines and policies. The NIM Guidelines were corporately developed and adopted by UNDP, and are fully compliant with UNDP's procurement and financial management rules and regulations.

177. The national executing entity is MWRI - also referred to as the national 'Implementing Partner' in UNDP terminology. In legal terms, this is ensured through the national Government's signature of the UNDP Standard Basic Assistance Agreement (SBAA), together with a UNDP project document which will be signed by the Implementing Partner to govern the use of the funds. Both documents require compliance. Prior to signature of the project document, all national Implementing Partners need to have undergone a Harmonized Approach to Cash Transfer (HACT) assessment by UNDP to assess capacities to implement the project. During implementation, UNDP will provide oversight and quality assurance in accordance with its policies and procedures, and any specific requirements in the Accreditation Master Agreement (AMA) and project confirmation to be agreed with the GCF. This may include, but is not limited to, monitoring missions, spot checks, facilitation and participation in project board meetings, quarterly progress and annual implementation reviews, and audits at project level or at implementing partner level on the resources received from UNDP.

178. The Harmonized Approach to Cash Transfer (HACT) framework consists of four processes: (1) macro assessments; (2) micro assessments; (3) cash transfers and disbursements; and (4) assurance activities. Assurance activities include planning, periodic on-site reviews (spot checks), programmatic monitoring, scheduled audits and special audits. During micro-assessment, there can weaknesses identified for which actions are required to addresses the gaps. When a spot check finds that the gaps are not addressed it will mean that the level of assurance activities must remain higher and modalities of engaging with that implementing partner must be reviewed if necessary. All details are available here: <https://undg.org/wp-content/uploads/2015/02/2014-UNDG-HACT-Framework-English-FINAL.pdf>. All GCF resources will be made available to the Implementing Partner under National Implementation Modality, less any agreed cost recovery amount. Nevertheless, in this particular project there will be no advance or cash transfer to the government but disbursement will be done through direct payment requests. Any additional requirements will be as in accordance with the AMA as and when it is agreed
179. The project will be audited in accordance with UNDP policies and procedures on audits, informed by and together with any specific requirements agreed in the AMA. Per the current audit policies, UNDP will be appointing the auditors. In UNDP scheduled audits are performed during the programme cycle as per UNDP assurance/audit plans, based on the implementing partner's risk rating and UNDP's guidelines. A scheduled audit can consist of a financial audit or an internal control audit.
180. A draft procurement plan will be provided (which will be further discussed and revised prior to UNDP Project Document signature).

G.1. Risk Assessment Summary

181. The overall risk rating for this project is low. As per standard UNDP requirements, the Project Manager will monitor risks quarterly and report on the status of risks to the UNDP Country Office. The UNDP Country Office will record progress in the UNDP ATLAS risk log. Risks will be reported as critical when the impact and probability are high (i.e. when impact is rated as 5 and probability is 1,2,3,4, 5 or when impact is rated as 4 and probability is rated at 3 or higher). Management responses to critical risks will also be reported in the Annual Project report.

G.2. Risk Factors and Mitigation Measures

Please describe financial, technical and operational, social and environmental and other risks that might prevent the project/programme objectives from being achieved. Also describe the proposed risk mitigation measures.

Selected Risk Factor 1

Description	Risk category	Level of impact	Probability of risk occurring
Implementing a new planning framework within an existing planning context with sharply delineated lines of responsibility could create resistance	Technical and operational	High (>20% of project value)	High

Mitigation Measure(s)

The mitigation of this risks will benefit from the action over the past decades to create buy-in and institutional momentum to integrate climate change into a comprehensive and integrated planning framework. Reasons for resistance will be analyzed and appropriate approaches to eliminate them will be identified and applied.

Selected Risk Factor 2

Description	Risk category	Level of impact	Probability of risk occurring
Lack of agreement among key stakeholders on the developed ICZM Plan	Social and environmental	High (>20% of project value)	Medium

Mitigation Measure(s)

The project will employ experts in participatory approaches. In addition, international expertise will be sought for this component, as needed, to ensure the utilization of highest level of available modelling techniques and to provide evidence based proposals to achieve the best possible interest of all stakeholders. Experts will be selected based on competitive selection process starting from the identification if the assignment can be conducted by an individual expert or needs company with multi-disciplinary team. Market assessments will be done prior to procurement on whether there is local capacity in-country for the work at hand or whether it would be necessary to procure from the international market place. Terms of References will then be advertised and the selection panel including UNDP and the Government will evaluate the proposals received and decide on the appointment based on the combination of financial and technical proposals. EOIs and RFPs may be used as well.

Selected Risk Factor 3

Description	Risk category	Level of impact	Probability of risk occurring
Low skills and staff limitations could impede the monitoring and follow-up of implementation	Technical and operational	Medium (5.1-20% of project value)	Low

Mitigation Measure(s)			
Capacity needs assessments will be undertaken to identify any specific needs and gaps. The proposed project is building on significant activities to strengthen capacities of staff in key national institutions and local governments, considered the needs for follow up and implementation after the project is finalized. UNDP will ensure that a long term M&E plan will be an output of the project for the sustainability of operations after end of the GCF project including needed financial and human resources.			
Selected Risk Factor 4			
Description	Risk category	Level of impact	Probability of risk occurring
Long term sustainability of investments (e.g. information systems, coastal protection measures) if project interventions do not prevent the ongoing coastal flooding, and vulnerabilities in urban and agricultural areas increase	Technical and operational	Low (<5% of project value)	Low
Mitigation Measure(s)			
The project interventions will be integrated into the planning and budgeting processes of key national agencies and local governments. Implementation will actively engage local community groups to ensure greater ownership and thus long term sustainability. Project interventions will be decided during the development of the ICZM plan. The interventions that will be included in the ICZM plan will be limited to those that have been tested and subject to a thorough cost-effectiveness analysis. Extensive studies and thorough design will be conducted using international expertise, as needed, to reduce any chances of faulty design. A strong M&E programme will be put in place and field officers will be recruited through the project to ensure local government staff and communities have access to technical advice, and opportunities to express concerns as necessary. Through regular monitoring, success of interventions will be measured and communicated to provide assurance, as well as to inspire behavior change. The M&E plan will be prepared by the project team according to the UNDP standard format and will be discussed with the government and endorsed by the project board. The project M&E plan includes among other measures inception workshop, project board meetings, preparation of project progress reports, measurements of means verification of the progress, independent Mid Term and Final Evaluations, field visits, and project annual and terminal reports.			
Selected Risk Factor 5			
Description	Risk category	Level of impact	Probability of risk occurring
Extreme climatic events disrupt implementation or damages investments, resulting in delays and additional costs. Egypt is at increased risk of climate-related natural hazards, such as storm surges and flashfloods which could impact implementation as well as long term sustainability of investments.	Social and environmental	High (>20% of project value)	Low
Mitigation Measure(s)			
Timing of fieldworks and construction activities during implementation will be scheduled to minimize risk, to the extent possible (e.g. planning around storm periods). Design of investment projects will be following the results of a thorough risk assessment to ensure long term resilience.			
Selected Risk Factor 6			

Description	Risk category	Level of impact	Probability of risk occurring
Sediment movement during construction works	Social and environmental	Medium (5.1-20% of project value)	Medium
Mitigation Measure(s)			
<p>There is the likelihood for sediment movement during the construction of coastal infrastructure. To ensure that the sediment is not mobilised that will result in environmental impacts, it will be necessary to prepare an Erosion, Drainage and Sediment Control Plan (EDSCP) and install silt curtains to restrict sediment movement from the site. Further, any earthworks should be undertaken during the dry season and compacted sufficiently to reduce sediment movement. The EDSCP should contain aspects including but not limited to the installation of sediment curtains to reduce sediment movement and the quick placement of footing material. These impacts will be spatially and temporally restricted to works periods.</p>			
Selected Risk Factor 7			
Description	Risk category	Level of impact	Probability of risk occurring
Construction Noise	Social and environmental	Low (<5% of project value)	Low
Mitigation Measure(s)			
<p>The construction contractor should consider any sensitive receptors including communities. Noise will be limited to excavators removing sediment from the water course. It is likely that more noise will be generated through the use of excavators and trucks moving sediment. Where necessary, noise shields should be constructed to reduce the potential for noise to reach these communities if an impact occurs. The noise will have very limited temporal scales</p>			
Other Potential Risks in the Horizon			
<p>182. While there exists a strong commitment from the Egyptian government that limits many risks, there is a possibility that this commitment is not carried through because of different perceptions of key decision makers, or because project activities begin to be perceived as not sufficiently contributing to an effective long-term strategy to address climate change adaptation in the Nile Delta. However, the commitment to baseline development activities implemented by government, as well as its efforts to secure the necessary co-financing, has served to minimize these risks. The risk mitigation strategies will focus on strengthening communication with national counterparts; enhancing national and UNDP capacities to rapidly respond to political changes.</p>			

** Please expand this sub-section when needed to address all potential material and relevant risks.*

H.1. Logic Framework.

Please specify the logic framework in accordance with the GCF's [Performance Measurement Framework](#) under the [Results Management Framework](#).

183. The proposed project has two (2) interlinked Outputs that will increase the resilience of the natural and built environment to climate change in Egypt's low-lying Nile Delta, along with creating conditions for scaling up and replicating the project impact beyond the immediate target areas to the Northern Coast itself. Each of the outputs comprises a set of activities and sub-activities (not shown), which in turn have been designed to address specific barriers that are currently contributing to flood risks from the combined effects of sea level rise and increased extreme storm frequencies. The project objective is to strengthen the capacity of the Egyptian government and communities to manage the flooding impacts of climate change-induced sea level rise on coastal communities in the Nile Delta.

H.1.1. Paradigm Shift Objectives and Impacts at the Fund level¹⁵

Paradigm shift objectives

<i>Increased climate-resilient sustainable development</i>	The proposed project will directly contribute to safeguarding human development progress in the North Coast of Egypt through the installation of soft coastal protection measures along 69 km of high vulnerable coastline while also launching an integrated coastal zone management process that directly addresses climate change risks. The project approach combines concrete coastal protection investments, long-term integrated planning under climate change, capacity building, data generation/management, thereby facilitating a paradigm shift to enhance climate resilience in highly vulnerable settings.
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Expected Result	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term (if applicable)	Final	

Fund-level impacts

A3.0 Increased resilience of infrastructure and the built environment to climate change	3.2 Number of new infrastructure constructed to withstand condition from climate variability and change	Annual progress report; mid-term review; terminal evaluation	No coastal protection solution exists in vulnerable hotspots	15km-20km	Soft coastal protection measures have been put in place in 5 vulnerable hotspots across 69 km of the Nile Delta	Environmental and social impact assessment is completed and approved without delay; There is a land-use agreement with the GoE
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¹⁵ Information on the Fund's expected results and indicators can be found in its Performance Measurement Frameworks available at the following link (Please note that some indicators are under refinement): http://www.gcfund.org/fileadmin/00_customer/documents/Operations/5.3_Initial_PMF.pdf

H.1.2. Outcomes, Outputs, Activities and Inputs at Project/Programme level

Expected Result	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term (if applicable)	Final	
Project/programme outcomes	Outcomes that contribute to Fund-level impacts					
A5.0 Strengthened institutional and regulatory systems for climate-responsive planning and development	5.1 Institutional and regulatory frameworks capable of integrating climate risks into coastal zone planning and effective action	Climate change related budget and expenditure reports from coastal governorates; Annual progress report	Only ad hoc planning has been undertaken which is neither climate sensitive or effectively coordinated across institutions	Development of the Shoreline Master Plan and Coastal Management Plan	Development of the ICZM Plan	There is not disruptive government led restructuring of the various ministries involved in coastal management
A7.0 Strengthened adaptive capacity and reduced exposure to climate risks	7.2 Number of males and females benefiting from soft coastal protection measures	Implementation report by construction vendor; Annual progress report; mid-term review; terminal evaluation	Currently, no local residents benefit from soft coastal protection measures	Coastal protection design and installation started to protect about 17 million people in areas prone to coastal flooding	At least 17 million people who are in flood prone areas protected by a soft coastal defenses	There is not a sudden and unexpected migration of people from other parts of Egypt.
Project/programme outputs	Outputs that contribute to outcomes					
Output 1 Reduced vulnerability of coastal infrastructure and agricultural assets to coastal flooding damage in hotspot locations in Nile Delta.	<ul style="list-style-type: none"> The total length of vulnerable hotspots protected 	<ul style="list-style-type: none"> Detailed specifications and drawings for the soft protection measures Implementation report by assessment/ construction vendor; Annual progress report; mid-term review; terminal review 	<ul style="list-style-type: none"> 0km 	<ul style="list-style-type: none"> 15-20km 	<ul style="list-style-type: none"> 69km 	<ul style="list-style-type: none"> Political and economic stability is maintained in Egypt There is no conflicts that will disrupt construction or supply chains required for materials both within Egypt and outside Egypt
Output 2 Development and implementation of an integrated coastal zone management plan (ICZM) for the entire North Coast of Egypt	<ul style="list-style-type: none"> Assessment of the capacity needs of institutions and individuals (women and men) for ICZM planning Number of technical officers (men and women) trained on modeling and other skills associated with ICZM Setup of monitoring equipment for national observation system GoE has adopted ICZM Plan Initiate implementation of the coastal protection measures generated from the ICZM plan 	<ul style="list-style-type: none"> Institutional arrangements where technical officers (men and women) can gain technical skills needed for undertaking integrated coastal zone management planning under climate change Annual progress report; questionnaires; mid-term review; terminal evaluation 	<ul style="list-style-type: none"> No assessment 0 people Equipment does not exist No ICZM plan 	<ul style="list-style-type: none"> Assessment under development At least 50 technical government staff exposed to hands-on trainings on the three areas All monitoring equipment procured Development of the ICZM Plan 	<ul style="list-style-type: none"> At least 1 Capacity Needs Assessment Report indicating the capacity needs of women and men At least 20 technical government staff exposed to hands-on trainings System is operational Adoption of the ICZM Implementation initiated 	<ul style="list-style-type: none"> There is not a government restructuring, There is political stability that allows for the review and adoption of the ICZM plan There is not turnover of staff beyond what is expected for natural reasons

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Activities	Description	Inputs	Description
<p>Activity 1.1: Soft coastal protection (pre-construction) detailed designs, and site-specific assessments undertaken for protecting 69 km of the Nile Delta in 5 vulnerable hotspot locations</p>	<p>Development of pre-construction detailed design drawings for the soft coastal protection measures</p>	<p>1.1.1 Generation of local data needed to characterize the vulnerable hotspot locations including, but not limited to, digital elevation maps, geomorphology, wave characteristics, storm events, erosion/accretion trends, and other data needed to assess the suitability of soft coastal protection measures subject to the combined impact of sea level rise and extreme storm events. 1.1.2 Use of the local data generated to undertake flood modeling with and without soft coastal protection in order to establish detailed design characteristics for each of the hotspot locations 1.1.3 Finalize all in-depth-design documents, specifications, and engineering drawings necessary for the development of a comprehensive bill of quantities for the soft protection measures.</p>	<p>Finalization of detailed technical designs for each of the five vulnerable hotspots;</p>
<p>Activity 1.2: Construction of coastal soft protection structures at the 5 vulnerable hotspot locations</p>	<p>Coastal protection measures installed and monitored in identified sites.</p>	<p>1.2.1 Initiation of a tendering process to select local contractor(s) to construct the coastal protection measures, including quality control requirements, based on the finalized design documents and bill of quantities. 1.2.2 Implementation of all site preparation activities associated with clearing, grubbing, stripping, dewatering and any other activities associated with site preparation at the five locations 1.2.3 Construct the 5 coastal protection measures, including all excavation, fill placement/compaction, rip-rap placement, geotextile placement, and final grading 1.2.4 Conduct and maintain records for site inspection during the construction period, including environmental safeguard monitoring during lifetime of the coastal protection works</p>	<p>Vendor tendering process; procurement for construction companies; oversight for timely completion of the construction work; quality control inspections</p>
<p>Activity 1.3: Development and implementation of an operations & maintenance programme for the installed soft protection structures</p>	<p>Coastal protection measures monitored post-project.</p>	<p>1.3.1 Development of a soft coastal protection maintenance manual to govern future maintenance and rehabilitation activities, tailored to Nile Delta conditions 1.3.2 Codification of the procedures in the soft coastal protection maintenance manual within the governing regulations of the SPA and the MWRI. 1.3.3 Implementation of operations and maintenance activities over the lifetime of the project consistent with the coastal protection maintenance manual.</p>	<p>Monitoring during and post-project based on O&M guidance manual to be developed for soft coastal protection structures</p>
<p>Activity 2.1: Development of national capability to conduct long-term climate change risks induced hazard, vulnerability and risk high resolution assessments of erosion and flooding under climate change</p>	<p>Coastal diagnosis methods introduced and applied</p>	<p>2.1.1 Characterization of marine dynamics based on the numerical modeling of wind, waves, currents and sea level change in the future 2.1.2 Establishment of coastal modeling systems consisting of databases, methods and tools</p>	<p>Integration of climate change considerations into coastal risk assessment through the introduction of new tools and methods for high-resolution hazard mapping</p>

<p>scenarios on an ongoing and iterative basis</p>		<p>suitable for modeling shoreline dynamics in the North Coast context 2.1.3 High-resolution hazard assessment under a set of climate change scenarios to develop flooding maps that account for storm surge inundation levels that factor in projected sea level rise 2.1.4 Vulnerability and risk high-resolution assessment under climate change scenarios to integrate the exposure of coastal areas and their sensitivity to flooding and erosion impacts.</p>	
<p>Activity 2.2: Development and implementation of the a climate change risk informed ICZM plan to include a shoreline master plan and a regulatory/legislative framework</p>	<p>ICZM inputs assembled and plan developed within a stakeholder driven consultative process and leading to regulatory/legislative changes to cope with long-term coastal threats under climate change</p>	<p>2.2.1 Development of a Shoreline Master Plan for climate change adaptation to define the most promising shoreline management measures for climate change adaptation, and their implementation strategy. 2.2.2 Development of a regulatory and legislative framework to ensure the effective implementation of climate change adaptation activities under ICZM principles. 2.2.3 Development of a stakeholder participation strategy to ensure a shared ownership of the ICZM Plan with concerned authorities and civil society groups in the planning process. 2.2.4 Establishment of the monitoring and evaluation system to enable managers to take appropriate corrective actions to achieve the expected results of the plan by evaluating the progress of the plan implementation 2.2.5 Initiate implementation of the coastal protection measures generated from the ICZM plan</p>	<p>Preparation of a stakeholder-driven integrated coastal zone management for the North Coast of Egypt</p>
<p>Activity 2.3: Development of a capacity building program on climate change risk management for institutions involved in the long-term management of the north coast</p>	<p>Institutional capacities to monitor, evaluate and communicate results and impacts of coastal protection adaptation investments enhanced</p>	<p>2.3.1 Assessment of capacity needs for ICZM planning to catalog on-going coastal management capacity building activities, and to identify gaps in skills, knowledge and attitudes for the practice of ICZM and climate change adaptation. 2.3.2 Transfer of coastal observation and modeling systems to coastal management to ensure that staff from selected institutions have the necessary scientific knowledge to assimilate and integrate both the coastal observation and modeling systems. 2.3.3 Design and implementation of modular training program for MWRI/SPA and EEAA to build skills for professional development of coastal management practitioners, in a diversity of capacities (e.g. policy positions or day-to-day management). 2.3.4 Design and implementation of the modular training program for other stakeholders to be able to collaborate and actively participate in the implementation of the ICZM Plan. 2.3.5 Monitoring and evaluation of the capacity building program's results.</p>	<p>Strengthening of the key shoreline protection institutions to ensure capability to evaluate long-terms and evolving coastal threats under climate change</p>

		2.3.6 Design and implementation of a programme to promote sustainable livelihoods of poor women in hotspot areas for household income diversification and other community development activities.	
<p>Activity 2.4 Implementation of specific components of a national observation system</p>	<p>Enhancement of capacity to monitor coastal process affected by climate change and the development of effective data management systems</p>	<p>2.4.1 Procurement and installation of an observation/monitoring equipment relative to meteorological, oceanographic, networking, and other operational objectives for coastal zone management of climate change induced risks on coastal areas. 2.4.2 Development and implementation of a capacity building programme for MWR/SPA and EEAA that focuses on training in the operation of all elements of the national observation system, including systems for coordination with coastal zone analysts/modelers who will use the data generated. 2.4.3 Design and implementation of a quality control/assurance programme amongst the participating institutions and agencies for the collection, evaluation, and distribution of data generated from the various components of the national observation system</p>	<p>Development of a cyber network to generate data in the coastal environment in anticipation of future threats and as inputs to a future early warning system</p>

H.2. Arrangements for Monitoring, Reporting and Evaluation

184. The project results as outlined in the project results framework will be monitored and reported annually and evaluated periodically during project implementation to ensure the project effectively achieves these results.

185. Project-level monitoring and evaluation will be undertaken in compliance with UNDP requirements as outlined in the [UNDP POPP](#) and [UNDP Evaluation Policy](#). While these UNDP requirements are not outlined in this project document, the UNDP Country Office will work with the relevant project stakeholders to ensure UNDP M&E requirements are met in a timely fashion and to high quality standards. Additional mandatory GCF-specific M&E requirements will be undertaken in accordance with relevant GCF policies.

186. In addition to these mandatory UNDP and GCF M&E requirements, other M&E activities deemed necessary to support project-level adaptive management will be agreed during the Project Inception Workshop and will be detailed in the Inception Workshop Report. This will include the exact role of project target groups and other stakeholders in project M&E activities including national/regional institutes assigned to undertake project monitoring.

M&E oversight and monitoring responsibilities:

187. **National Project Manager:** The NPM is responsible for day-to-day project management and regular monitoring of project results and risks, including social and environmental risks. The NPM will ensure that all project staff maintain a high level of transparency, responsibility and accountability in M&E and reporting of project results. The Project Manager will inform the Project Board, the UNDP Country Office and the UNDP-GEF Regional Technical Advisor of any delays or difficulties as they arise during implementation so that appropriate support and corrective measures can be adopted.

188. The NPM will develop annual work plans to support the efficient implementation of the project. The NPM will ensure that the standard UNDP and GCF M&E requirements are fulfilled to the highest quality. This

includes, but is not limited to, ensuring the results framework indicators are monitored annually in time for evidence-based reporting in the Annual Project Report, and that the monitoring of risks and the various plans/strategies developed to support project implementation (e.g. Environmental and social management plan, gender action plan etc..) occur on a regular basis.

189. **Project Board:** The Project Board will take corrective action as needed to ensure the project achieves the desired results. The Project Board will hold project reviews to assess the performance of the project and appraise the Annual Work Plan for the following year. In the project's final year, the Project Board will hold an end-of-project review to capture lessons learned and discuss opportunities for scaling up and to highlight project results and lessons learned with relevant audiences. This final review meeting will also discuss the findings outlined in the project terminal evaluation report and the management response.
190. **Project Implementing Partner:** The Implementing Partner is responsible for providing all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary and appropriate. The Implementing Partner will strive to ensure project-level M&E is undertaken by national institutes, and is aligned with national systems so that the data used by and generated by the project supports national systems.
191. **UNDP Country Office:** The UNDP Country Office in Cairo will support the NPM as needed, including through annual supervision missions. The annual supervision missions will take place per the schedule outlined in the annual work plan. Supervision mission reports will be circulated to the project team and Project Board within one month of the mission. The UNDP Country Office will initiate and organize key M&E activities including the Annual Project Report, the independent mid-term review and the independent terminal evaluation. The UNDP Country Office will also ensure that the standard UNDP and GCF M&E requirements are fulfilled to the highest quality.
192. The UNDP Country Office is responsible for complying with all UNDP project-level M&E requirements as outlined in the [UNDP POPP](#). This includes ensuring the UNDP Quality Assurance Assessment during implementation is undertaken annually; the regular updating of the ATLAS risk log; and, the updating of the UNDP gender marker on an annual basis based on gender mainstreaming progress reported in the Annual Project Report and the UNDP ROAR. Any quality concerns flagged during these M&E activities (e.g. Annual Project Report quality assessment ratings) must be addressed by the UNDP Country Office and the Project Manager.
193. The UNDP Country Office will support GCF staff (or their designate) during any missions undertaken in the country, and support any ad-hoc checks or ex post evaluations that may be required by the GCF.
194. The UNDP Country Office will retain all project records for this project for up to seven years after project financial closure to support any ex-post reviews and evaluations undertaken by the UNDP Independent Evaluation Office (IEO) and/or the GCF.
195. **UNDP-Global Environmental Finance Unit (UNDP-GEF):** Additional M&E and implementation oversight, quality assurance and troubleshooting support will be provided by the UNDP-GEF Regional Technical Advisor and the UNDP-GEF Directorate as outlined in the management arrangement section above.

Audit arrangements:

196. The project will be audited per UNDP Financial Regulations and Rules and applicable audit policies on NIM implemented projects.¹⁶ Additional audits may be undertaken at the request of the GCF.

Additional monitoring and reporting requirements:

¹⁶ See guidance here: <https://info.undp.org/global/popp/frm/pages/financial-management-and-execution-modalities.aspx>

197. **Inception Workshop and Report:** A project inception workshop will be held within four months after the project document has been signed by all relevant parties to, amongst others:
- Re-orient project stakeholders to the project strategy and discuss any changes in the overall context that influence project strategy and implementation;
 - Discuss the roles and responsibilities of the project team, including reporting and communication lines and conflict resolution mechanisms;
 - Review the results framework and finalize the indicators, means of verification and monitoring plan;
 - Discuss reporting, monitoring and evaluation roles and responsibilities and finalize the M&E budget; identify national/regional institutes to be involved in project-level M&E;
 - Identify how project M&E can support national monitoring of SDG indicators as relevant;
 - Update and review responsibilities for monitoring the various project plans and strategies, including the risk log; Environmental and Social Management Plan and other safeguard requirements; the gender action plan; and other relevant strategies;
 - Review financial reporting procedures and mandatory requirements, and agree on the arrangements for the annual audit; and
 - Plan and schedule Project Board meetings and finalize the first-year annual workplan.
198. The NPM will prepare the inception workshop report no later than one month after the inception workshop. The inception workshop report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board.
199. **Annual Project Report:** The NPM, the UNDP Country Office, and the UNDP-GEF Regional Technical Advisor will provide objective input to the annual project report covering the calendar year for each year of project implementation. The NPM will ensure that the indicators included in the project results framework are monitored annually in advance so that progress can be included in the report. Any environmental and social risks and related management plans will be monitored regularly, and progress will be included in the report.
200. The Annual Project Report will be shared with the Project Board. The UNDP Country Office will coordinate the input of other stakeholders to the report as appropriate. The quality rating of the previous year's report will be used to inform the preparation of the subsequent report.
201. **Lessons learned and knowledge generation:** Results from the project will be disseminated within and beyond the project intervention area through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to the project. The project will identify, analyze and share lessons learned that might be beneficial to the design and implementation of similar projects and disseminate these lessons widely. There will be continuous information exchange between this project and other projects of similar focus in the same country, region and globally.
202. **Independent Mid-term Review (MTR):** An independent mid-term review process will begin after the third Annual Project Report has been submitted to the GCF.
203. The MTR findings and responses outlined in the management response will be incorporated as recommendations for enhanced implementation during the final half of the project's duration. The terms of reference, the review process and the MTR report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the [UNDP Evaluation Resource Center \(ERC\)](#). As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. Other stakeholders will be involved and consulted during the terminal evaluation process. Additional quality assurance support is available from the UNDP-GEF Directorate.

The final MTR report will be available in English and will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and approved by the Project Board.

204. **Terminal Evaluation (TE):** An independent terminal evaluation (TE) will take place upon completion of all major project outputs and activities. The terminal evaluation process will begin at least three months before operational closure of the project allowing the evaluation mission to proceed while the project team is still in place, yet ensuring the project is close enough to completion for the evaluation team to reach conclusions on key aspects such as project sustainability.
205. The NPM will remain on contract until the TE report and management response have been finalized. The terms of reference, the evaluation process and the final TE report will follow the standard templates and guidance prepared by the UNDP IEO for GEF-financed projects available on the [UNDP Evaluation Resource Center](#). As noted in this guidance, the evaluation will be 'independent, impartial and rigorous'. The consultants that will be hired to undertake the assignment will be independent from organizations that were involved in designing, executing or advising on the project to be evaluated. Additional quality assurance support is available from the UNDP-GEF Directorate. The final TE report will be cleared by the UNDP Country Office and the UNDP-GEF Regional Technical Adviser, and will be approved by the Project Board. The TE report will be publicly available in English on the UNDP ERC.
206. The UNDP Country Office will include the planned project terminal evaluation in the UNDP Country Office evaluation plan, and will upload the final terminal evaluation report in English and the corresponding management response to the UNDP Evaluation Resource Centre (ERC).
207. **Final Report:** The project's final Annual Project Report along with the terminal evaluation (TE) report and corresponding management response will serve as the final project report package. The final project report package shall be discussed with the Project Board during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up.

Mandatory GCF M&E Requirements and M&E Budget:

GCF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget ¹⁷ (US\$)		Time frame
		GCF grant	Co-financing	
Inception Workshop	UNDP Country Office	USD 11,000	In-kind	
Inception Workshop Report and baseline assessments	Project Manager	None	None	
Standard UNDP monitoring and reporting requirements as outlined in the UNDP POPP	UNDP Country Office	None	None	Quarterly, annually
Monitoring of indicators in project results framework (including hiring of external experts, project surveys, data analysis etc...)	Project Manager	Per year: USD 10,000	In-kind	Annually
Annual Project Report	Project Manager and UNDP Country Office and UNDP-GEF team	None	None	Annually
NIM Audit as per UNDP audit policies	UNDP Country Office	Per year: USD 4,000	In-kind	Annually or other frequency as per UNDP Audit policies
Lessons learned, case studies, and knowledge generation	Project Manager	Per year: USD: 4,000	In-kind	Annually
Monitoring of environmental and social risks, and corresponding management plans as relevant	Project Manager UNDP CO	Per year: USD 1,500	In-kind	On-going
Monitoring of gender action plan	Project Manager UNDP CO	Per year: USD 4,000	In-kind	On-going
Monitoring of stakeholder engagement plan	Project Manager UNDP CO	Per year: USD 4,000	In-kind	On-going

¹⁷ Excluding project team staff time and UNDP staff time and travel expenses.

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Addressing environmental and social grievances	Project Manager UNDP Country Office BPPS as needed	None	None	
Project Board meetings	Project Board UNDP Country Office Project Manager	Per year: USD: 1,500	In-kind	At minimum annually
Supervision missions	UNDP Country Office	None ¹⁸	None	Two per year
Oversight missions	UNDP-GEF team	None ¹⁸	None	Troubleshooting as needed
GCF learning missions/site visits	UNDP Country Office and Project Manager and UNDP-GEF team	None	None	To be determined.
Independent Mid-term Review (MTR) and management response	UNDP Country Office and Project team and UNDP-GEF team	USD 25,000	In-kind	
Independent Terminal Evaluation (TE) included in UNDP evaluation plan, and management response	UNDP Country Office and Project team and UNDP-GEF team	USD 45,000	In-kind	At least three months before operational closure
Translation of MTR and TE reports into English	UNDP Country Office	USD 6,000	In-kind	As required. GCF will only accept reports in English.
TOTAL indicative COST Excluding project team staff time, and UNDP staff and travel expenses		USD 116,00	In-kind	

¹⁸ The costs of UNDP Country Office and UNDP-GEF Unit's participation and time are charged to the GCF Agency Fee.

I. Supporting Documents for Funding Proposal

- NDA No-objection Letter (**Annex I**)
- Technical Feasibility Study (**Annex IIa**)
- Compilation of additional documents for Annex II (**Annex IIb**)
- Integrated Financial Model that provides sensitivity analysis of critical elements (xls format, if applicable) (**Annex III; not applicable**)
- Confirmation letter or letter of commitment for co-financing commitment (If applicable) (**Annex IV**)
- Project/Programme Confirmation/Term Sheet (including cost/budget breakdown, disbursement schedule, etc.) – see the *Accreditation Master Agreement, Annex I* (**Annex V**)
- Environmental and Social Impact Assessment (ESIA) or Environmental and Social Management Plan (If applicable) (**Annex VIa**)
- Environmental and Social Management Framework (**Annex VIb**)
- Appraisal Report or Due Diligence Report with recommendations (If applicable) (**Annex VII**)
- Evaluation Report of the baseline project (**Annex VIII; not applicable**)
- Map indicating the location of the project/programme (**Annex IX**)

Additional information

- Timetable of project/programme implementation (**Annex X**)
- Project/ programme confirmation (**Annex XI**)
- Economic analysis (**Summary; Annex XIIa**)
- Economic analysis (**Excel calculations; Annex XIIb**)
- Procurement plan (**Annex XIIIa**)
- Operations and Maintenance Plan (**Annex XIIIb**)
- Stakeholder Engagement Plan (**Annex XIIIc**)
- Gender Assessment and Action Plan (**Annex XIId**)
- Evidence of internal approval (**Annex XIIIe**)
- Response to GCF Comments on Proposal (**Annex XIV**)
- UNDP Endorsement Letter (**Annex XV**)
- GCF Egypt detailed budget (**Annex XVI**)
- FAA Budget Notes (**Annex XVII**)
- Guidance for charging direct project costs to GCF projects (**Annex XVIII**)
- FRM Resource Planning and Cost Recovery- Direct Project Costs (**Annex XIX**)
- Response to TAP comments (**Annex XX**)
- ESS Disclosure (**Annex XXI**)

- Terms of reference for project staff **(not applicable)**
- UNDP Project Quality Assurance Report **(not applicable)**
- UNDP Risk log **(not applicable)**
- Results of the capacity assessment **(not applicable)**
- Any additional agreements **(not applicable)**