ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: Regional Project

Countries/Region: **Côte d'Ivoire, Ghana**
Project Title: **Improved Resilience of Coastal Communities in Côte d'Ivoire and Ghana**
Thematic Focal Area: **Disaster Risk Reduction and Early Warning Systems**
Implementing Entity: **United Nations Human Settlements Programme (UN-Habitat)**
Executing Entities: **Abidjan Convention, UN-Habitat, University of Cape Coast**
***Côte d'Ivoire*: Ministry of the Environment and Sustainable Development, Ministry of Planning and Development, others**
***Ghana*: Land Use Spatial Planning Authority (LUSPA), others**
AF Project ID: **AFR/MIE/DRR/2017/1**
IE Project ID:
Requested Financing from Adaptation Fund (US Dollars): **13,951,160**
Reviewer and contact person: **Dirk Lamberts**
Co-reviewer(s): **Imèn Meliane**
IE Contact Person: **Javier Torner**

Technical Summary	The project "Improved Resilience of Coastal Communities in Côte d'Ivoire and Ghana" aims to increase the climate change resilience of coastal settlements and communities to climate-related coastal hazards in Ghana and Côte d'Ivoire. This will be done through the five components below: Component 1: Promote climate change resilience through spatial development frameworks (USD 1,653,600); Component 2: Resilience building planning at the community level (USD 1,365,700); Component 3: Transformative concrete ecosystem/natural resource adaptation interventions at sub-regional and district level (USD 5,127,659); Component 4: Catalytic concrete climate change adaptation through diversified and strengthened livelihoods at community level (USD 2,829,653); Component 5: Knowledge sharing and monitoring (USD 686,000).

	Requested financing overview: Project/Programme Execution Cost: USD 1,195,600 Total Project/Programme Cost: USD 12,858,212 Implementing Fee: USD 1,092,948 Financing Requested: USD 13,951,160 The initial technical review raised several issues, such as lack of climate change adaptation focus, insufficient demonstration of regional added value, the risk of maladaptation, compliance with Fund's Environmental and Social Policy and Gender Policy, sustainability, innovation, project execution arrangements and administrative costs as was discussed in the number of Clarification Requests (CRs) and Corrective Action Request (CAR) raised in the review.
Date	13 May 2021

Review Criteria	Questions	Comments	Response
Country Eligibility	1. Are all of the participating countries party to the Kyoto Protocol?	**Yes**.	
	2. Are all of the participating countries developing countries particularly vulnerable to the adverse effects of climate change?	**Yes**. Both Ghana and Côte d'Ivoire are vulnerable to coastal erosion and a projected sea level rise. Furthermore, climate change impacts in the two countries exacerbate unsustainable land and water management. This pressure on coastal communities is combined with severe forms of pollution from economic activities in settlements, especially in harbour areas, lagoons and "urban coastlines".	
	1. Have the designated government authorities for the Adaptation Fund from each of the participating countries endorsed the project/programme?	**Yes**, as per the Endorsement Letters dated 10 December 2020 (Ghana) and 15 December 2020 (Côte d'Ivoire).	

	2. Does the length of the proposal amount to no more than One hundred (100) pages for the fully-developed project document, and one hundred (100) pages for its annexes?	**No**. The proposal comprises 93 pages, and the annexes 109 pages. **CAR 1:** Please adjust the proposal to meet the page limitations.	
	3. Does the regional project / programme support concrete adaptation actions to assist the participating countries in addressing the adverse effects of climate change and build in climate resilience, and do so providing added value through the regional approach, compared to implementing similar activities in each country individually?	**Unclear**. The issues addressed by the proposed activities are only marginally related to climate change effects compared to other, natural processes and anthropogenic causes of impact and vulnerability like coastal erosion, urban sprawl, overfishing and habitat degradation. The naturally highly dynamic geomorphological and hydrological character of the coastal region is extensively described in the proposal but it's not clear how it is taken into account in the project design. The projection of the impact of climate change in the project area is highly speculative, forecasting and selecting possible rather than likely outcomes, thus severely restricting their suitability as foundation for adaptation investments. The climate change projections and impacts are presented in isolation from the other developments in the area. The proposed project activities fail to demonstrate that they will build climate change impact resilience that is relevant in the medium or long term, or that they do not constitute maladaptation. As such, the project is largely a "business-as-usual" short-	Based on IPCC and UNFCCC reports, we described why the proposed activities relate to climate change impacts. In particular, the section about "climate change impacts" was re-written to: i) list climate change impacts in Coastal West Africa based on grey literature; ii) describe why/how these impacts are due to climate change. Main impacts, listed in the proposal and by the literature, are: soil erosion, salinification (with consequences on agriculture), depletion of fisheries, and extreme events (floods, cyclones, …). Based on these new version of the section, the proposal describes in a new fief section about nature-based solutions, how there impacts of climate change can be addressed by land-management and ecosystem-based adaptation, as prescribed and promoted by IPCC and WWF documents.

		term development and environmental protection project. Further, the proposal does not address the mentioned essential dynamics that are the drivers of current as well as future vulnerabilities of the population and environment in the project areas in an impacted, highly dynamic coastal environment. It is unclear, as an example, how (as objective 2) the problem of sprawling informal settlements in vulnerable locations will be effectively addressed by providing tools for informed local policy decision-making. Overall, little added value of the regional approach is demonstrated in the proposal, as most concrete interventions' scale is local, without regional links. The regional issues mentioned all concern much larger regions than the project area. Apart from the activities on planning, aquaculture and the mangrove restoration, the other activities are country-specific without substantive significance elsewhere. **CR 1:** Please provide further details and a clear rational for how the project activities are addressing the adverse impacts of climate change, and how the regional approach provides adds value.	Thus, it is true that activities under component 3 focus on ecosystem restoration. However, it is not restoration for the sake of the ecosystem per se: "**ecosystem-based adaptation, which represents adaptation through Nature-based solutions,** can promote nature conservation while alleviating poverty and even provide co-benefits by removing greenhouse gases and protecting livelihoods (e.g. mangroves). According to WWF, the conservation of ecosystems, management and/or restoration interventions intentionally planned to deliver measurable positive climate adaptation benefits that have human development and biodiversity co-benefits managing anticipated climate risks to nature that can undermine their long-term effectiveness". Following this logic, mangrove restoration, sand-nourishment, and lagoon restoration activities are meant as a nature-based solution to adapt to coastal erosion, as well as measures to mitigate impacts from extremes (Nature-based solutions are known to provide multi-benefits). Salt-resilient crops are meant as a response to salinization, while pen cultures are meant as temporary livelihood to depletion of fishes.

			Regional approach: The regional approach is justified for the following reasons: Regional common natural threats: Ghana and Cote d'Ivoire are both recurrently affected by phenomena such as coastal erosion, sea level rise, riverine and coastal floods, increased and more violent hydrometeorological events and more severe droughts and salinization, averaging to a total costal degradation cost between 2.5 and 7.5% of countries GDP per year. Coastal erosion is a regional hazard that affects countries from Mauritania, across the Gulf of Guinea, stretching down to Cameroon over more than 6,500 km of coast. Over 50% of the West African coastline is subject to an average erosion of over 1.5 meters per year. In all countries in West Africa, the monetary cost of erosion is expected to increase considerably in the future. Caused by global warming, sea level rise is causing massive erosion, costing the region about 3.8 billion and causing 13,000 death per year. 2019 will remain for West Africa as the year of the extreme climatic crisis, as between October and November, extreme rainfall 300 percent over the average, have produced massive floods and landslides that have affected over 2.8 million people (WB,2020). It is crucial that countries in the region start learning from each other on how to adapt to these common climatic threats. Historically

			this has not been the case specially because of language barriers and lack of inter-regional coordination mechanisms. A regional proposal that promotes exchange in climate change adaptation, learning and knowledge sharing between the different countries will create a pool of technical experts, best practices and tested solutions in the areas in which each country is more advanced than its neighbors in the West African region. For example, Ghana is much more advanced in the development of curricula and technical expertise for the monitoring of coastal erosion and sea level rise, with initiatives such as the Center for Coastal Management at the University of Cape Coast. (CCM). The CCM is a current beneficiary of the USAID Capacity Development Grant for coastal management capacity development. The project will support and work with the Center for Coastal Management to expand its operations, technical expertise and promote the establishment of similar curricula and institutions in Cote d'Ivoire and eventually in other countries of the West African region, resulting in cost-effectiveness and economies of scale for the project On the other hand, Cote d'Ivoire, with the support of the West Africa Coast Areas programme (WACA) has advanced in the integration of private sector and communities in the response to climate change and coastal erosion impacts.

			Marketplace aims at linking the private sector with financial institutions and projects, as well as technical resource centers such as CCM to find and move ahead with joint solutions to address climate change and coastal erosion. Ghana will also have the opportunity to shift its current “hard infrastructure” approach towards a more ecosystem-based solution approach, based on the evidence and lessons generated by the project and the Center for Coastal Management. Regional institutional set-up: Ghana and Cote d’Ivoire governments have requested UN-Habitat and the Abidjan Convention – (Convention for Cooperation in the Protection, Management and Development of the Marine and Coastal Environment of the Atlantic Coast of the West, Central and Southern Africa Region) to strengthen the incipient regional set-up for climate change adaptation and coastal and territorial management and planning in West Africa. The project works with the Abidjan Convention as an Executing Entity of the project, to advance the additional protocol to the Abidjan Convention on Integrated Coastal Zone Management and move ahead with the efforts made by coastal states such as the 2050 Integrated Maritime Strategy developed by the African Union (AIM Strategy) and the Master Plan for Coastal Development initiated by the West African Economic and Monetary Union (WAEMU) within the framework of the 2011 Dakar

			Declaration establishing a West African Observatory for the Reduction of Coastal Risks and the Impacts of Coastal Erosion. The Abidjan Convention in its additional protocol sets the principles and objectives of integrated coastal zone management, which require further localization with initiatives such as the ongoing WACA programme and the current proposal to the Adaptation Fund by UN-Habitat to focus on climate change adaptation, the maintenance and restoration of the natural capacity of the coast to adapt to changes, minimize the effects of coastal erosion and strengthen scientific data sharing to improve knowledge of the state, development and impacts of coastal erosion at the regional scale. The regional approach will also multiply the impacts of the project and provide cost-effectiveness and economies of scale and technical synergies with regional initiatives and collaboration with partners such as WACA, CCM and the Abidjan Convention through the following activities: securing the endorsement of current and additional countries, involving additional UN Agencies, civil society, academia, donors and private sector and carrying out advocacy and knowledge sharing activities.

			Regional scaling-up in Ghana, Cote d'Ivoire and other countries in West Africa: The range of proposed solutions as well as the different characteristics of the territories and settlements selected (UNESCO site in Grand Bassam with touristic focus, medium size municipality in Jacqueville with agricultural focus, small and medium size communities in both countries, coastal districts of Ada East, Ada West and Keta with severe climate change and coastal erosion impacts in Ghana and Grand Pons region in Cote d'Ivoire with rapid urban growth and intricate lacunar systems) will provide a wealth of diverse experiences and solutions for the two countries to learn from and to scale-up similar initiatives in additional West African countries. Through lagoons, mangrove restoration, and sand nourishment, the project proposes to shift from an extremely vulnerable system, to a resilient and adaptative system (see figure 10) that builds with nature-based solutions instead of costly and high-maintenance hard infrastructure. The similarity of physical features and challenges to face, make room for a regional relevance of the pilots, that can be transferred and exported in other communities of Ghana and Cote d'Ivoire, but also in other Countries belonging to the same coastal system. The project has the potential for replication of successful solution for climate change adaptation in other coastal countries and towns in West Africa (i.e. Senegal, Guinea-

			Bissau, Guinea, Sierra Leone, Liberia, Togo, Benin and Nigeria). The above-mentioned issues provide a strong justification for adopting a regional approach instead of working in each country individually. In addition, the Abidjan Convention, which plays the role of the regional executing entity in this project, is committed to using the lessons learned to influence its current regional protocols, policies and strategies regarding climate change adaptation and integrated coastal management, and to promote similar approaches in other countries of the region Additionally, the project also adds value and benefits from a regional approach as it promotes the following aspects: • Supports a much-demanded integration and systematization of technical and institutional knowledge (Nyadzi, 2020) in relation to climate change adaptation policies, plans and interventions at the regional scale, which is the scale at which coastal erosion and sea level rise, two of the most impactful consequences of climate change, are affecting the stretch of countries from Senegal to Cameroon. • Promote and facilitate the coordination, exchange, learning, and south-to-south technical assistance

			between Ministries, local governments and additional stakeholders with the mandate of addressing climate change through project implementation mechanisms such as the Regional Project Steering Committee (RPSC) and Regional Project Supervision Unit (RPSU) and the regional convening power of the Abidjan Convention. • Promote the development of knowledge and technical materials both in English and French, having both Ghana and Cote d' Ivoire as early adopters and champions of climate change adaptation policies, plans and interventions to be shared and replicated in the other ten West African countries. • Benefit from the competitive advantages and knowledge complementarities of both Ghana (e.g. spatial planning and environmental planning) and Cote d' Ivoire (e.g. institutional integration and primary sector production) to promote south-to-south learning, collaboration and technical assistance. • Cost-effectiveness of coordinated and consulted international policies, plans, interventions and institutions. From the specific project perspective, the regional project preparation has already resulted in cost-efficiency due to existence of price reference points between Ghana and Cote d' Ivoire,

			economies of scale in recruitments and data gathering, exchange of best practices and international network connections. These cost-efficiency will continue to apply during the project implementation, execution and monitoring. • Development of common modelling results and common monitoring framework at the regional level (Ghana and Cote d' Ivoire) for climate change related impacts to be shared and adopted by additional West African countries. • Avoid negative effects of policies, plans and interventions that implemented in one country could affect neighboring countries given the transboundary character of climate change adaptation, coastal erosion and sea level rise.
	4. Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities, including gender considerations, while avoiding or mitigating negative impacts, in compliance with the Environmental and Social Policy of the Fund?	**Possibly**. The proposal does include a qualitative overview only of the anticipated benefits. However, some of the envisaged activities have the potential to lead to maladaptation by increasing stakeholders' vulnerability to the impacts of anthropogenic and climate change processes. This is e.g. the case with the activities of component 4.1 and 4.3 that are likely to augment dependence on unpolluted (fresh) water and that involve activities that are globally known to have the	

		potential to be a key driver of loss of mangrove and other coastal habitats. **CR 2:** Please clarify how the aquaculture activities of component 4 will increase the beneficiaries' resilience without creating additional vulnerabilities to the development of adverse conditions in the dynamic lagoon environments that might affect the process of semi-intensive aquaculture.	
	5. Is the project / programme cost-effective and does the regional approach support cost-effectiveness?	**Partially**. Cost effectiveness seems demonstrated for the project apart from the activities of components 3 and 4. Cost effectiveness for these activities is argued based on a qualitative comparison with selected alternative options. Most comparisons are with more expensive but irrelevant approaches to the same activity, rather than to demonstrate the cost effectiveness of e.g. aquaculture compared to other alternative livelihoods or improved fisheries management. It is not clear if, or how, low anticipated success rates are reflected in the cost-effectiveness considerations. The regional approach does not seem to have a bearing on cost-effectiveness. No valid arguments are presented to demonstrate that the cost-effectiveness of the project is supported by the regional approach.	The regional cost-effective rational is included as part of the regional approach

		CR 3: Please clarify how the project is cost-effective, in particular for components 3 and 4, and how the regional approach supports this.	
	6. Is the project / programme consistent with national or sub-national sustainable development strategies, national or sub-national development plans, poverty reduction strategies, national communications and adaptation programs of action and other relevant instruments? If applicable, it is also possible to refer to regional plans and strategies where they exist.	**Yes.** Relevant plans and strategies for both countries have been listed in the proposal and in Annex 7 with some explanation on how the project complies with those.	
	7. Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund?	**No.** Applicable national technical standards are not listed as such but may be included in the lists of policies and regulations that would apply to the project activities. There is no mentioning of food quality and safety standards - apart from a reference to a food safety law in Côte d'Ivoire - which are relevant to the aquaculture production and salt-tolerant cropping activities. The proposal states that the regional activities of the project do not need to comply with national standards and legislation. This is not in line with the ESP.	Food quality standards are relevant for aquaculture. Similarly to the case of Cote D'Ivoire, Ghana has policies addressing food quality and safety. Through consultation with local experts, we identified for Ghana the "Fishing Regulation". It was added to the list, as it provides food quality and safety standard for pen culture. We recognize that international activities need to comply with international AND national standards.

		CAR 2: Please identify for all the project activities the relevant national technical standards, including food quality and safety standards, and specify how the project will meet those.	
	8. Is there duplication of project / programme with other funding sources?	**No**. The proposal shows how duplication with other funding sources is avoided and how the project is complementary to other ongoing activities.	
	9. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?	**Yes**. The project does include a component dedicated to learning and knowledge management. However, the lack of innovation and the highly site-specific requirements mean that there is little scope for lessons learning or the generation of knowledge that would be relevant elsewhere. The envisaged activities of components 3 and 4 involve well-known techniques and were not designed with a learning or knowledge generation objective. In addition, the climate change adaptation focus is rather limited in the activities which are potentially generating knowledge. **CR 4:** Please clarify how the lessons learned from project activities will be made relevant to climate change adaptation elsewhere. The description of the activities in Annex 8 includes the generation of knowledge products such as a manual for mangrove restoration and “Portfolio of large scale	Regional scaling-up in Ghana, Cote d’Ivoire and other countries in West Africa: The range of proposed solutions as well as the different characteristics of the territories and settlements selected (UNESCO site in Grand Bassam with touristic focus, medium size municipality in Jacqueville with agricultural focus, small and medium size communities in both countries, coastal districts of Ada East, Ada West and Keta with severe climate change and coastal erosion impacts in Ghana and Grand Pons region in Cote d’Ivoire with rapid urban growth and intricate lacunar systems) will provide a wealth of diverse experiences and solutions for the two countries to learn from and to scale-up similar initiatives in additional West African countries. Through lagoons, mangrove

		effective low cost interventions appropriate for different 'common' coastal situations / scenarios that can be replicated and /or scaled-up." **CR 5:** Given the large amount of guidance and manuals available globally and regionally for mangrove restoration, please clarify the nature of the knowledge products for the activities of components 3 and 4, and how these involve new knowledge.	restoration, and sand nourishment, the project proposes to shift from an extremely vulnerable system, to a resilient and adaptative system (see figure 10) that builds with nature-based solutions instead of costly and high-maintenance hard infrastructure. The similarity of physical features and challenges to face, make room for a regional relevance of the pilots, that can be transferred and exported in other communities of Ghana and Cote d'Ivoire, but also in other Countries belonging to the same coastal system. The project has the potential for replication of successful solution for climate change adaptation in other coastal countries and towns in West Africa (i.e. Senegal, Guinea-Bissau, Guinea, Sierra Leone, Liberia, Togo, Benin and Nigeria).
	10. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations?	**Not adequately**. Consultations held since 2017 contributed to the design of the project. However, apart from participants lists, no information is provided on consultations with due considerations of gender, marginalized and vulnerable groups, ethnic minorities etc. **CR 6:** Please clarify the consultation process that was held to demonstrate that it complies with the AF funding requirements.	Charts and disaggregated data from the consultations has been presented in a systematic format with specific focus on women, youth and vulnerable population. Gender and vulnerable groups representation are important for the social inclusion and part of the project aims. Cultural and social context of the communities challenge the involvement of all minority groups.

			Although not yet in sufficient numbers, consultations have already engaged youth, women, elderly, children, and disabled persons to be represented. Women representation is higher within minor groups and their representation in the overall consultative process will increase. We recognize that consultative process need to comply with Gender Policy and Environment and Social Policy.
	11. Is the requested financing justified on the basis of full cost of adaptation reasoning?	**Unclear**. The proposal demonstrates the relevance of the proposed activities to the countries' adaptation objectives, and on their own they have the potential to contribute to achieving these objectives. However, the proposal does not demonstrate *to what extent* the adaptation outcomes will be achieved (e.g. in the case of larger lagoons, or mangroves) for specific communities. The information provided compares the proposed interventions with a baseline-scenario without intervention, rather than with the adaptation outcome that is envisaged. For most of the activities the envisaged adaptation outcome is not specified, nor its likelihood of achievement substantiated. **CR 7:** Please clarify the requested financing on the basis of full cost of adaptation reasoning.	

	12. Is the project / program aligned with AF's results framework?	**Yes**.	
	13. Has the sustainability of the project/programme outcomes been taken into account when designing the project?	**Not demonstrated**. The proposed activities are mostly one-off activities, requiring repeated and regular additional interventions for sustainability. The bulk of the requested financing involves investments in aquaculture and water engineering infrastructure for which the required resources and expertise to sustain the outcomes of the project are substantial but their availability not demonstrated. Sustainability of most of the physical interventions that require regular repeats is said to be derived from taxing, among others, the most vulnerable communities. The sustainability arguments for the aquaculture component are unproven. **CAR 3:** Please demonstrate the sustainability of the project outcomes, addressing all key areas of sustainability, including economic, social, environmental, institutional, and financial sustainability. The conceptual approach of the coastal zone used in this proposal is flawed and destined to not achieve the project goals. The inherently dynamic and ever-changing estuaries, beaches and lagoons first and foremost require adapting at any time to the dynamic environment and its services. Climate change impacts may exacerbate the challenges but equally may facilitate such	

		adaptation. Instead, the approach proposed by the project is to try to control parts of this dynamic environment and perpetuate an untenable development by investments that will all prove to be inadequate since not commensurate to the scale of the challenge and not compatible with the nature of the environmental dynamics. The proposed lagoon restoration is a good example of the flawed approach. This will entail dredging several ha of the lagoon to a certain depth and constructing a water retaining wall around the lagoon, effectively impounding the water body. This will destroy the natural environment in the lagoon, as well as the dynamics that are essential for the lagoon ecosystem. Aquaculture in cages with an open bottom (pens) in these "restored" and "rejuvenated" lagoons would then provide climate change adaptation to the stakeholders. The latter concept is equally flawed; for example, in the district of Ada East a single pen will be installed with a surface area of 200 m^2, for "2,830 direct beneficiaries". Equal to 0.07 m^2 of pen surface, to provide for each direct beneficiary and twice as many indirect beneficiaries. **CR 8:** Please clarify how the lagoon 'restoration' and aquaculture activities realistically lead to a meaningful adaptation output, address economic, social, environmental and financial sustainability.	
	14. Does the project / programme provide an	**No**. No information has been provided suggesting that environmental and social	UN-Habitat acknowledges that the missing sub-activities for a number

	overview of environmental and social impacts / risks identified, in compliance with the Environmental and Social Policy and Gender Policy of the Fund?	risks have been identified in accordance with the ESP and GP. Two thirds of the requested funding encompasses activities that are de facto Unidentified Sub-Projects (USPs). The activities of components 3 and 4 are not fully identified, to the point where major elements with significant environmental and social risks (e.g. location of dredging) have not been determined. The activities involve extensive dredging, construction at natural beaches and other large-scale water engineering infrastructure that would potentially categorize the project as a category A project. The USP modality is not acknowledged in the proposal and the required justification is not provided. The USP approach also precludes adequate risk identification at this stage, which is not reflected in the proposal. On the contrary, the proposal concludes in section II.L that "no further assessment is required for compliance, only risk management of the initially identified risks." Considering the inherent risks and the vulnerable environment and social settings in which these activities are planned, these activities need to be identified to the stage where all risks can be identified and impacts assessed prior to submission of the funding request.	of projects constitute a reason to be classified as USPs.

		CAR 4: Please update the proposal's risk and impact assessment to include only fully identified activities. **CAR 5:** Please demonstrate in the proposal comprehensive compliance with the ESP and the GP. The IE assigned an ESP category B to the project but that does not reflect the risks of the activities of components 3 and 4 as these contain USPs. **CAR 6:** Please reconsider the categorization of the project based on fully identified activities.	
	15. Does the project promote new and innovative solutions to climate change adaptation, such as new approaches, technologies and mechanisms?	**No**. None of the actions described are new, adapted or improved adaptation solutions considered innovation in line with the AF definition (AFB/B.36/8). The potential to learn from any new approaches, technologies and mechanisms is very limited due to the site-specificity of the actions. **CAR 7:** Please revise the proposal to promote new and innovative solutions to climate change adaptation.	
Resource Availability	1. Is the requested project / programme funding within the funding windows of the programme for regional projects/programmes?	**Yes.**	

	2. Are the administrative costs (Implementing Entity Management Fee and Project/ Programme Execution Costs) at or below 20 per cent of the total project/programme budget?	**Yes.** The administrative costs are below the threshold. However, since the IE will also be providing execution services, and in line with OPG 7, the administrative costs should be lower. Executing fee for the project is currently at 9.3 per cent of the total project/programme budget. In exceptional circumstances and when duly justified can an IE be allowed to provide project execution services, in compliance with AF Board decision B.18/30 and OPG Annex 7. The proposal includes letters from the DAs as follows: a. Endorsement letter for Ghana with a request for IE to provide executing services; b. Endorsement letter for Côte d'Ivoire with a statement that IE will implement Output 1.6. As rationale for requesting the IE to provide execution services the letters mentions its mandate, technical position and cost effectiveness. The request letters do not specify that the governments will maintain responsibility for these services. It is unclear if this is an exceptional request for projects submitted by this IE. **CAR 8:** Please update the proposal and budget to comply with AF Board decision B.18/30 and OPG Annex 7, reflecting the execution cost cap of 1.5% for projects where the IE also provides execution services.	Proposal has been updated and should be now compliant with AF Board decision according to consultation agreed during review meeting. For the UN to UN Agreement, UN-Habitat will transfer from its own Project Execution Costs the part correspondent to the Project Execution Costs that the Abidjan Convention (UN Environment) will execute. This means that from the total 1,195,600 USD Project Execution Costs of UN-Habitat, UN-Habitat will keep 1% and transfer 6% of the to 1,195,600 USD to the Abidjan Convention, to provide the resources to execute the project and that are not included under Component 5. In this way the PEC are kept to below 9.3% and there is no double charge of PEC, since it is only charged once by UN-Habitat and then transferred to Abidjan Convention.

		The arrangement between the IE and the Abidjan Convention as a regional EE is specified on p. 69: “For the UN to UN agreements, overheads will be passed through from the 7 percent PSC from the project cycle management fees, so there will be no double charges.” It appears that the UN executing entity is receiving an unspecified part of the Implementing Entity fee as (additional?) execution cost provisions. **CR 9:** Please clarify this arrangement and specify the use of the implementation and execution fees.	
Eligibility of IE	1. Is the project/programme submitted through an eligible Multilateral or Regional Implementing Entity that has been accredited by the Board?	**Yes**.	
Implementation Arrangements	1. Is there adequate arrangement for project / programme management at the regional and national level, including coordination arrangements within countries and among them? Has the potential to partner with national institutions, and when possible, national implementing entities (NIEs), been considered,	**Not clear.** The arrangements for project management at the regional and national level appear overall adequate. However, the implementation arrangements for the Executing Entities are not clear, in fact it is not clear who all the Executing Entities will be as a number of them are as yet unidentified, including those for components 3 and 4, which represent over 2/3rds of the total project cost. No justification is provided. **CAR 9:** Please clarify who the Executing Entities for the project in both countries will be, and provide for each EE a clear	

	and included in the management arrangements?	description of their roles and responsibilities. Where an EE has not yet been identified, please justify this and provide a description of the required functional capabilities.	
	2. Are there measures for financial and project/programme risk management?	**Partially.** The risk that the planning outcomes of components 1 and 2 may be ineffective is said to be avoided through the participatory planning process, which carries its own risks. The proposal, in fact, provides little or no information on current land ownership, land disputes, tensions between population groups etc. **CR 10:** Please clarify for both countries the risk of ineffective or inconclusive planning and how this will be addressed. One further risk consideration that is lacking from the proposal is that of sudden, possibly catastrophic developments in the highly dynamic project area that would render certain project activities inadequate or ineffective, e.g. a flood or a break in a sea wall rendering a freshwater lagoon brackish. **CR 11:** Please clarify how the project will address the risk of sudden major changes in the environment and how the project outcomes are resilient to such changes. **CR 12:** Please clarify how the involvement of private partners in the development of the proposal and their possible involvement in the implementation will not constitute a conflict of interest.	

	3. Are there measures in place for the management of for environmental and social risks, in line with the Environmental and Social Policy of the Fund? Proponents are encouraged to refer to the Guidance document for Implementing Entities on compliance with the Adaptation Fund Environmental and Social Policy, for details.	**No.** The risks identification was not carried out in compliance with the ESP and the GP. The project contains USPs, for which there are no provisions in the ESMP presented in the proposal. These two shortcomings preclude adequate management of environmental and social risks associated with the project. **CAR 10:** Please include measures for the management of environmental and social risks in compliance with the ESP and GP. **Please see CAR 2**. The grievance mechanism is briefly described in Annex 5 but does not describe the actual process. **CAR 11:** Please include an adequate grievance mechanism.	
	4. Is a budget on the Implementing Entity Management Fee use included?	**Yes.**	
	5. Is an explanation and a breakdown of the execution costs included?	**Yes.** **Please see also CAR 8**.	
	6. Is a detailed budget including budget notes included?	**No.** A detailed budget is included. The budget notes are presented in Annex 1 but the table is incomplete. **CAR 12:** Please provide complete budget notes.	Table has been completed and budget notes included – Budget notes consists of 6 ¼ pages and they are all included in the proposal.

		Please note that there are inconsistencies between the figures presented in Table 5 (p. 27) and those of the detailed budget. **CAR 13:** Please correct the figures to ensure consistency.	
	7. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex-disaggregated data, targets and indicators, in compliance with the Gender Policy of the Fund?	**Mostly yes**. Specific gender targets are provided, e.g. as 40% women beneficiaries. There is no explanation or justification provided for those specific gender targets. These targets are inconsistent with those presented in Annex 6. **CR 13:** Please clarify, explain and justify the gender targets in the proposal and how they will reflect gender equality. **CAR 14:** Please ensure consistency throughout the proposal on gender targets.	
	8. Does the M&E Framework include a break-down of how implementing entity IE fees will be utilized in the supervision of the M&E function?	**Yes.** An M&E budget is included (Table 35).	
	9. Does the project/programme's results framework align with the AF's results framework? Does it include at least one core outcome indicator from	**Not clear**. Several of the indicators and/or targets in the results framework are ambiguous. Survival/success rate of mangrove restoration has been set at 40%, and similarly a 60% fail rate is anticipated for the pen aquaculture activities. It is unclear if this	

	the Fund's results framework?	has been taken into account in the indicators and targets for these components. Similar issues are present for the aquaculture components where the indicators proposed are size-dependent. **CR 14:** Please clarify/correct the indicators and targets listed in Table 30.	
	10. Is a disbursement schedule with time-bound milestones included?	**Yes.**	

REGIONAL PROJECT/PROGRAMME PROPOSAL

PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme:	Improved Resilience of Coastal Communities in Côte d'Ivoire and Ghana.
Countries:	Côte d'Ivoire and Ghana.
Thematic Focal Area:	Disaster risk reduction and early warning systems
Type of Implementing Entity:	MIE
Implementing Entity	United Nations Human Settlements Programme
Executing Entities:	**Ghana**: LUSPA; NGO **Côte d'Ivoire**: Ministry of the Environment and Sustainable Development, Ministry of Planning and Development; NGOs
Amount of Financing Requested:	US$ 13,951,160

PROJECT BACKGROUND AND CONTEXT

I. Problem statement

Due to climate change, the West Africa region faces sea level rise, rainfall variability and increasing temperatures, which trigger several hazards, especially sea and riverine floods, coastal erosion, higher incidence of weather extremes since decades. West Africa's coastal areas host about one third of the region's population and generate 56 percent of its GDP (WB, 2019[1]), meaning that any hazard occurring along the coast affects huge -and still growing- numbers of human beings and livelihoods.

Flood events in coastal West Africa have been more severe between 2005-2015, with a total of 132 events, with more than 14 million people affected, 2,000 dead and almost 400,000 homeless. Economies were also affected as it caused US$ 830 million of economic losses (IUCN/PAC, 2016[2]). In addition to flood events (both riverine and pluvial), and sea-level rise, soil erosion and salinization are threatening food security.

Climate-related hazards in coastal zones present different temporal-aspects: immediate onset hazards, and slow onset hazards (ORRAA, 2020)[3]. Immediate onset hazards are cyclones, storms, flooding, inundations. Slow onset hazards are related to coastal erosion. The combination of hazards, exposure and vulnerability, worsen by risk multipliers (such as unsustainable development, poverty and inequality, and environmental degradation), determine climate change impacts such as salinization, ecosystems loss, ecosystems loss, increased poverty, increased inequalities, and increased food security (Figure 1 and 3). Of course, different dimensions of risk and impacts call for different adaptation strategies.

Adaptation to climate change, in general, can be built on the combination of vulnerability reduction and resilience development. While it is impossible to generalize across the varied ecologies of the West African coast, there are some common vulnerabilities that should be of particular

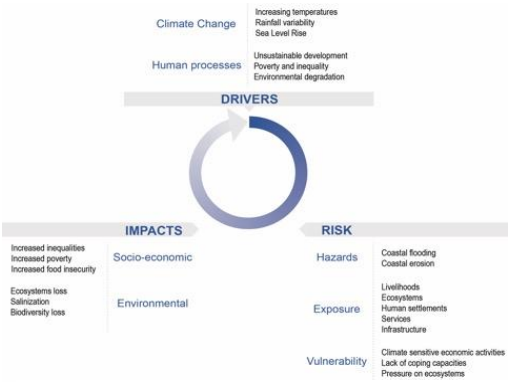

Figure 1 Climate Change drivers, risks, and impacts

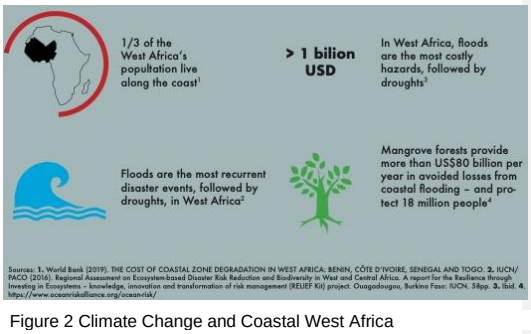

Figure 2 Climate Change and Coastal West Africa

[1] World Bank (2019). THE COST OF COASTAL ZONE DEGRADATION IN WEST AFRICA: BENIN, CÔTE D'IVOIRE, SENEGAL AND TOGO.
[2] IUCN/PACO (2016). Regional Assessment on Ecosystem-based Disaster Risk Reduction and Biodiversity in West and Central Africa. A report for the Resilience through Investing in Ecosystems – knowledge, innovation and transformation of risk management (RELIEF Kit) project. Ouagadougou, Burkina Faso: IUCN. 58pp.
[3] *ORRAA (2020). https://www.oceanriskalliance.org/about/ocean-risk/*

concern to policymakers. These include increasing coastal erosion and loss of wetlands (including mangroves and deltas), negative impacts on fisheries and croplands, and increasing risks to urban settlements areas (Badjek et al. 2014[4]).

The Governments of Ghana and Côte d'Ivoire have requested UN-Habitat to support coastal (and riverine / delta) cities and communities to better adapt to climate change. This project proposal aims at responding to this request by addressing the main challenges in these coastal zones: coastal erosion, coastal inundation, flooding and livelihoods' resilience.

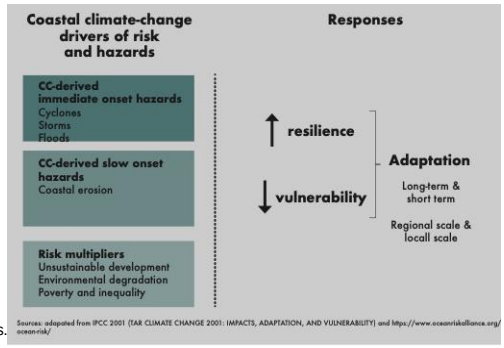

Figure 3. Coastal climate-change drivers of risk, hazards, and responses.

II. West African and national contexts

i. II.a. Regional overview

Socio-economic context

According to the World population prospects of the United Nations Department of Economic and Social Affairs, West Africa's total population is estimated at 381 million people as of 2018[5]. The region has been experiencing intensive urbanization for more than fifty years. This urbanization has affected the region's largest towns and small urban centers mostly in coastal countries. Indeed, a large percentage of West Africa's urban population lives in coastal cities. The population concentrated in coastal urban areas, could double by 2030 and double again by 2050. In Lagos only, the number of inhabitants could almost reach 90 million by 2100, making it the largest city in the world by then[6]. The 2010 UNHABITAT State of the World Cities report identified "megaregions" and "urban corridors" as new urban forms that could be "one of the most significant developments—and problems—in the way people live and economies grow in the next 50 years". The Abidjan-Lagos corridor is one of these megaregions, with a fast-growing urban population of over 30 million. Many experts[7] consider this coastal urban corridor to be the engine of West Africa's regional economy.

Economic growth disparities do exist among the countries of the region. Some countries are experiencing higher economic growth while others are expected to decline. Despite this urbanization, rural development plays a key role as agriculture is still the cornerstone of rural economies in West Africa. Agriculture accounts for 65% of employment and 35% of gross domestic product (GDP)[8]. Marine artisanal fishing is also a major contributor to this GDP. Still, poverty is higher in rural areas where most of the population, nearly 80% of the region, depends on subsistence agriculture and fishing. Nowadays, these activities are generating fewer jobs due to how badly they are impacted by climate change and unsustainable practices. This explains why rural areas are diversifying and highlights the importance of its interaction with urban settlements as growth continues. Another major socioeconomic challenge in West Africa is the high unemployment rate. After declining from 4.2% in 2010, to 3.7%in 2015, the region's average rate of unemployment shot up to 5.2% in 2018. Youth unemployment is generally much higher than adult unemployment.

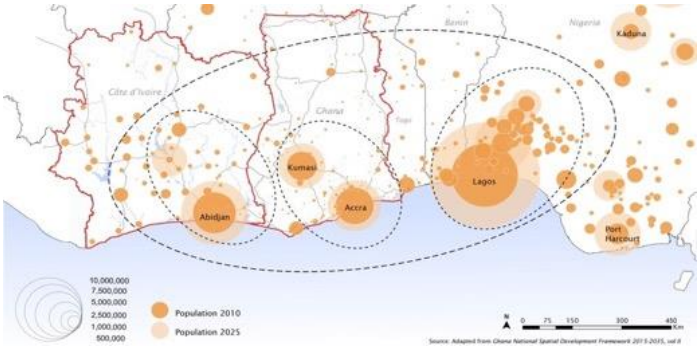

Figure 4. Abidjan-Lagos corridor mega region. UN-Habitat

[4] Badjeck, M.C., Bohn, B., and Sommerville, M. (2014) Climate Change and Water Resources in West Africa: Coastal Biophysical and Institutional Analysis. USAID.
[5] *"World Population prospects – Population division". population.un.org. United Nations Department of Economic and Social Affairs, Population Division. Retrieved November 9, 2019.*
[6] http*://www.visualcapitalist.com/animated-map-worlds-populous-cities-2100/*
[7] *https://www.uneca.org/sites/default/files/PublicationFiles/int_progr_ri_inceptionecowaseng.pdf*
[8] *West Africa Economic outlook, African Development Bank Group, 2019*

Environmental context

West Africa has a total land area of 6,140,000 km², or approximately one-fifth of Africa. The region is around 300 meters above sea level with only a few mountainous areas. The land consists of contrasting kinds of physical environment, among which we find forests, savannas, mountainous areas, flat lands, riverine areas, and sandy soil. Its coastline is also a major ecosystem accounting for over 10,000 kilometers which extend from Mauritania to Benin.

This natural environment supplies the region with a rich natural resource base including soil, forest, rangeland, freshwater, and marine resources. This produces a variety of goods and services which strongly support livelihoods of rural population. This is particularly evident in coastal areas, and even more in estuary systems and fluvio-marine connections, where these resources contribute directly to producing ecological services that are useful or even indispensable to the coastal societies.[9]

Coastal areas and deltas consist of sediments which are mainly supplied from upstream catchments by rivers This transport is very dynamic both downstream and along the coast, and it is driven by predominant flow conditions. These dynamics are essential to keep coastlines in morpho dynamic equilibrium.[10] Sediment along the West African coast is redistributed mainly by a primarily eastward longshore current, in the form of littoral drifts and less importantly, by tidal currents. In general, sediment is transported both by longshore transport (i.e. parallel to the shoreline) and onshore transport (i.e. perpendicular to the shoreline). However, the main sources of sediment to this littoral zone are from rivers and erosion of shores and cliffs. There are several coastal streams and lagoons along the coastline that deposit sediment into the marine environment, such as the Volta estuary. The conservation of this coastal environment is under stake as it is increasingly pressured by multiple threats like climate change and human activities. Impacts on natural resources and thus population well-being is compromising the long-term development of the region. These dynamics are further described in section III.a.

ii. II.b. Côte d'Ivoire

Socio-economic context

Based on the World Bank data from 2018, Côte d'Ivoire has reached a total population of around 25 million people in 2018.[11] The Ivorian coastline hosts most of the country's population and a significant part of its economy. Indeed, coastal areas host 30% of the Ivorian population and shelter nearly 80% of the country's economic activities.[12] There is a clear higher concentration in the main city, Abidjan, which exceeded 4 million inhabitants in 2010 making it the second most populous city in West Africa after Lagos.[13] Indeed, Abidjan is subject to accelerated urbanization giving it a cosmopolitan character. This exceptional demographic growth is due to strong natural growth as well as to significant immigration. The city not only welcomes migrants from other regions of the country, but also from its neighboring countries.

Ivorian nationals who accounted up to 75,8 % of the population in 2014, are divided into various ethnic, religious, and linguistic groups. The ethnic composition of Ivorian population indicates that Akans represent 38%, Gurs 21%, Mande Nord 19%, Krou 19%, Mande Sud 9%, naturalized 0.6 %, and Ivorians unspecified 0.7%. According to the World Bank's Migration and Remittances Factbook (2016), Côte d'Ivoire was one of the top ten immigration countries of middle-income countries in 2013.[14] The migrant population tends to reside in rural areas.

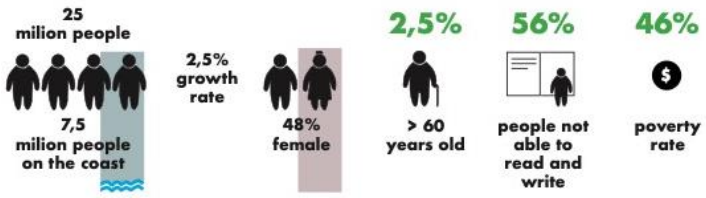

Figure 5 Côte d'Ivoire's socio-economic profile in brief. Source: World Bank Data Portal 2014.

Findings of the Living Standards Monitoring Survey carried out by the World Bank in 2015 indicate that the recent economic upturn has brought the poverty rate back down to 46 %.[15] Despite recent efforts, Côte d'Ivoire remains one of the countries with the highest gender inequality rates in the world, a high rate of 36% of youth unemployment and inequal distributions of benefits across the region with low integration of women into the economy. Poverty rate is still high with more than 45% of the population living under the poverty threshold. In addition, climate change is also challenging the sustainable and equal development of Côte d'Ivoire by impacting more directly the vulnerable groups.

[9] *West African Coastal Areas Challenges, Coastal Ecosystems Group of the Commission on Ecosystem Management, IUCN, 2014*
[10] *Human interventions and CC in West African sediment budget, 2017*
[11] *World Bank Data Portal http://www.worldbank.org/en/country/cotedivoire/overview*
[12] *World Bank Data Portal http://www.worldbank.org/en/country/cotedivoire/overview*
[13] *Comment bénéficier du dividende démographique ? La démographie au centre des trajectoires de développement dans les pays de l'UEMOA, ainsi qu'en Guinée, au Ghana, en Mauritanie et au Nigéria», l'Agence Française de Développement (AFD), 2011.*
14 *World Bank's Migration and Remittances factbook, World Bank Group, 2016*
[15] *http://www.worldbank.org/en/country/cotedivoire/overview*

Côte d'Ivoire plays a key role in the West African region as it functions as transit trade for neighbouring, landlocked countries. The country is the largest economy in the West African Economic and Monetary Union and has a relatively high income per capita with a favourable GDP growth rate since 2012 reaching 7.4% in 2018.16 Nevertheless, GDP growth has gradually declined from 10.1% in 2012, but is still estimated to remain above 7%.

The country is the fourth-largest exporter of goods, in general, in sub-Saharan Africa. Indeed, agricultural sector remains the country's prime employer and foreign exchange earner, and it is key to poverty reduction in the rural areas. Cacao farming has contributed to 15% of GDP and about 38% of exports[17]. However, the price paid for expanding cultivated areas has led to destruction of massive forests land in the country. Secondly, agriculture is not sufficiently diversified and rural households are not adequately combining agricultural and non-agricultural activities to boost their incomes. Regarding the services sector, it contributed 3.4% to growth in 2018, remaining a main driver of economy. Industry sector such as agri-food industry, construction and public works sector contributed by 1.5%. The coastline is the principal economic resource of Côte d'Ivoire. The diverse habitats that characterize the littoral constitute an ecologic asset for the country due to its economic, cultural, and touristic value. The principal activities in the coastal area include forestry, plantations, factories, tourism, and fishing.[18] The fisheries and aquaculture sector contribute about 3.2% of the agricultural GDP, its contribution to the total GDP is 0,8%, providing employment especially among vulnerable groups. With regards to food security, fish is the primary source of animal protein, and the sector produces 30% of locally consumed fish (annual consumption is estimated at 275,000 tonnes).[19]

The Ébrié Lagoon is an important socio-economic location on a countrywide scale, mostly due to Abidjan that is situated there. Abidjan is the economic capital and main port. Due to its coastal location, it represents 60% of the industrial sector employment, 80% of the industrial production, and concentrates 90% of the commercial added value of the country. Despite good economic performance, around a quarter of the working population remains unemployed. Based on estimates by the World Bank, data shows an unemployment rate of 2.4% in 2019.[20]

Environmental context

Côte d'Ivoire lies close to the equator on the Guinea Coast and has a total land area of 322,460 km2. The country is the transition zone between the humid equatorial climate and the dry tropical climate. Due to the two north-south climate zones, Côte d'Ivoire is separated into two vegetation zones: forest in the south and savannah up north. The forest covers the entire southern part of the country, but its area has decreased significantly in recent decades partly due to excessive exploitation.

Côte d'Ivoire has a rich biological diversity distributed throughout the whole territory. Various benefits derive from this, like the production of consumer goods, production of medicinal products, or socio-cultural assets, all of which have a structural role in economic development.

National Parks and Strict Nature Reserves cover 1.7 million hectares, or 6.5% of the national geographical area.[21] Côte d'Ivoire has a vast coastal ecosystem. Indeed, the country has an east-west coastline of 566km that encompasses a variety of coastal habitats including coastal lagoons, estuaries, mangroves, swamps and humid zones. The most characteristic coastal habitats are the lagoon systems separated from the sea by a littoral bar, formed and maintained by waves and currents. They combine brackish and shallow ecosystems, mangrove, and estuaries in a geographical continuum starting with freshwater conditions and ending at the shoreline.

The lagoon system is parallel to the Gulf of Guinea, it is nearly 300 km and covers a total surface area of around 1,200 km^2. It consists of three distinct lagoons: The Grand-Lahou, the Ebrié lagoon, and the Aby lagoon. These three systems communicate by artificial canals: Asagny canal links Grand-Lahou and the Ebrié Lagoon, while Assinie canal links Ebrié and Aby Lagoons. Fresh water flows into the lagoons from a series of small creeks and rivers. The Lagoon Ébrié remains the most important water source in the country as it lies adjacent to the city of Abidjan. Natural habitats and resources in the coastal area are hindered by severe degradation, pollution, overexploitation, and poor governance. Coupled with climate change, these are risking the subsistence of coastal ecosystems.

iii. IIc. Ghana

Social context

Demographic distribution presents higher concentration in Ashanti and Greater Accra regions, which account for 19.4% and 16.3% of total population, respectively. This distribution is also characterised by the relevance of the coastal belt, 560km stretch, which hosts 12 million people according to census data. This highlights how nearly half of the national population live in the coastal belt, which is considered one of the two areas most impacted by climate

[16] *African Development Bank Group Portal, https://www.afdb.org/en/countries/west-africa/cote-d'ivoire/*
[17] *Ibid*
[18] *African Development Bank Group Portal, https://www.afdb.org/en/countries/west-africa/cote-d'ivoire/*
[19] *Fisheries Committee for the West Central Gulf of Guinea - https://fcwc-fish.org/uncategorized/cote-d-ivoire*
[20] *World Bank Data Portal http://www.worldbank.org/en/country/cotedivoire/overview*
[21] *United Nations Environment Programme, Côte d'Ivoire Post-Conflict Environmental Assessment, 2015*

change.[22] Even if there is not up to date data on this metric, it is well known how this trend continues and even intensifies due to migration from other regions, as well as natural population growth.

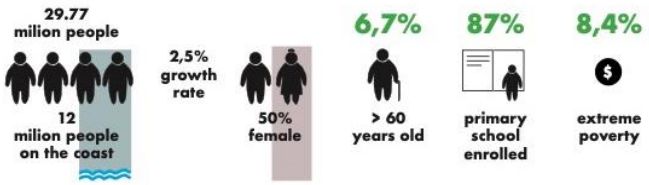

Figure 6 Ghana's socio-economic profile in brief. Source: Ghana Statistical Services. 2013. 2010 Population and Housing census; World Bank Data Portal. https://data.worldbank.org/country/ghana

Gender-wise, female-male proportion is close to 50%. Other relevant parameters defining social structure are ethnicity and immigration. Ghana nationals, who accounted up to 97.5% of the population in 2010, are divided in more than 8 ethnic groups. Interestingly, as the low percentage of immigrants shows, Ghana has gone from being a major immigration destination in the West African sub-region, to a low immigrant country.[23]

Regarding social welfare, for health services, it has been identified how Ghanaians are using them more since access has improved both geographically and financially.[24] However, indications demonstrate how inequality is still growing as benefits from economic growth and poverty reduction are not equally distributed across the territory, women and men, and different economic status.[25] This is especially significant in rural areas, since its poverty gap against urban areas has widened. As it will be discussed in section III, climate change is another source of such inequalities as its impacts perpetuate vulnerability.

Ghana has taken major steps towards economic development. As stated by the Climate Change Policy: "Ghana has moved from a Low Income to a Lower Middle-Income country (as defined by the World Bank) and is both high-growth and energy-hungry".[26] To give a sense of scale, within the ECOWAS region, its economy is the second largest,[27] and on 2011 the country was one of the six fastest growing economies in the world.[28]

Based on the latest ECOWAS Convergence Report in 2016 Ghana faced a moderate GDP growth of 3.5%. Shares of GDP are 19.1%, 24.2% and 56.5%, for primary, secondary, and tertiary sectors, respectively.[29] This distribution, as well as stronger growth reported for industry and services, demonstrate a shift from an agriculture-based economy to services oriented. Some issues behind this downward trend for the primary sector are: lack of adequate support by the removal of subsidies, post-harvest losses, rapid loss of green cover, and absence of adequate irrigation facilities.[30] Climate change also plays a key role given that higher temperatures, stronger storms, reduced rain, and sea level rise, highly impact natural resources communities rely on. Despite this, employment data shows how the primary sector is still a main provider of livelihoods, accounting for 30.4% in 2018.[31] This demonstrates the relevance traditional livelihoods still have in Ghanaian workforce structure. On this regard, latest data shows growth values of 2.5% and 5.7% for agriculture and fishing, respectively. This sector has also a structural role in terms of food security, for example fishing highly contributes to protein intake of the population and therefore is fundamental for adequate nutrition. Its demand keeps increasing, leaving a production deficit of 702,004 tonnes a year. Fish production includes marine, inland, and aquaculture processes. The latest is the fastest growing.[32] However, an important remark is how employment growth has not kept pace with economic prosperity.[33]

Environmental context

Ghana lies close to the equator on the Guinea Coast, and has a total land area of 239,460km2.[34] In terms of geography, the country is divided into several regions: Low Plains, Ashanti Uplands, the Volta Basin, and the High Plains. These Low Plains run parallel to the coastline and can also be divided into sub-regions: the Coastal Savanna, the Accra Ho-Keta Plain and the Akan Lowlands.[35] As a coastal resilience project, our proposal focuses on this Coastal Savanna sub-region.

[22] *Ministry of Environment, Science, Technology and Innovation. 2015. Third National Communication to UNFCCC.*
[23] *Ghana Statistical Services. 2013. 2010 Population and Housing census.*
[24] *The World Bank, author. 2012. A Health Sector in Transition to Universal Coverage in Ghana.*
[25] *Ministry of Gender, Children and Social Protection. 2015. Ghana National Social Protection Policy.*
[26] *Ministry of Environment, Science, Technology and Innovation. 2012. Ghana National Climate Change Policy.*
[27] *https://countryeconomy.com/countries/groups/economic-community-west-african-states*
[28] *Alagidede,Paul, Baah-Boateng, William, Nketia-Amponsah,Edward .2013The Ghanaian Economy: An Overview.*
[29] *ECOWAS. 2016. Convergence Report.*
[30] *Alagidede,Paul, Baah-Boateng, William, Nketia-Amponsah,Edward .2013The Ghanaian Economy: An Overview*
[31] *World Bank Data Portal. https://data.worldbank.org/country/ghana.*
[32] *National Development Planning Comission. 2017. Medium-Term National Development Policy Framework*
[33] *Ibid*
[34] *Ministry of Environment, Science, Technology and Innovation. 2015. Third National Communication to UNFCCC.*
[35] *USAID. 2011. Ghana climate change vulnerability and adaptation assessment.*

The Coastal Savanna zone "consists of a coastline strand of vegetation along the seashore, mangrove vegetation (mostly degraded) associated with lagoons and coastal estuaries, and inland vegetation primarily of scrub, grasses, and scattered trees with relatively poor soils".[36] This area includes the Volta Delta which has "fanned outward over time, developing sandbars and smaller rivers, and forming numerous large lagoons".[37] The resources these ecosystems provide, such as freshwater like the Volta Basin, or land-based resources like mangroves and agricultural lands, play a structural role within the national economy.[38] In addition, as the Climate Change Policy highlights: "terrestrial and aquatic ecosystems and their ecosystem services not only provide natural resources and sources of livelihood to sustain communities, but are important socially for medicinal, cultural, religious and recreational purposes".[39]

Efforts have been put to protect these ecosystems, for example there are 16 official wildlife reserves which cover around 5.3% of the national land surface. However, the country faces big challenges that threaten these environments.

iv. II.d. Institutional profile

If on one hand there is lack of alignment between national adaptation priorities within the region[40], it is positive to note that institutions to coordinate and align dialogues exist. Thus, a set of intergovernmental organizations in West Africa have been established based on ecosystem boundaries (GCLME, CCLME), historical language and monetary relationships (UEMOA), regional trade liberalization (ECOWAS), and specific environmental challenges that expand beyond the region alone (Abidjan Convention). These institutions can play the crucial role of hubs for regional coordination and collaboration on coastal management, by creating dialogues, setting priorities, coordinating polices and coordination, and common action[41].

In particular, the Abidjan Convention (The Convention on Cooperation in the Protection, Management and Development of the Marine and Coastal Environment of the Atlantic Coast of the West, Central and Southern Africa Region) covers a geographic area comprises of 22 countries, 19 of which have already ratified it. It was ratified in 1984. The Abidjan Convention is engaged in coordinating coastal policy and information across West Africa. It constitutes a unique institutional referential framework for all initiatives linked to the protection and conservation of the marine and coastal environment along Africa`s Atlantic seaboard, and to the sustainable development of the area`s resources. With the support of UNEP and in coordination with the GCLME, each member of the convention developed a National State of the Coast Report.[41]

A focus on *Cote d'Ivoire and Ghana*. Coastal and marine issues are priorities within the climate change considerations across West African countries. Yet, despite the prioritization of coastal issues across West African countries, only six of the countries (the Gambia, Guinea, Guinea-Bissau, Nigeria, and Senegal) had begun undertaking adaptation actions[42]. Among national priorities presented by Cote d'Ivoire and Ghana for adaptation to climate change, "agriculture" and "freshwater" are in common, while "Coastal protection" is present among Ghana's priorities but not by Cote d'Ivoire. Similarly. "health" is one of the adaptation-priorities presented by the national strategy for Cote d'Ivoire, but not for Ghana. Given the highly transboundary nature of drivers and risks, as well as the similarity of structural vulnerabilities, lack of alignment in term of priority and actions needs to be addressed.

III. Climate change: drivers, impacts and vulnerabilities

III.a. Coastal processes and flooding: regional dynamics

The coastal stretch of Ghana and Côte d'Ivoire belongs to the coastal system that runs from Côte d'Ivoire to Benin, with a total length of about 1300 km (see figure 7). The coastal system is characterized by a fast west to east longs shore sediment transport with a capacity up to 1.5 Mm^3/ year[43]. The coastal morphology of both target countries is characterized by a sandy barrier and beach, which protects a system of freshwater/ brackish lagoons, low-lying planes and estuaries.

[36] *Ibid*
[37] *Ibid.*
[38] *Ministry of Environment, Science, Technology, and Innovation. 2015. Third National Communication to UNFCCC.*
[39] *Ministry of Environment, Science, Technology, and Innovation. 2013. Ghana National Climate Change Policy.*

[40] USAID 2014, Coastal Biophysical and Institutional Analysis

[41] *Ibid.*

[42] USAID 2014, Coastal Biophysical and Institutional Analysis

[43] *Giardino, A. et al., A quantitative assessment of human interventions and climate change on the West African sediment budget, Ocean and Coastal Management (2017),* https://doi.org/10.1016/j.ocecoaman.2017.11.008

The abundance of sandy barriers and coastal lagoons along the coast of Ghana and Côte d'Ivoire indicate morphodynamic behaviour typical for an ebb tidal delta system. This is characterized by cyclic patterns of erosion and accretion at the coast. This cyclic event is called a morphological cycle and can span decades.

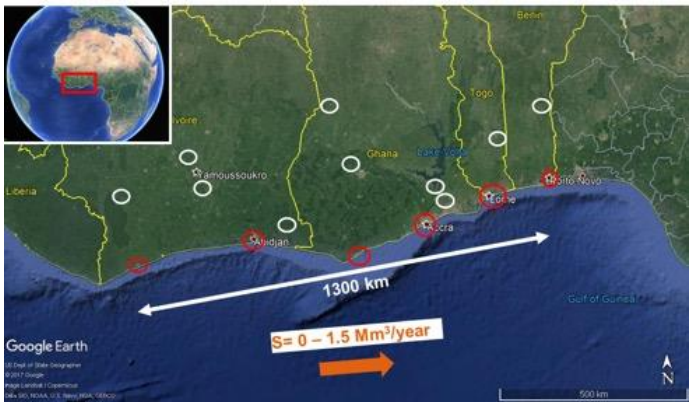

Figure 7 Coastal stretch Côte d'Ivoire to Benin.

Both in Ghana and Côte d'Ivoire communities are built on the coastal barriers, or just land inwards at the banks of the lagoons/ low lying plains. A characteristic coastal habitat found here are the lagoon systems separated from the sea by a littoral bar. These lagoons serve as natural water storage facilities and form a buffer for both excessive rainfall and wave overtopping. During the monsoon season between May and July, and exacerbated by climate change during the last decades, rainfall increases causing rivers to overtop their banks and strong winds cause extremely high waves often overtopping the beaches and sandy barrier along the coast. This leads to flooding and has already led to major damage to assets, houses and infrastructure, and critical ecosystems such as beaches and mangroves as well as many farmlands have been devastated. Of course, because of climate change, which triggers sea-level rise and more extreme rain events, floods are getting more frequent and severe.

Coastal erosion, mainly a natural phenomenon exacerbated by climate change through increased sea-level rise, accelerated by anthropogenic action and unplanned urbanization, also increased flooding from high waves overtopping the sandy barriers and beaches along the coasts. In many places the loss or degradation of mangroves that normally serve as a natural barrier between sea and land, are a major cause for increased erosion and subsequent flooding inland and underground salt-water intrusion. Overtopping water coming in from both rivers and the sea, is not able to drain sufficiently into the lagoons/ flood plains at the hinterland. These lagoons have been affected by conversion for agriculture and saltpans, pollution and upstream dams and have consequently become very shallow. Due to the large amount of water coming in from heavy rains and high waves the lagoons are rapidly filled to their full capacity causing flooding of surrounding areas.

Based on the models developed by IPCC experts, the following changes are expected in the West Africa sub-region: **temperature rise from 3°C to 6°C** by the end of the century or even earlier as shown by a few scenarios; **reduced (from 20 to 35%) and irregular rainfall**, and possibly a delay in the beginning of the rainy season; a **higher frequency of extreme weather events (heat waves, rainstorms, violent wind**s); **sea-level rise between 40 to 80 cm**, which is likely to be higher locally depending on the significance of the tide, the strength of the wind or ocean swells triggered by **storms** off the coast. West Africa is generally regarded as area particularly sensitive to climate change[44].

IIIb. Impacts of climate change

In addition to direct effects of climate change, such as higher frequencies of **extreme events**, and **sea-level rise**, most important consequences of climate change in Coastal West Africa include: **sanilisation, which will affect agriculture** and the quality of potable water along the coastline; reduced flow and drying up of rivers, leading to a shortage of freshwaters and potential conflicting interests; **flooding in the coastal environment**. C**oastal erosion**, whose effects are already perceptible, and ocean acidification. The development of a synergy between water temperature and ocean acidification may have an effect on a number of biological processes. Ocean warming, a reality already measurable at 2,000 metres deep, causes **tropical species to migrate** to more temperate latitudes (i.e. northward from our sub-region) or to deeper and colder waters. The sea-level rise will affect coastal environments. In the face of this development, failure for the mangrove to move gradually upstream owing to a lack of

[44] *http://www.prcmarine.org/en/climate-change-west-africa-coastline*

space or the construction of coastal infrastructures will be synonymous with its extinction. **This in turn will negatively impact the reproduction of fisheries** (fishes, shrimps and oysters), wildlife (birds and manatees), carbon storage capacities and the coastline[45].

To summarize, main climate change impacts in coastal west Africa, can be listed as such:

i) **Weather extremes.** Severe floods are challenging communities of coastal West Africa and disrupting the ecosystems. The lagoon system is becoming more prone to flooding putting villages at risk and bringing serious environmental sanitation challenges. Extremes, such as coastal and riverine floods, cyclones and storms are becoming more frequent and more severe.

~~i)~~ii) **Rising sea level and coastal erosion.** Sea level rise, as mentioned above, presents significant regional variability in sea-level trends around Africa. There is wide agreement around the idea that coastal erosion is expected to increase dramatically by sea level rise and, in some areas, in combination with increasing intensity of cyclones (IPCC, 2019[46]). 56% of the coastlines in Benin, Côte d'Ivoire, Senegal and Togo are eroding and this is expected to worsen in the future. Sea level rise is currently not the dominant contributor but is expected to combine with other factors in future to exacerbate the negative consequences of environmental changes (UNFCCC, 2020[47]). Coastal wetlands around the world are sensitive to sea level rise. Projections of the impacts on global coastlines are inconclusive, with some projections suggesting that 20% to 90% (depending on sea level rise scenario) of present day wetlands will disappear during the 21st century. In sum, from a land degradation point of view, low-lying coastal areas are particularly exposed to the nexus of climate change and increasing concentration of people (IPCC, 2019[48]).

iii) **Salinization and salt-water intrusion**. Current environmental changes, including climate change, have caused sea levels to rise worldwide, particularly in tropical and subtropical regions (IPCC, 2019[49]). Combined with scarcity of water in river channels, such rises have been instrumental in the intrusion of highly saline seawater inland, posing a threat to coastal areas and an emerging challenge to land managers and policymakers. Seawater intrusion is generally caused by (i) increased tidal activity, storm surges, cyclones and sea storms due to changing climate, (ii) heavy groundwater extraction or land-use changes as a result of changes in precipitation, and droughts/floods, (iii) coastal erosion as a result of destruction of mangrove forests and wetlands, (iv) construction of vast irrigation canals and drainage networks leading to low river discharge in the deltaic region; and (v) sea level rise contaminating nearby freshwater aquifers as a result of subsurface intrusion (IPCC, 2019[50]). Such degradation takes the form of high soil salinity, triggering agricultural activities and food security.

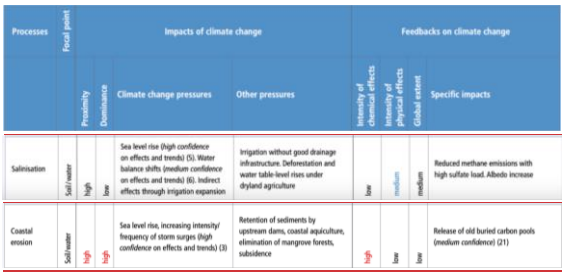

Figure xx: examples of impacts of climate change. Source: IPCC 2019[51]

~~ii)~~iv) **Depletion of fisheries.** As mentioned in the sections above, the primary sector is still highly relevant in the region, as well as in Ghana and Cote d'Ivoire. Primary sector is still a main provider of livelihoods in Ghana, accounting for 30.4% of jobs in 2018.[36] On this regard, latest data shows growth values of 2.5% and 5.7% for agriculture and fishing, respectively. This sector has also a structural role in terms of food security, for example fishing highly contributes to protein intake of the population and therefore is fundamental for adequate nutrition. Its demand keeps increasing, leaving a production deficit of 702,004

[45] http://www.prcmarine.org/en/climate-change-west-africa-coastline
[46] IPCC 2019, Special report on climate change and land***Change and Land***
[47] UNFCCC, 2020. Climate Change Is an Increasing Threat to Africa. https://unfccc.int/news/climate-change-is-an-increasing-threat-to-africa
[48] IPCC 2019, Special report on climate change and land***Change***
[49] IPCC 2019, Special report on climate change and land***Change***
[50] IPCC 2019, Special report on climate change and land***Change***
[51] IPCC 2019, Special report on climate change and land***Change***

tonnes a year. For Cote d'Ivoire, the principal activities in the coastal area include forestry, plantations, factories, tourism, and fishing.[17] The fisheries and aquaculture sector contribute about 3.2% of the agricultural GDP, providing employment specially among vulnerable groups. With regards to food security, fish is the primary source of animal protein, and the sector produces 30% of locally consumed fish (annual consumption is estimated at 275,000 tones). For these reasons, climate change impact on fishery is of primary interest. **Fisheries play significant social and nutritional roles**. The sector contributes to food and nutrition security, and provides jobs, in particular for coastal populations, which are often among the poorest and most vulnerable. On average globally, fish and fish products account for 18% of animal protein intake. Due to the growing population and per capita income, demand for fish is expected to increase 30% by 2030 in sub-saharian Africa. **Climate change challenges fisheries with rising sea temperatures**, harsher weather conditions for fishers, **migration of fish to cooler waters away from the equator and shrinking fish size**. (World Bank, 2020[52]). Fishing communities in West Africa were able to cope with such changes, for example by switching to alternative livelihoods and through geographical mobility. In many cases, this was sufficient to avoid immediate larger economic losses. The expected rate of change is more rapid, and most fisheries are already under stress. Additionally, fishermen may not be able to use their adaptive strategies. A recent study by Cheung et al. (2010) gave a useful prediction on how temperature increases from climate change may lead to large scale redistribution of global catch potential. The study found that there will be an average of 30-70% increases in catch in high latitude (temperate) regions and a fall of up to 40% in the tropics (Kitikiro and Macusi, 2012)[53]. To aggravate such impacts, **overfishing worsen and accelerates depletion of fish**.Currently, fisheries and aquaculture directly contribute $24 billion to the sub-saharan African economy, representing 1.3% of the total African GDP in 2011. The sector provides employment to over 12 million people (58% in the fishing and 42% in the processing sector). While fishing jobs are almost entirely taken by men, 59% of the processing work is done by women. Employment multiplier effects are remarkable: onshore-job and further job creation through value chain development.(World Bank, 2020).

~~While **projections** vary across models depending on assumptions, most predict the following:~~

~~Temperatures: An overall continued warming trend throughout the region, with an average temperature increase of up to 0.5° C per decade. Temperatures in Africa are projected to rise faster than the global average.~~

~~Rainfall: An overall decline in precipitation across the region of 0.5-40 % by 2025, with an average decrease of 10-20 %.~~

~~Sea level rise: By 2100 average sea levels are projected to rise 0.26–0.63 meters in low-emissions scenarios and 0.33–0.82 meters in high-emission scenarios[54] .Sea-level rise will not be uniform across regions. Sea levels along the West African coast are expected to rise faster than the global average leading to an increase in the frequency of storm surges and their potential submersion (UEMOA 2010), as well as the exacerbation of coastal erosion and underground salt-water intrusion.~~

~~The above climate change trends highly **impact** coastal environments. In summary, climate change, because of the extreme rain events and sea-level rise, is increasing frequency and severity of coastal and riverine floods in the coastal area of West Africa. On the other hand, natural dynamics, such as erosion, are being also accelerated by anthropogenic action. Erosion, together with land-use change linked to demographic growth and uncontrolled urbanization and economic development, are lowering the capacity of the coastal system to cope with hazards. The increase of frequency and severity of hazards, summed to the decreasing resilience of natural systems, are increasing at enormous speed, the vulnerability of people living along the coast and, the amount of these people, keeps also increasing.~~

~~*III.b. Climate change projections and major impacts in Cote d'Ivoire*~~

~~Côte d'Ivoire's climate change trends, projections, and impacts are generally in line with those for West Africa. According to Côte d'Ivoire's Nationally Determined Contributions (INDCs) and the 3rd National communication submitted to UNFCCC in December 2017; the country's climate scenarios include:~~

~~Temperature: scenario shows that temperature will rise of 3 ° C by 2100 over most of the country from north to south.~~

~~Rainfall: an overall decline in precipitation across the region is expected, however a higher intensity of extreme events such as storms and winds.~~

~~Seal level rise: projection of sea level rise is estimated to a 30 cm rise along the Ivorian coast by 2100, flooding would increase drastically causing deadly and destructive floods and forced relocation of many households and economic activities.~~

[52] *https://www.worldbank.org/en/programs/africa-program-for-fisheries#1*

[53] Katikiro, R. E., & Macusi, E. D. (2012). Impacts of climate change on West African fisheries and its implications on food production. *Journal of Environmental Science and management*, *15*(2).

[54] *~~Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)~~*

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Climate change trends will translate into extreme events more frequent and more intense. Becoming a main driver of major **impacts** and various natural hazards such as floods, erosion, landslides, and submersion of water. As per the Climate and Disaster Risk Screening Report,[55] the coastal area is the most vulnerable area to climate change, more precisely to sea level rise leading to major flooding and coastal erosion.

Regarding social structure in Côte d'Ivoire, climate change is ***emphasizing the inequalities and discriminations*** *against women. Indeed, women are subjected to discriminatory practices that keep them in a vulnerable situation. Women hold only 18% of agricultural lands and 75% of rural women are living below the poverty line.*[56] *Furthermore, agricultural land and main livelihoods are being highly compromised leading to income loss and food insecurity.*

On another hand, **poverty and economy loss** is also being an important impact, due to the loss of key assets of the coastal areas. Indeed, climate change has a "potential impact on leading industrial facilities and infrastructure such as Abidjan International Airport, the ports of Abidjan and San Pedro, coastal roads, industrial plantations as well as major hotel facilities in Abidjan and San-Pedro"[57]. In addition, polluted lagoons are becoming unhealthy environments for fishing. It is predicted that climate change will reduce fish catches by 56% in Cote d Ivoire.[58] "Sea levels could rise up to 1.2 meters in Grand Bassam and Abidjan areas. There will be more flooded areas, leading in turn to heavy loss of life and the forced relocation of numerous families and economic activities. Climate change could drop 2 to 6% more households into extreme poverty by 2030" and reduce the GDP by 2 to 4% by 2040".[59] Abidjan, the Capital City, is one of the top 20 cities where the most people will be at the greatest risk from sea level rise and storm surges in the developing world with expectation to continuous increase.

Main impacts of climate change and human driven processes in the coastal areas of Côte d'Ivoire are strongly related to ***ecosystems disruption and biodiversity loss*** *and are becoming increasingly apparent in the region. Given how coastal communities highly depends on their natural environment, awareness and preparation are a big priority. Sea level rise is increasing flooding in swamps, villages, mangroves, and other vegetated lands. Other impacts generated by this phenomenon, are the increase of* ***salinity*** *in estuaries and aquifers. Coastal erosion is also threatening the remaining mangroves and destabilizing the coastal zone. Indeed, it contributes to* ***shoreline retreat*** *by diminishing the amount of fluvial sediment input to the coastline.*

Natural factors combined with human interventions such as extraction of sea sand, deforestation for firewood, constructions of artificial structures, are disrupting the ecological system and pressuring on natural resources. Climate change poses a serious threat to the coastline of Côte d'Ivoire. Inhabitants and ecosystems are constantly exposed to natural hazards impacting on their livelihoods, economy, and heritage land.

III.c. Climate change projections and major impacts in Ghana

The country is in a complex climatic region, impacted by tropical storms and by the Sahel and the Atlantic Ocean. Its climate is tropical, and it is highly influenced by monsoon winds from the region. Climate projections from the 3rd National Communication to UNFCCC and the National Climate Change Policy, are presented bellow:

Temperature: weather in Ghana will continue getting warmer. Estimations for 2060 and 2090 define a mean temperature increase of 1 to 3 °C and of 1.5 to 5.2 °C, respectively. This will be more severe in the northern areas than along the coast.

Rainfall: expected changes in rainfall patterns will result not only in lower levels of precipitation, but also in higher frequency and intensity of extreme events, such as storms.

Sea Level Rise: scenarios with respect to 1999 mean sea level rise, predict an average increase of 16.5cm and 34.5cm by 2050 and 2080, respectively. This rise also brings stronger and more frequent storm surges and coastal erosion, as well as an increase in waves' heights. Studies estimate that about 50% of the coastline is vulnerable to sea level rise.[60]

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[55] *This is the output report from applying the World Bank Group's Climate and Disaster Risk Screening National Level Tool(Global website:climatescreeningtools.worldbank.org; World Bank users: wbclimatescreeningtools.worldbank.org). The findings, interpretations, and conclusions expressed from applying this tool are those of the individual that applied the tool and should be in no way attributed to the World Bank, to its affiliated institutions, to the Executive Directors of The World Bank or the governments they represent. The World Bank does not guarantee the accuracy of the information included in the screening and this associated output report and accepts no liability for any consequence of its use.*

[56] *Being a Women in Côte d'Ivoire: Empowerment Challenges. World Bank, 2013*

[57] *ibid.*

[58] *"Pour que demain ne meure jamais ; la Côte d'Ivoire face au changement climatique", Groupe Banque Mondiale, 2018*

[59] *Ibid.*

[60] *Boateng, Isaac.Jayson-Quashigah, Philip. 2016.Mapping Vulnerability and Risk of Ghana's Coastline to Sea Level Rise.*

This general warming, the changing rainfall patterns, and increase in sea levels, are greatly affecting Ghana. In the coastal savanna zone major **impacts** and deriving in coastal flooding, coastal erosion, torrential rains, and extreme events like storms.

The social dimension refers to the social structures and processes of the local communities. In terms of social structure, vulnerable groups are unequally affected. Pre-existing **inequalities and discriminatory practices are being exacerbated**. Migrants also face similar challenges, being hardly involved in development activities while increasing demand over the existing resources.[61]

Increased poverty is another major impact. On the one hand, this is very much linked to how livelihoods are being compromised. Inadequate irrigable lands, destroyed agricultural fields, inadequate adaptive strategies, and reduction in productivity, are some of the main challenges.[62] This is also connected to both reduction in water availability and food security, **meaning malnutrition and famine** are of great concern. On the other hand, poverty also relates to a reduced coping capacity of the communities as they lose key assets such as housing, basic services, and road infrastructure. For example, floods in June 2010 had 24 casualties, more than 1,000 homes destroyed, and 5,000 people evacuated.

Coastal flooding and erosion are damaging crops, decreasing fresh water, and polluting lagoons. The fishing sector is specially affected, with increasing variability in fish stocks and reduction in catch rates due to higher water temperatures. Fishing communities are losing their only mean of livelihood while already being one of the most vulnerable groups.[63] Estimates of the cost of environmental degradation in 2006, suggest that 10% of the Gross Domestic Product is lost annually from unsustainable management of the country's forests, land resources, wildlife and fisheries, and health costs related to water supply and sanitation.[64]

Ecosystems loss is a major impact of climate change and human driven processes in the coastal areas in Ghana. This is very critical not only for the damage this brings to the natural environment, but also for the loss of ecosystem services. Under socio-economic impacts, discussion has evolved around how provisioning services have been affected, such as food and resources supply. This has proven paramount given the high level of dependency coastal communities have on their natural ecosystems. However, other key components equally impacted are regulating services.

Other two main impacts are **salinization** and **biodiversity loss**. Soil salinization is the process that leads to an excessive increase of water-soluble salts in the soil. In this context due to sea water intrusion from coastal flooding and erosion, causing loss of soil fertility and freshwater availability. Biodiversity loss in coastal areas has manifested in the reduction of mangroves, migratory birds, and marine turtles. This damages natural dynamics between species and reduces its potential as natural heritage and eco-tourism sites, which could become a new source of income for the communities.

III.cd. Risk multipliers and key issues to be addressed

> *Pollution and environmental degradation. Ecosystems' deterioration can influence frequency and intensity of hazards, as well as exposure and vulnerability of communities. At the same time, hazards can also harm the natural environment. We can therefore consider environmental degradation both a driver and a consequence of disasters.*

Management of coastal ecosystems in Ghana is considered weak. However, there is clear acknowledgement of its role: "with the increasing threat of weather-related hazards, the destruction of natural buffer systems such as coastal wetlands, mangroves and forests will also increase the vulnerability of communities to storms or flooding events. The conservation and restoration of these natural systems is therefore also essential for ecosystem protective services".[65] Main challenges in the coastal areas related to environmental degradation are: highly polluted lagoons, deforestation, draining of wetlands, pollution of rivers, and poor agricultural practices.[66]

Unplanned urbanization, land-use change and unsustainable development. Human settlements and infrastructure development have a structural role in enhancing and maintaining natural environment dynamics. This is paramount not only for sustainable coexistence, but also for better profiting from ecosystems' services. Regulating services are of most relevance on this regard, given that when they are lost, environment dynamics may change to the point of exacerbating natural hazards.
Along the West African coast several ports have been built, such as Tema port in Ghana and the Autonomous port of Abidjan in Côte d'Ivoire. Similar processes happen with river dams, which block sediments from upstream, altering the formation of depositional features like river deltas, alluvial fans, braided rivers, and beaches. Regarding human

[61] *Ministry of Environment, Science, Technology, and Innovation. 2013. Ghana National Climate Change Policy.*
[62] *Ministry of Environment, Science, Technology, and Innovation. 2015. Third National Communication to UNFCCC.*
[63] *Ministry of Environment, Science, Technology, and Innovation. 2015. Third National Communication to UNFCCC.*
[64] *Ministry of Environment, Science, Technology, and Innovation. 2013. Ghana National Climate Change Policy.*
[65] *National Development Planning Commission. 2017. Medium-Term National Development Policy Framework*
[66] *Ibid.*

settlements, land use changes and unplanned growth in coastal areas are damaging ecosystems. In fact, part of the development potential linked to coastal ecosystem services may be compromised as they deteriorate. In general, this is due to spatial planning practice lagging behind on-going growth, which results in hazard prone settlements, encroachment of natural assets, and pollution. For example, settlements on the coast are often located on lagoons' edges which usually alters water flow dynamics, generates deforestation, and pollutes the lagoons.

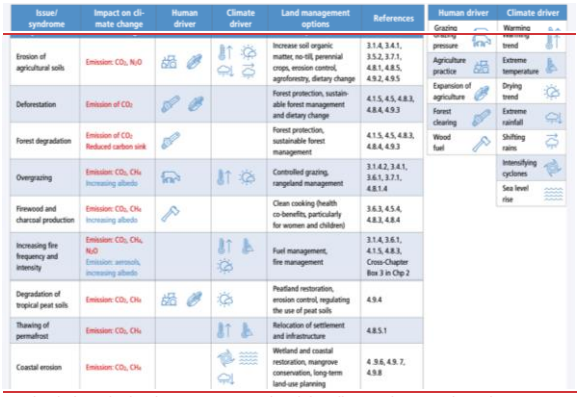
Poverty and inequality. Poverty is both a driver and a consequence of disasters, as described by UNDRR: "Socio-economic inequality is likely to continue to increase and with it disaster risk for those countries, communities, households and businesses that have only limited opportunities to manage their risks and strengthen their resilience".[67] *This inequality perpetuates as impoverished people are more likely to be settled in hazard-prone areas, having less services, and less coping mechanisms. In general, research has shown how the poor are the most vulnerable to disasters and climate change. Poverty needs to be understood as multi-dimensional. It includes not only economic poverty, but also exclusion, illiteracy, discrimination, and limited opportunities. On the one hand, when these components pre-exist, communities are less likely to have sustainable means of living, which makes them more exposed and vulnerable, leading to more hazards and risks. On the other hand, once impacted by a hazard these communities suffer great loss and have very little capacity to adjust. Higher mortality, livelihoods loss, and damage of housing, services, and infrastructure increase the inequality gap.*

Governance and institutional set-up. Given the trans-national boundaries of both natural systems, and hazards occurring, existing institutions will need to work in collaboration across national boundaries to share knowledge and experience. The relationships between institutions that generate information and those that influence policy and its implementation are of particular importance[68]*. At the national level, climate change is typically assigned to the environment ministry, which can struggle to influence the wide range of sectors with coastal interests.*

*iii.*d. nature-based solutions for adaptation

Nature-based Solutions enhance and work with natural habitats to help people adapt to the effects of change and disasters. More precisely, **ecosystem-based adaptation, which represents adaptation though Nature-based solutions,** canpromote nature conservation while alleviating poverty and even provide co-benefits by removing greenhouse gases and protecting livelihoods (e.g. mangroves)[69]. According to WWF[70], the conservation of ecosystems, management and/or restoration interventions intentionally planned to deliver measurable positive climate adaptation benefits that have human development and biodiversity co-benefits managing anticipated climate risks to nature that can undermine their long-term effectiveness. Despite their importance, coastal wetlands are listed amongst the most heavily damaged of natural ecosystems worldwide. Tropical cyclones, floods, coastal erosion, and other climate change impacts affect coastal regions, threatening maintenance of the associated ecosystems, mangroves, wetlands, seagrasses, and so on. These areas not only provide food, water and shelter for fish, birds and other wildlife, but also provide important ecosystem services such as water-quality improvement, flood abatement and carbon sequestration (Meng et al. 2017). Coastal restoration and preservation (such as lagoon restorations, sand nourishments activities, …) is an extremely cost-effective strategy for society, for example, the preservation of coastal wetlands in the USA provides storm protection services, with a cost of 23.2 billion USD yr (IPCC, 2019[71]).

[67] *Prevention Web: https://www.preventionweb.net/risk/poverty-inequality*
[68] *Badjeck, M.C., Bohn, B., and Sommerville, M. (2014) Climate Change and Water Resources in West Africa: Coastal Biophysical and Institutional Analysis. USAID.*
[69] *IPCC 2019, Climate Change and Land*
[70] *WWF, 2020. Nature based solutions for climate change*
[71] *IPCC 2019, Climate Change and Land*



Issue/ syndrome	Impact on climate change	Human driver	Climate driver	Land management options	References
Erosion of agricultural soils	Emission: CO_2, N_2O			Increase soil organic matter, no-till, perennial crops, erosion control, agroforestry, dietary change	3.1.4, 3.4.1, 3.5.2, 3.7.1, 4.8.1, 4.8.5, 4.9.2, 4.9.5
Deforestation	Emission of CO_2			Forest protection, sustainable forest management and dietary change	4.1.5, 4.5, 4.8.3, 4.8.4, 4.9.3
Forest degradation	Emission of CO_2; Reduced carbon sink			Forest protection, sustainable forest management	4.1.5, 4.5, 4.8.3, 4.8.4, 4.9.3
Overgrazing	Emission: CO_2, CH_4; Increasing albedo			Controlled grazing, rangeland management	3.1.4.2, 3.4.1, 3.6.1, 3.7.1, 4.8.1.4
Firewood and charcoal production	Emission: CO_2, CH_4; Increasing albedo			Clean cooking (health co-benefits, particularly for women and children)	3.6.3, 4.5.4, 4.8.3, 4.8.4
Increasing fire frequency and intensity	Emission: CO_2, CH_4, N_2O; Emission: aerosols, increasing albedo			Fuel management, fire management	3.1.4, 3.6.1, 4.1.5, 4.8.3, Cross-Chapter Box 3 in Chp 2
Degradation of tropical peat soils	Emission: CO_2, CH_4			Peatland restoration, erosion control, regulating the use of peat soils	4.9.4
Thawing of permafrost	Emission: CO_2, CH_4			Relocation of settlement and infrastructure	4.8.5.1
Coastal erosion	Emission: CO_2, CH_4			Wetland and coastal restoration, mangrove conservation, long-term land-use planning	4.9.6, 4.9.7, 4.9.8

Human driver	Climate driver
Grazing pressure	Warming trend
Agriculture practice	Extreme temperature
Expansion of agriculture	Drying trend
Forest clearing	Extreme rainfall
Wood fuel	Shifting rains
	Intensifying cyclones
	Sea level rise

Figure xx: examples of nature-based solutions (or land managemtn options) for climate change adaptation. Source: IPCC 2019[72]

IV. Project approach, goal and objectives

Cities and communities in coastal West Africa urgently need to adapt to climate change through **protection of their coastline** and infrastructures, through **creating alternative livelihoods** in the inland and promoting a climate change resilient **urban development path**. This can be done by using a combination of **climate change sensitive spatial planning** strategies and innovative **ecosystem-based solutions** to protect land, people and assets, by implementing nature-based solutions and 'living shorelines'.

Overall goal of this project **is to improve adaptation to climate-change risks in the coastal areas of the region.** The objective is pursued **through an adaptation pathway** designed to increase resilience and decrease vulnerability. Thus, a variety of pressures, defining a state of things and triggering a set if impacts need to be addressed. The complexity of the challenges calls for a **diversified approach in term of spatial scale (from regional to local), and temporal scale** (from short-term resilience-building responses, to long-term adaptation responses).

In alignment with the AF results framework, in particular **Outcome 2** (Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses), **Outcome 3** (Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level) and, **Outcome 5** (Increased ecosystem resilience in response to climate change and variability- induced stress), Outcome 6 (Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas), Outcome 7 (Improved policies and regulations that promote and enforce resilience measures) and Outcome 8 (Support the development and diffusion of innovative adaptation practices, tools and technologies) the project has four objectives, namely:

- **Objective 1: Support long-term spatial planning** to develop capacities and establish conditions to adapt to the adverse effects of climate change at national level and in vulnerable cities of Ghana and Cote d'Ivoire
- **Objective 2: Capacity Building** to strengthen this knowledge both for governmental institutions and communities, providing the tools for a more informed policy decision-making, and more resilient local practices.
- **Objective 3: Concrete adaptation interventions** to prepare, implement and sustainable manage priority sub-projects at the local level
- **Objective 4: Partnership building** to promote inter-country experience sharing and cross-fertilisation regarding the adaptation to transboundary climate-related natural hazards and disseminate lessons learned for progressively building urban climate resilience in coast West Africa.

Objective 1, support to long-term spatial planning, offers one of the most widely acknowledged routes into the development of proactive long-term adaptation responses. Since the adaptative capacity of the territory depends on land management systems, mainstreaming climate change adaptation considerations into current territorial development has to be a central strategy for dealing with climate change. Spatial planning has a significant potential for adaptation response since it is multi-scalar, long-term, influences territorial systems and urban form and provides a forum for stakeholder engagement. These characteristics make it a tool to address the adverse impacts of climate change at different scales and in an intersectoral manner: through long-term spatial planning at sub-national scale the project has the objective of providing a comprehensive vision and strategy to the coastal areas through which to integrate coastal resilience into development plans. In addition, this will facilitate coordination and coherence between short-

[72] *IPCC 2019, Climate Change and Land*

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medium term plans and investments, orienting them towards the implementation of concrete interventions for coastal protection and resilience. Spatial planning will reduce: Inequalities and poverty, by integrating all stakeholders in decision-making and by demarcating hazard prone areas where development will be prohibited; Food insecurity, by delineating and protecting suitable productive areas; Ecosystems' and biodiversity loss, by identifying protected areas that provide key ecosystem services where development will be prohibited.

Objective 2 respond to the problem raised in the project background regarding the low capacity of local governments in West Africa in identifying and planning actions for effectively adapting to the negative effects triggered by climate change. This is especially true in fast growing small and intermediate cities. In these urban centres, under-serviced informal settlements are sprawling in an uncontrolled manner and municipal authorities are ill-prepared to face the unwanted consequences of this dynamic process. These range from the increased risk to climate-related natural hazards such as floods and cyclones, simply due to the vulnerable location of the new settlements, to issues compounding the impact of climate change. The project will work on strengthening this knowledge both for governmental institutions and communities, providing the tools for a more informed policy decision-making, and more resilient local practices.

Through Objective 3, pilot nature-based actions to adapt to climate change will be implemented. This objective presents multiple dimensions. On one spatial dimension, implementation targets the local scale. However, national authorities and coastal regional needs are also targeted. The idea is to take advantage of the pilots that will be implemented through the subprojects, to derive the needed guidelines in alignment with existing policies and legislation, and thus create the conditions for replication in other cities and towns at the country level. For this purpose, the project will work in partnership with the Abidjan Convention to start laying the foundations for building urban climate resilience in the two participating countries (Objective 4). One the temporal dimensions, some subprojects are meant to address immediate adaptation to hazards, by restoring natural barriers and buffering devices to floods (such as lagoon and mangrove restoration, sand nourishment, …). Other sub-projects are meant to provide transitional alternative livelihoods (such as pen culture and salty-resilient crops), in order to ensure food-security and allow national and regional institutions to structure the economy towards climate change resilience. Thus, catalytic community adaptation projects such as pen aquaculture, salt resilient crops can provide alternative livelihoods to vulnerable groups that depend on activities affected by climate change such as agriculture, fishing and all downstream related livelihoods (fishmongers, vendors, food markets, etc).

Objective 4, considering the complexity and multi-disciplinarily linked to addressing flooding and erosion in coastal areas, will establish a platform where to build and share knowledge is paramount. The project will facilitate this process engaging with regional and national stakeholders aiming at building expertise through "bottom-up" evidence and through strengthening "top-down" coordination for policy and legislative frameworks. This will ensure all strategies have an impact beyond this specific proposal. Objective 4 aims at mainstreaming at regional level the knowledge and experiences built and collected through the pursue of objective 3. The project will be anchored to the Abidjian Convention, through a MoU. More specifically, UN-Habitat, in partnership with the Covention, will promote inter-country experience sharing and cross-fertilisation, and work as a knowledge platform regarding urban resilience related issues that can be disseminated in the sub-region. One of reasons for establishing knowledge-sharing mechanisms at regional level institution is the need for the countries belonging to the same geographical region to share best practices on how to address common transboundary climate- related natural hazards. This certainly represents a strong added-value of the project, whose impacts could even reach more countries of coastal West Africa.

Therefore, **there are five Project Components** (which will be described in more detail in Part II). Components 1 and 2 contribute to objective 1 and 2, components 3 and 4 contribute to objective 3, and component 5 contributes to objective 4 (see figure 8).

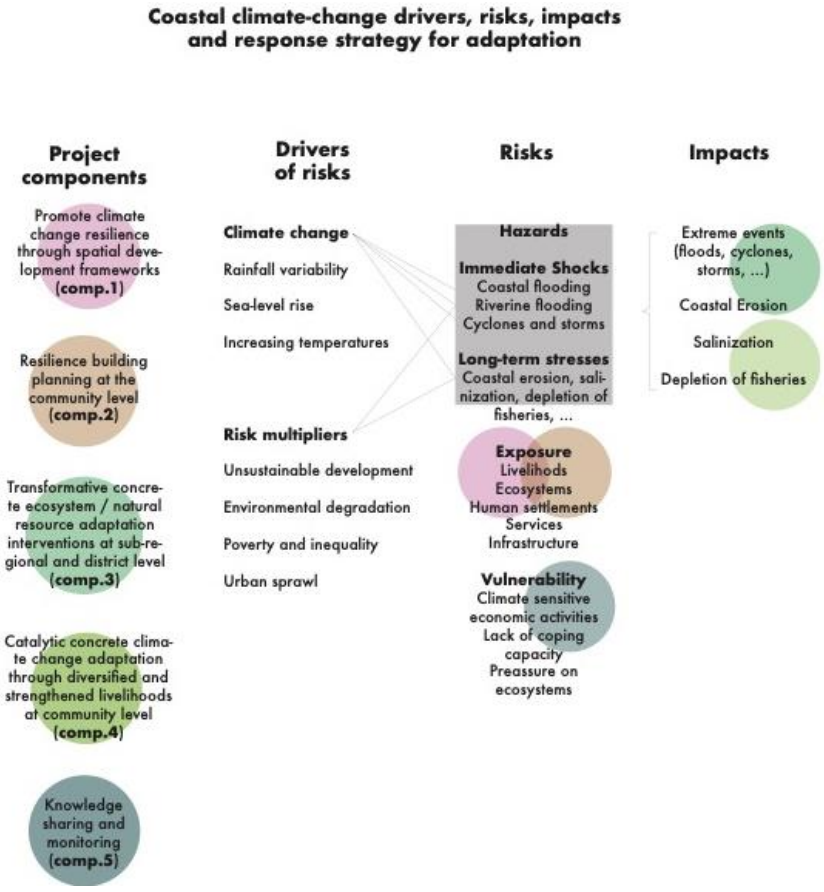


Figure 8 Coastal climate-change diagram.

1. Component 1: Promote climate change resilient coastal development through sub-regional and district-level spatial development frameworks and to strengthen institutional capacities to develop, use and update these spatial frameworks. This is in line with AF outcomes: 2) Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses; 7 Improved policies and regulations that promote and enforce resilience measures.

2. Component 2: Strengthen community awareness and capacities to adapt to climate-related coastal hazard and threats through community planning. This is in line with AF outcome: 3) Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level

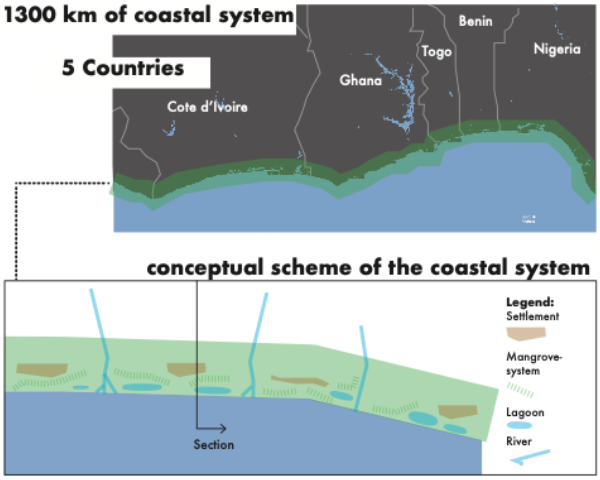
3. Component 3: Increased climate change resilience of coastal areas through increased ecosystem / natural resource resilience. This is in line with AF outcomes: 5) Increased ecosystem resilience in response to climate change and variability-induced stress

4. Component 4: Increased climate change resilience of coastal communities through diversified and strengthened livelihoods. This is in line with AF outcomes: 6) Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas
5. Component 5: Development and diffusion of innovative (ecosystem-based solutions and building with nature) coastal climate change adaptation practices in West Africa, including establishment of an effective monitoring system for the

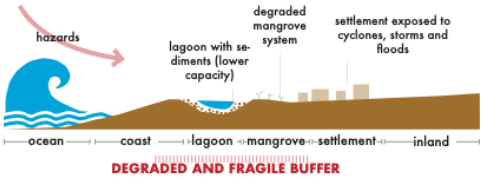
proposed concrete adaptation measures. This is in line with AF outcome: 8) Support the development and diffusion of innovative adaptation practices, tools, and technology

Figure 8 illustrates the rational of the measures adopted.

~~Local practice and Regional approach. Overall, the 2010 UNHABITAT State of the World Cities report identified "megaregions" and "urban corridors" as new urban forms that could be "one of the most significant developments—and problems—in the way people live and economies grow in the next 50 years". The Abidjan-Lagos corridor is one of these megaregions, with a fast-growing urban population of over 30 million. Many experts consider this coastal urban corridor to be the engine of West Africa's regional economy. Prevention of climate change and coastal risks taken in this context is crucial, as countries such as Côte d'Ivoire, Ghana, Benin, Togo and Nigeria, have most of their economic activities located within the coastal zone. A regional approach is the required scale to ensure integrated, coordinated and cost-effective climate change action in West Africa.~~

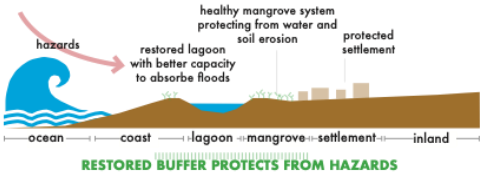


~~The regional rational is based on trans-boundary character of existing challenges related to coastal erosion, sea level rise, floods, and pressures on coastal communities. As mentioned under objectives 3 and 4, the coastal system of West Africa, on top of being hit from the same types of hazards and challenges, presents a unique physical environment. Such environment, common to a set of Countries of the region, is structured as buffer system between the ocean and the inland made of deltas, lagoons, mangrove forests, and settlements (see figure 9).~~



BEFORE

Section of the coastal system: **present degraded and low resilient state**



AFTER

Section of the coastal system: **if adaptation-activites under component 3 are implemented**

~~Figure 9 Conceptual Scheme of the coastal system~~
~~Figure 10 Restored buffer diagram~~

~~The core idea behind component 3, is that by equipping pilot transects for adaptation, through lagoons and mangrove restoration, and sand nourishment, it is possible to shift from an extremely vulnerable system, to a resilient system (see figure 10). The similarity of physical features and challenges to face, make room for a regional relevance of the pilots, that can be transferred and exported in other communities of Ghana and Cote d'Ivoire, but also in other Countries belonging to the same coastal system. The project has the potential for replication of successful solution for climate change adaptation in other coastal countries and towns in West Africa (i.e. Senegal, Guinea-Bissau, Guinea, Sierra Leone, Liberia, Togo, Benin and Nigeria).~~

~~Such dissemination is meant to be done through component 5 of the project, which works in synergy with component 3 for mainstreaming concrete outputs. Thus, in partnership with the Abidjan Convention, the project will promote inter-country experience sharing and cross-fertilization, and work as a knowledge platform regarding coastal urban resilience related issues that can be disseminated in the sub-region.~~

~~Specifically, the project also requires and benefits from a regional perspective as it promotes the following aspects:~~

- ~~Supports a much-demanded integration and systematization of technical and institutional knowledge (Nyadzi, 2020) in relation to climate change adaptation policies, plans and interventions at the regional scale, which is the scale at which coastal erosion and sea level rise, two of the most impactful consequences of climate change, are affecting the stretch of countries from Senegal to Cameroon.~~
- ~~Promote and facilitate the coordination, exchange, learning, and south-to-south technical assistance between Ministries, local governments and additional stakeholders with the mandate of addressing climate change through project implementation mechanisms such as the Regional Project Steering Committee (RPSC) and Regional Project Supervision Unit (RPSU) and the regional convening power of the Abidjan Convention.~~

- Promote the development of knowledge and technical materials both in English and French, having both Ghana and Cote d' Ivoire as early adopters and champions of climate change adaptation policies, plans and interventions to be shared and replicated in the other ten West African countries.
- Benefit from the competitive advantages and knowledge complementarities of both Ghana (e.g. spatial planning and environmental planning) and Cote d' Ivoire (e.g. institutional integration and primary sector production) to promote south-to-south learning, collaboration and technical assistance.
- Cost-effectiveness of coordinated and consulted international policies, plans, interventions and institutions. From the specific project perspective, the regional project preparation has already resulted in cost-efficiency due to existence of price reference points between Ghana and Cote d' Ivoire, economies of scale in recruitments and data gathering, exchange of best practices and international network connections. These cost-efficiency will continue to apply during the project implementation, execution and monitoring.
- Development of common modelling results and common monitoring framework at the regional level (Ghana and Cote d' Ivoire) for climate change related impacts to be shared and adopted by additional West African countries.
- Avoid negative effects of policies, plans and interventions that implemented in one country could affect neighboring countries given the transboundary character of climate change adaptation, coastal erosion and sea level rise.

V. Conceptual Framework

Table 1. Project conceptual framework

During proposal development phase		During project		After project
1 **Framework for selecting coastal climate change adaptation interventions** Identifying main issues and needs regarding: Exposure: ☐ Sea level rise and storms contributing to coastal erosion and salination of soil and lagoons Sensitivity: ☐ Coastal settlements asset, incl. heritage ☐ Poor communities, gender ☐ Lagoon and coastal area dependent livelihoods Impact: ☐ Damage / loss of assets ☐ Loss of livelihoods (agriculture, fish, etc.) ☐ Less sweet water	2 **Prioritize and select coastal climate change adaptation interventions** With key stakeholders, communities and experts: ☐ In line with national, local government and community and gender needs and priorities ☐ Responding to coastal cc impact / vulnerabilities ☐ Nature-based solutions ☐ Cost-effectiveness ☐ Sustainable and replicable ☐ Manageable environmental and social risks and impacts.	3 **Implement coastal climate change adaptation prototype solutions** ☐ Component 1: Promote climate change resilience through spatial development frameworks ☐ Component 2: Resilience building planning at community level ☐ Component 3: Transformative concrete ecosystem / natural resource adaptation interventions at sub-regional and district level ☐ Component 4: Catalytic concrete livelihood diversification and strengthening adaptation interventions at community level ☐ Knowledge sharing and monitoring	4 **Monitor, evaluate and learn (component 5)**	5 **Replicate proven prototype coastal climate change adaptation solutions in West Africa** ☐ Component 5: Knowledge sharing and monitoring

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During proposal development phase		During project		After project
1 **Framework for selecting coastal climate change adaptation interventions** Identifying main issues and needs regarding:	2 **Prioritize and select coastal climate change adaptation interventions** With key stakeholders, communities and experts:	3 **Implement coastal climate change adaptation prototype solutions**	4 **Monitor, evaluate and learn (component 5)**	5 **Replicate proven prototype coastal climate change adaptation solutions in West Africa**

Exposure: - Sea level rise and storms contributing to coastal erosion and salination of soil and lagoons Sensitivity: - Coastal settlements asset, incl. heritage - Poor communities, gender - Lagoon and coastal area dependent livelihoods Impact: - Damage / loss of assets - Loss of livelihoods (agriculture, fish, etc.) - Less sweet water	- In line with national, local government and community and gender needs and priorities - Responding to coastal cc impact / vulnerabilities - Nature-based solutions - Cost-effectiveness - Sustainable and replicable - Manageable environmental and social risks and impacts.	- Component 1: Promote climate change resilience through spatial development frameworks - Component 2: Resilience building planning at community level - Component 3: Transformative concrete ecosystem / natural resource adaptation interventions at sub-regional and district level - Component 4: Catalytic concrete livelihood diversification and strengthening adaptation interventions at community level - Knowledge sharing and monitoring	- Component 5: Knowledge sharing and monitoring

IV. Project components and financing

Table 2. Project components and financing

Project Components	Expected Outcomes	Expected Outputs	Countries	Amount (US$)
1. Promote climate change resilience through spatial development frameworks	1.1. Climate change resilient coastal development promoted through climate change mainstreamed sub-regional and district-level Spatial Development Frameworks (SDFs), and strengthened institutional capacities to develop, implement, and update these SDFs. Spatial planning is an effective decision-making tool to manage development along the coast, including (spatially) identifying climate change-related risks / impacts and vulnerabilities with the purpose to avoiding future development in risk areas and identifying sustainable development options.	1.1.1. One (1) Sub-national-level Spatial Development Framework, targeting the Volta Delta coastal area, in which climate change-related coastal risks have been identified + measures to increase coastal resilience proposed 1.1.2. Two (2) Districts-level Spatial Development Frameworks, targeting Ada East and Keta, in which climate change-related coastal risks have been identified + measures to increase coastal resilience proposed 1.1.3. Strengthened capacity of Land Use Spatial Planning Authority (LUSPA) and Municipal District Assemblies (MMDAs) to develop, implement, and update spatial development frameworks, including identification and integration of climate change-related coastal risks and measures to increase coastal resilience 1.1.4. One (1) Sub-national-level Spatial Development Framework *("Schéma Régional d'Aménagement du Territoire (SRAT)"),* targeting the Region des Grands Ponts, in which climate change-related coastal risks have been identified + measures to increase coastal resilience proposed 1.1.5. One (1) local-level Spatial Development Frameworks (Local development plans), targeting Jacqueville, in which climate change-related coastal risks have been identified + measures to increase coastal resilience proposed 1.1.6. Strengthened capacity of the Ministry of the Environment and Sustainable Development, the Ministry of Planning and Development, and municipalities, to develop, use and update spatial development frameworks, including identification and integration of climate change-related coastal risks and vulnerabilities and measures to increase coastal resilience For details see table 5 (overview table)	Ghana Ghana Ghana Côte d'Ivoire Côte d'Ivoire Côte d'Ivoire	389,800 332,000 143,800 445,800 199,000 143,200 **T 1,653,600**
2. Resilience building planning at the community level	2.1. Strengthen community awareness and capacities to adapt to climate-related coastal hazard and threats through community planning Community planning is needed for ownership over the proposed concrete climate change adaptation measures under component 3 and 4	2.1.1. Community-level plans (12) developed in Ghana with the purpose to plan, operate, maintain, monitor and sustain/replicate concrete adaptation measures under component 3 and 4. Same target area as outputs 3.1.1 and 3.1.2 and 4.1.1 and 4.1.2. 2.1.2. Community-level plans (12) developed in Côte d'Ivoire with the purpose to plan, operate, maintain, monitor and sustain/replicate concrete adaptation measures under component 3 and 4. Same target area as outputs 3.3 and 3.4 and 4.3 and 4.4) For details see table 5 (overview table)	Ghana Côte d'Ivoire	670,600 695,100 **T: 1,365,700**
3. Transformative concrete ecosystem / natural resource adaptation	3.1. Increased climate change resilience of coastal areas through increased ecosystem / natural environment resilience.	3.1.1. Mangrove restoration along the Volta estuary in Keta district 3.1.2. Coastal lagoons restoration in Ada East, Ada West and Keta districts 3.1.3. Mangrove restoration along the coast in Grand Bassam and Jacqueville 3.1.4. Sand nourishment along the coast of Grand Bassam	Ghana Ghana Côte d'Ivoire Côte d'Ivoire	1,222,053 1,125,126 614,953 1,265,527

interventions at sub-regional and district level	The focus will be on coastal protection through nature-based climate change adaptation interventions. This will also provide the enabling environment for supporting sustainable livelihoods under component 4.	3.1.5. Development of lagoon banks by sandbag dikes and embankment in Jacqueville For details see table 5 (overview table)	Côte d'Ivoire	900,000 **T: 5,127,659**
4. Catalytic concrete climate change adaptation through diversified and strengthened livelihoods at community level	4.1. Increased climate change resilience of coastal communities through diversified and strengthened livelihoods. Building up on traditional livelihoods and communities' skills, the focus will be on supporting sustainable livelihoods that will be resilient to climate change impacts.	4.1.1. Pen aquaculture systems installed and operational in Ada East, Ada West, and Keta districts 4.1.2. Salt resilient crops and water infiltration introduction systems installed and operational in Keta district 4.1.3. Pen culture systems installed and operational in Grand Bassam and Jacqueville For details see table 5 (overview table)	Ghana Ghana Côte d'Ivoire	810,099 1,068,326 951,229 **T: 2,829,653**
5. Knowledge sharing and monitoring	5.1. Strengthened institutional / organisational capacity and tools to identify and manage coastal climate change-related risks / impacts in Ghana and Côte d'Ivoire (and West Africa) and knowledge on innovative (building with nature) coastal climate change adaptation practices diffused / shared in West Africa Knowledge acquired must reflect the reality with appropriate and evidence-based models and indicators used.	5.1.1. Coastal dynamics (including cc-related erosion and inundation/flood) risks / impacts prediction parameters and assessment method – Center for Coastal Management – University of Cape Coast in Ghana 5.1.2. Monitoring sensor system to assess and monitor the effectiveness and impacts of the proposed concrete adaptation interventions under component 3 and 4 (also to guide monitoring activities under comp 2) 5.1.3. Strengthened capacity of national and district-level governments to use above model and assessment method and monitoring systems 5.1.4. West Africa / international knowledge management and sharing mechanism with a focus on feasible building-with-nature adaptation options to protect the coast and diversify and/or strengthened livelihoods, incl. to replicate these Support to the Abidjan Convention to advance on the implementation of the Additional Protocol on Integrated Coastal Management . Collaboration with Center for Coastal Management to provide expertise and curricula to establish a coastal management facility in Cote d'Ivoire and other countries in the region ~~5.1.4.~~ Support resource mobilization efforts to scale up the project in the two countries and in additional countries, seeking the involment of donors and private sector For details see table 5 (overview table)	Ghana + CdI Ghana + Côte d'Ivoire Ghana + Côte d'Ivoire Regional (Ghana + CdI + other countries)	125,000 95,000 140,000 326,000 **T: 686,000**
Total components				11,662,612
6. Project/Programme Execution cost				1,195,600
7. Total Project/Programme Cost				12,858,212
8. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)				1,092,948
Amount of Financing Requested				**13,951,160**

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PART II: PROJECT / PROGRAMME JUSTIFICATION

Part II.A PROJECT COMPONENTS

I. Regional approach

The proposal contributes primarily to disaster risk reduction (riverine and sea floods, landslides, community awareness and preparedness) and secondarily to food security (pen culture, salt resistant crops and water infiltration).

A regional approach for this project is justified for the following reasons:

Regional common natural threats: Ghana and Cote d'Ivoire are both recurrently affected by phenomena such as coastal erosion, sea level rise, riverine and coastal floods, increased and more violent hydrometeorological events and more severe droughts and salinization, averaging to a total costal degradation cost between 2.5 and 7.5% of countries GDP per year. Coastal erosion is a regional hazard that affects countries from Mauritania, across the Gulf of Guinea, stretching down to Cameroon over more than 6,500 km of coast. Over 50% of the West African coastline is subject to an average erosion of over 1.5 meters per year. In all countries in West Africa, the monetary cost of erosion is expected to increase considerably in the future. Caused by global warming, sea level rise is causing massive erosion, costing the region about 3.8 billion and causing 13,000 death per year. 2019 will remain for West Africa as the year of the extreme climatic crisis, as between October and November, extreme rainfall 300 percent over the average, have produced massive floods and landslides that have affected over 2.8 million people (WB,2020). It is crucial that countries in the region start learning from each other on how to adapt to these common climatic threats. Historically this has not been the case specially because of language barriers and lack of inter-regional coordination mechanisms.

A regional proposal that promotes exchange in climate change adaptation, learning and knowledge sharing between the different countries will create a pool of technical experts, best practices and tested solutions in the areas in which each country is more advanced than its neighbors in the West African region. For example, Ghana is much more advanced in the development of curricula and technical expertise for the monitoring of coastal erosion and sea level rise, with initiatives such as the Center for Coastal Management at the University of Cape Coast. (CCM). The CCM is a current beneficiary of the USAID Capacity Development Grant for coastal management capacity development. The project will support and work with the Center for Coastal Management to expand its operations, technical expertise and promote the establishment of similar curricula and institutions in Cote d'Ivoire and eventually in other countries of the West African region, resulting in cost-effectiveness and economies of scale for the project On the other hand, Cote d'Ivoire, with the support of the West Africa Coast Areas programme (WACA) has advanced in the integration of private sector and communities in the response to climate change and coastal erosion impacts. Marketplace aims at linking the private sector with financial institutions and projects, as well as technical resource centers such as CCM to find and move ahead with joint solutions to address climate change and coastal erosion. Ghana will also have the opportunity to shift its current "hard infrastructure" approach towards a more ecosystem-based solution approach, based on the evidence and lessons generated by the project and the Center for Coastal Management.

The regional rational is based therefore on trans-boundary character of existing challenges related to coastal areas. As mentioned under objectives 3 and 4 of the project, the coastal system of West Africa, on top of being hit from the same types of hazards and challenges, presents a unique physical environment. Such environment, common to a set of Countries of the region, is structured as buffer system between the ocean and the inland made of deltas, lagoons, mangrove forests, and settlements (see figure 9).

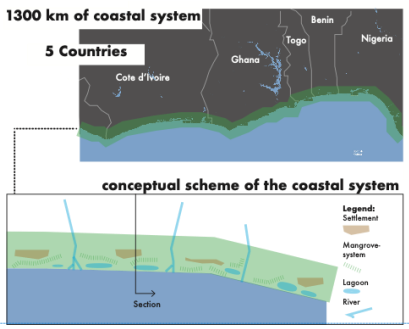

Figure 119 Conceptual Scheme of the coastal system

Regional institutional set-up: Ghana and Cote d'Ivoire governments have requested UN-Habitat and the Abidjan Convention – (Convention for Cooperation in the Protection, Management and Development of the Marine and Coastal Environment of the Atlantic Coast of the West, Central and Southern Africa Region) to strengthen the incipient regional set-up for climate change adaptation and coastal and territorial management and planning in West Africa. The project works with the Abidjan Convention as an Executing Entity of the project, to advance the additional protocol to the Abidjan Convention on Integrated Coastal Zone Management and move ahead with the efforts made

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by coastal states such as the 2050 Integrated Maritime Strategy developed by the African Union (AIM Strategy) and the Master Plan for Coastal Development initiated by the West African Economic and Monetary Union (WAEMU) within the framework of the 2011 Dakar Declaration establishing a West African Observatory for the Reduction of Coastal Risks and the Impacts of Coastal Erosion. The Abidjan Convention in its additional protocol sets the principles and objectives of integrated coastal zone management, which require further localization with initiatives such as the ongoing WACA programme and the current proposal to the Adaptation Fund by UN-Habitat to focus on climate change adaptation, the maintenance and restoration of the natural capacity of the coast to adapt to changes, minimize the effects of coastal erosion and strengthen scientific data sharing to improve knowledge of the state, development and impacts of coastal erosion at the regional scale.

The regional approach will also multiply the impacts of the project and provide cost-effectiveness and economies of scale and technical synergies with regional initiatives and collaboration with partners such as WACA, CCM and the Abidjan Convention through the following activities: securing the endorsement of current and additional countries, involving additional UN Agencies, civil society, academia, donors and private sector and carrying out advocacy and knowledge sharing activities.

Regional scaling-up in Ghana, Cote d'Ivoire and other countries in West Africa: The range of proposed solutions as well as the different characteristics of the territories and settlements selected (UNESCO site in Grand Bassam with touristic focus, medium size municipality in Jacqueville with agricultural focus, small and medium size communities in both countries, coastal districts of Ada East, Ada West and Keta with severe climate change and coastal erosion impacts in Ghana and Grand Pons region in Cote d'Ivoire with rapid urban growth and intricate lacunar systems) will provide a wealth of diverse experiences and solutions for the two countries to learn from and to scale-up similar initiatives in additional West African countries. Through lagoons, mangrove restoration, and sand nourishment, the project proposes to shift from an extremely vulnerable system, to a resilient and adaptative system (see figure 10) that builds with nature-based solutions instead of costly and high-maintenance hard infrastructure. The similarity of physical features and challenges to face, make room for a regional relevance of the pilots, that can be transferred and exported in other communities of Ghana and Cote d'Ivoire, but also in other Countries belonging to the same coastal system. The project has the potential for replication of successful solution for climate change adaptation in other coastal countries and towns in West Africa (i.e. Senegal, Guinea-Bissau, Guinea, Sierra Leone, Liberia, Togo, Benin and Nigeria).

The above-mentioned issues provide a strong justification for adopting a regional approach instead of working in each country individually. In addition, the Abidjan Convention, which plays the role of the regional executing entity in this project, is committed to using the lessons learned to influence its current regional protocols, policies and strategies regarding climate change adaptation and integrated coastal management, and to promote similar approaches in other countries of the region.

Additionally, the project also adds value and benefits from a regional approach as it promotes the following aspects:

- Supports a much-demanded integration and systematization of technical and institutional knowledge (Nyadzi, 2020) in relation to climate change adaptation policies, plans and interventions at the regional scale, which is the scale at which coastal erosion and sea level rise, two of the most impactful consequences of climate change, are affecting the stretch of countries from Senegal to Cameroon.
- Promote and facilitate the coordination, exchange, learning, and south-to-south technical assistance between Ministries, local governments and additional stakeholders with the mandate of addressing climate change through project implementation mechanisms such as the Regional Project Steering Committee (RPSC) and Regional Project Supervision Unit (RPSU) and the regional convening power of the Abidjan Convention.
- Promote the development of knowledge and technical materials both in English and French, having both Ghana and Cote d' Ivoire as early adopters and champions of climate change adaptation policies, plans and interventions to be shared and replicated in the other ten West African countries.
- Benefit from the competitive advantages and knowledge complementarities of both Ghana (e.g. spatial planning and environmental planning) and Cote d' Ivoire (e.g. institutional integration and primary sector production) to promote south-to-south learning, collaboration and technical assistance.
- Cost-effectiveness of coordinated and consulted international policies, plans, interventions and institutions. From the specific project perspective, the regional project preparation has already resulted in cost-efficiency due to existence of price reference points between Ghana and Cote d' Ivoire, economies of scale in recruitments and data gathering, exchange of best practices and international network connections. These cost-efficiency will continue to apply during the project implementation, execution and monitoring.
- Development of common modelling results and common monitoring framework at the regional level (Ghana and Cote d' Ivoire) for climate change related impacts to be shared and adopted by additional West African countries.
- Avoid negative effects of policies, plans and interventions that implemented in one country could affect neighboring countries given the transboundary character of climate change adaptation, coastal erosion and sea level rise.

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~~I.~~II. Complex linked challenges

There are three key challenges that tend to block or slow-down coastal climate adaptation and resilience building efforts in Ghana and Côte d'Ivoire (and West Africa).

First, there is a lack of understanding on how coastal dynamics, and natural and socio-economic systems interact, and how these interdependencies lead to increased vulnerability to climate change. This is because scientific data and knowledge is fragmented or not integrated in a systemic way. It is thus needed to invest in a better understanding of the regional, national, and local interdependencies between climate change, and ecosystems and socio-economic dynamics. Linking these with communities' resilience will be paramount.

Given the data-management challenge, research on the above can be done by bringing together the existing scientific knowledge and expertise, as well as traditional local knowledge derived from communities and local leaders. To support this endeavour, the project aims at generating cost-efficient, recurrent and open data, related to coastal climate change impacts (especially coastal erosion and inundation / flood risks), vulnerabilities, and urban growth. This aims at providing decision-makers and the public with evidence for the formulation of policies, strategies, programmes, and projects. Through the integration of local academic institutions in the participatory analysis, planning and implementation process, the project generated data will be made available.

Second, sustainable development of the coastal areas in Ghana and Côte d'Ivoire requires both effective spatial planning and governance structures that can ensure the implementation of plans and the development of new economic drivers based on improved awareness of the socio-cultural value and the climate change vulnerability of the natural landscape. This requires both the development of long-term strategies, and its translation to territorial plans, land-use plans, adaptation plans, guidelines, and regulations as well as the development of educational and awareness programs at the community level. The capacity development of national and local officials in relation to adaptation to climate change and specifically to coastal erosion represents a related challenge as part of the individuals that form the governance structures providing concrete solutions for these issues.

This second challenge strongly relates to the previous one, as climate-informed spatial plans require scenarios and accurate, evidence-based models for identifying risk areas. Further, functional spatial planning requires the existence of international and state institutions to oversee, steer, and coordinate such a risk informed and planned development.

Third, given the remaining uncertainty and the urgency to adapt to increasing coastal erosion and inundation / flooding risks, there is a dire need to develop a more agile way to identify, design, test, implement and scale-up adaptation measures. This implies the need to develop a community-informed learning-by-doing environment in which a wide range of fit-for-purpose, low-cost, multi-benefit solutions can be developed, tested and monitored to rapidly find the most cost-effective or socially impactful solutions, using the green principle of building with nature and not against it.[73] For more information on building with nature refer to Annex. 3. This also requires accurately monitoring the effectiveness and impacts of these interventions. These monitoring tools and activities are captured under the Component 5 of the project.

The five components of the proposal (discussed in detail below) respond to the challenges and needs presented above and, in the background and context section. **To achieve the overall objective of the project, to 'increase the climate change resilience of coastal settlements, communities and their resources in Ghana and Côte d'Ivoire, and ultimately in West Africa'** it is required to develop a sustainable vertical and horizontal learning environment and institutional framework that will allow both local approaches and interventions and regional replicability.

The five components of the project are interconnected. **Component 1** focuses on developing multi-scale spatial development frameworks that will provide spatial strategies and plans aiming at promoting climate change resilience and at strengthening institutional capacities at national and sub-national scale. **Component 2** focuses on building this resilience at local level with affected communities. The objective is to strengthen community awareness and capacities to adapt to climate-related coastal hazards and threats through community planning that will allow the implementation, maintenance, and replication of concrete interventions under components 3 and 4. At two different scales and with different target audience, both components 1 and 2 engage on local capacity development. **Components 3 and 4** focus on the concrete implementation of climate change adaptation projects. Component 3 mostly at district/department scale with a focus on ecosystem interventions and component 4 at community scale with a focus on livelihood diversification and strengthening. Models, assessment methods, monitoring, indicators, and lessons for replication will be captured and shared through **component 5**. This last component will also enable enhancing policies regional scale for climate change adaptation through the lessons learnt.

Although the components are designed as a package, each component results and outputs can be achieved independently. This is especially important for components 3 and 4, which are designed to strengthen each other but are not dependent on each other in term of execution. In other words, interventions at different levels can be executed

[73] *See for example: https://theconversation.com/why-ghana-needs-a-new-approach-to-stop-the-erosion-of-its-coastline-44018*

independently but attention will be paid to providing a framework at the larger scale while fitting smaller scale interventions within this framework. For instance, community-level activities such as planting mangroves fit within a wider intervention of beach nourishment, where sand is 'deposited' naturally over a large area and which would be kept in place through vegetation such as mangrove plants.

The specific needs of especially women, youths and ethnic and indigenous groups have been considered and will be considered at all stages of the project. This will be achieved by engaging the representatives of vulnerable groups in community and stakeholder consultations with a community-based approach following the tested and proven 'Planning for Climate Change' principles, where the project will build on existing community groups, like women unions, or form new committees where necessary, and sustain these throughout all stages of the project and through which communities participate in project implementation. This will include monitoring and evaluation to ensure that project outcomes equally benefit women and men, assess the effectiveness of gender sensitive trainings, and measure the efficiency in terms of addressing gender issues.

~~II.~~III. Project components

The project supports concrete adaptation and resilience actions throughout its five components by:

- C1: Developing territorial and spatial planning tools which mainstream adaptation to climate change and align with the existing legal framework of both countries, promoting the integration of environmental / ecological and territorial/spatial planning; providing technical assistance to national and local governments for the development of the process in an "improve by doing" joint process;
- C2: Developing community plans to plan, operate, maintain, monitor and replicate concrete adaptation measures at the community level and creating capacity and better understanding of adaptation and coastal erosion issues at community level;
- C3: Executing concrete transformative ecosystem-based interventions at the department / district level, such as mangrove restoration, coastal lagoon restoration and sand nourishment.
- C4: Executing concrete catalytic climate change adaptation projects to strengthen livelihoods in the coastal communities, through pen culture systems, salt resilient crops and water infiltration systems.
- C5: Creating new knowledge on coastal dynamics impacts, risk prediction models and assessment methods; creating a monitoring sensor system to assess the effectiveness of the proposed concrete adaptation interventions, strengthen capacity of national and district-level governments to use above models, assessment methods and monitoring systems; creating an international knowledge management and sharing mechanism to share concrete solutions for adaptation, protect the coast and diversify and/or strengthened livelihoods.

Each component is described in detail below:

Component 1. Promote climate change resilience through spatial development frameworks

In line with AF outcome 2 and 7 and Côte d'Ivoire and Ghana National priorities (see section E and Annex 7), this component aims to promote climate change resilient coastal development through:

- Climate change mainstreaming at sub-national and district/department-level through Spatial Development Frameworks (SDFs).
- Institutional capacities strengthening at national and district/department level in order to develop, implement, and update these SDFs.

Specific outputs:

1.1. One (1) Sub-national-level Spatial Development Framework, targeting the Volta Delta coastal area, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase coastal resilience proposed.
1.2. Two (2) Districts-level Spatial Development Frameworks, targeting Ada East and Keta, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase coastal resilience proposed
1.3. Strengthened capacity of Land Use Spatial Planning Authority (LUSPA) at national scale, and District Municipal Assemblies (MMDAs) at district scale, to develop, implement and update spatial development frameworks, including identification and integration of climate change-related coastal risks and vulnerabilities and measures to increase coastal resilience
1.4. One (1) Sub-national-level Spatial Development Framework ("Schéma Régional d'Aménagement du Territoire (SRAT)"), targeting the Region des Grands Ponts, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase coastal resilience proposed.

1.5. One (1) Community-level Spatial Development Framework (*Plan de Developpement local*), targeting Jacqueville, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase coastal resilience proposed

1.6. Strengthened capacity of the Ministry of the Ministry of the Environment and Sustainable Development, Ministry of Planning and Development at national scale, and municipalities at department and community scale, to develop, implement and update spatial development frameworks, including identification and integration of climate change-related coastal risks and vulnerabilities and measures to increase coastal resilience

This component will ensure the long-term sustainable development of coastal areas at sub-national and district/department level. Spatial development frameworks provide a multi-sectorial analysis and diagnosis that aim at identifying main challenges and opportunities through which to develop spatial strategies and action plans. In this process, a comprehensive approach will be pursued in which all 3 components of sustainability are integrated, social, economic, and environmental. This will also include legal and financial studies and recommendations to support the spatial planning output. Topics like land rights or financial opportunities will be crucial to identify feasible concrete interventions, such as the ones to be implemented through components 3 and 4. These plans will therefore become a tool through which to orient decision making in the short, medium, and long term.

In addition, given the huge impact climate change has in the countries, mainstreaming climate change and disaster risk will be paramount in the process. The spatial development frameworks will identify risk areas and its adaptation and mitigation capacities, which will help to define suitable areas for growth, environmental protection areas, and non-buildable areas. The objective is building resilience by avoiding risk prone development and leveraging upon identified opportunities and strengths.

The integration of the climate change component will be through modelling results under component 5. This will provide a common framework at national level, but also facilitate coordination between Côte d'Ivoire and Ghana (regional level). Several tools from UN-Habitat will be guiding this process. For example: Local Leadership for Climate Change Action (2011), Developing Local Climate Change Plans (2012), Planning for Climate Change (2014), Integrating Climate Change into City Development Strategies (2015), Guiding Principles for City Climate Action Planning (2015) or International Guidelines on Urban and Territorial Planning (2015). By mainstreaming climate change into territorial planning, this component will support outcome 1 from UN-Habitat's Flagship Programme 3 "Resilient Settlements for the urban poor". This outcome is "Pro-poor climate action is mainstreamed in national and city climate policies, plans and commitments, and into the priorities and strategies of important parts of the global climate action & finance architecture respecting fundamental rights".

Both Ghana and Côte d'Ivoire have developed and approved national planning policies and frameworks that set the priorities of the countries in relation to urban development and climate change adaptation and mitigation. The project takes these documents and an evaluation on exiting gaps, as a baseline to define and execute this component and designated outputs. Therefore, the spatial development frameworks at the sub-national and district / department levels respond to legislative needs and are aligned with national policies. In addition, local strategies and plans, following their development and implementation, will inform the subsequent drafts of the national policies, to ensure that local challenges and priorities are incorporated.

The Sub-national and district / departments plans, deducted from the national frameworks, are the tools that localize and enable the implementation of national policies at the municipal scale. The coordination between the sub-national and district / department scales will be ensured through a participatory process during the elaboration of the plans, and through the creation / strengthening of inter-ministerial and inter-district / department coordination mechanisms. Specific activities such as inter-ministerial meetings, working sessions, expert meetings, and workshops will be developed during the project to promote the plans endorsement and support by all stakeholders (government, communities, private sector, NGOs, etc.)

To also ensure coordination at the international level, and to facilitate a platform for knowledge sharing and decision-making, a coordination mechanism involving the Ministries of Environment, Ministries of Local Government and Ministries of Public Works from both countries will be supported. This will be done in collaboration with the Abidjan Convention and, where possible, through other relevant international bodies. This coordination mechanism will also be the starting point for a larger regional coastal resilience coordination body that would bring neighboring countries into common action, including e.g. developing a regional coastal management strategy / plan.

In Côte d'Ivoire, the target areas are the region of Grand-Ponts for the Regional Spatial Development Framework, and Jacqueville department for the local development scale. In Ghana, the target areas for the sub-national SDF are Ada East, Ada West, and Keta; and for the district level Ada East and Keta. Given the scope of the sub-national SDF in Ghana, a Volta Delta SDF, the final geographical scope of the plan will be defined along with the Land Use Spatial Planning Authority during project implementation.

Finally, the last element for this component is the technical support to be provided by UN-Habitat as agreed with the relevant authorities. This includes support on stakeholders' engagement processes, on alignment with international standards and methodologies, technical assistance, and capacity building.

Component 2: Resilience planning at the community level.

In line with AF outcome 3 and Côte d'Ivoire and Ghana National priorities (see section E), this component aims to strengthen community awareness and capacities to anticipate, adapt and respond to climate- related coastal hazards and threats through the following output:

2.1. Community-level plans (12) developed in Ghana with the purpose to plan, operate, maintain, monitor and sustain/replicate concrete adaptation measures under component 3 and 4. Same target area as outputs 3.1.1 and 3.1.2 and 4.1.1 and 4.1.2.

2.2. Community-level plans (12) developed in Côte d'Ivoire with the purpose to plan, operate, maintain, monitor and sustain/replicate concrete adaptation measures under component 3 and 4. Same target area as outputs 3.3 and 3.4 and 4.3 and 4.4)

In the same way that national planning feeds into district/department level and vice versa, the district/department planning documents will inform and support decision making at community level planning.

This component is required to ensure that interventions are fully in line with communities and vulnerable groups needs and climate change resilience building needs and to ensure concrete interventions under component 3 and 4 will remain operational after the project has concluded. This will be done by fully involving communities in the planning and execution of the proposed interventions (through community resource management approaches). The communities will develop plans to execute these interventions, including management and maintenance arrangements, which will also include waste management plans.

To ensure that inhabitants are aware of the main issues and risks (including environmental and social risks of interventions) in their communities, and to be able to respond to these issues and risks, awareness raising campaigns will be rolled-out and trainings conducted. Special attention will be given to gender and youth regarding challenges from climate change and opportunities for resilience.

Components 3 and 4

Rationale between concrete interventions components 3 and 4

Component 3 and component 4 of the project entail transformative and catalytic projects as the basis for the implementation of coastal resilience at the district/department and community levels. Interventions at both levels are required, not only to address climate change impacts at the different scales (i.e. responding to 27 coastal climate change issues that can only be addressed at a larger scale as well as responding to specific community-level needs) but also to do this in a comprehensive manner, where interventions responding to very localized needs can be stand-alone, but also fit into a larger intervention area. Moreover, one of the project's goal is to provide a comprehensive package of low cost "building with nature" solutions for possible replication.

The transformative interventions (component 3) are projects respond to a district/department scale of planning, working at the environmental level and aiming at restoring or rebalancing ecosystems. These projects comprise more than one community and take 2-3 years to implement. The focus will be on coastal protection through nature-based climate change adaptation interventions. The benefit of developing transformative interventions is that they are able to locally rebalance coastal geomorphology and its dynamics. Ultimately, these activities will be providing the enabling environment for supporting sustainable livelihoods under component 4 and supporting income generation not only by mobilizing local resources for implementation but also by protecting and increasing resilience of economic sources- fish and fertile soil. Financial mechanisms are proposed to link these two levels of interventions, envisioning that catalytic interventions together with private sector initiative would support the maintenance of transformative interventions.

The catalytic interventions (Component 4) are projects that have an impact at community level, responding to community scale priorities to create livelihood opportunities and reduce poverty through climate change adaptation and resilience. These projects are smaller and take 1 to 2 years to implement. The benefit of developing catalytic interventions is that they aim at building up on traditional livelihoods and communities' skills and supporting sustainable livelihoods that will be resilient to climate change impacts. These projects will provide smaller-scale benefits as well as lessons learnt that can be applied for the longer-term interventions. Ultimately, this component will enhance community participation and ownership by mobilizing job opportunities, protecting existing ones and shifting those which need to adapt to the new conditions of the environment.

Working simultaneously at these two scales enables combining localized impacts at the community level with larger scale district/departments benefits for a larger number of residents. At the same time, it allows to tackle coastal erosion impacts on communities while also addressing larger environmental challenges. Results are also achieved at both short and medium timeframes, with the catalytic projects enabling short term responses to urgent community needs and with transformative projects ensuring a structural and sustainable approach to coastal resilience.

Ultimately by increasing awareness and capacity on CC adaptation, this component will support outcome 3 from UN-Habitat's Flagship Programme 3 "Resilient Settlements for the urban poor". This outcome is "Enhanced capacity among all levels of government and core partners to effectively coordinate action towards building the resilience of the urban poor, and to access and mobilize investments".

Component 3: Concrete transformative ecosystem / natural resource adaptation interventions at sub-regional and district level

In line with AF outcome 5 and Côte d'Ivoire and Ghana National priorities (see section E and Annex 7), this component aims to increase climate change resilience of coastal areas through increased ecosystems and natural adaptive capacity in target areas considering (inter-) national and local needs and impacts through the following outputs:

3.1. Mangrove restoration along the Volta estuary in Keta district
3.2. Coastal lagoons restoration in Ada East, Ada West and Keta districts
3.3. Mangrove restoration along the coast in Grand Bassam and Jacqueville
3.4. Sand nourishment along the coast of Grand Bassam
3.5. Development of lagoon banks by sandbag dikes and embankment in Jacqueville

The strategy for this component is to build resilience through ecosystem-based adaptation. This approach aims at leveraging the existing natural environment and its ecosystems services as a tool to respond to main coastal hazards: flooding and erosion. By restoring natural dynamics and equilibrium, targeted communities will be protected, and the natural environment and its biodiversity strengthened. In addition, this component also builds on communities' local capacities and traditions.

For more detailed info see Table 5~~Table 5~~ Table 2~~Table 2~~and Annex 3 and 5 (incl linkages to ESIA-ESMP reports)

Component 4: Concrete catalytic climate change adaptation through diversified and strengthened livelihoods at community level

In line with AF outcome 6 and Côte d'Ivoire and Ghana National priorities (see section E and Annex 7), this component aims to increase climate change resilience of coastal communities through diversified and strengthened livelihoods and by promoting and supporting income generating activities through the following outputs:

4.1. Pen culture systems installed and operational in Ada East, Ada West, and Keta districts
4.2. Salt resilient crops and water infiltration introduction systems installed and operational in Keta district
4.3. Pen culture systems installed and operational in Grand Bassam and Jacqueville

The strategy for this component is to build upon communities existing capacities and livelihoods traditions as means for economic resilience. Based on the enabling environment provided by the environmental restoration under component 3, these interventions will focus on ensuring livelihoods creation and sustainability. This not only aims at reducing poverty and vulnerabilities, but also at safeguarding the natural environment and its provision and regulating services. In addition, it specially targets most vulnerable groups in the target areas, fisheries related workers and farmers.

For more detailed info see Table 5~~Table 5~~ Table 2~~Table 2~~and Annex 3 and and 5 (incl linkages to ESIA-ESMP reports)

Component 5: Knowledge sharing and monitoring

In line with AF outcome 2 and 8, AF knowledge management objectives and Côte d'Ivoire and Ghana National priorities, (see section E and Annex 7), this component aims to support the (inter-) national systematic transformation of spatial, financial and legal frameworks that would result into improved coastal management, articulated spatial urban planning and financial mechanisms for sustainable urban development. Concrete intervention for knowledge management and the articulation of spatial, regulatory and financial frameworks would be done through the following outputs:

5.1. Coastal dynamics (i.e. erosion and inundation/flood) impacts and risk prediction model and assessment method
5.2. Monitoring sensor system to assess and monitor the effectiveness and impacts of the proposed concrete adaptation interventions under component 3 and 4 (also to guide monitoring activities under comp 2)
5.3. Strengthened capacity of national and district-level governments to use above model and assessment method and monitoring systems
5.4. West Africa / international knowledge management and sharing mechanism with a focus on feasible building-with-nature adaptation options to protect the coast and diversify and/or strengthened livelihoods, incl. to replicate these

This component is required to produce knowledge and capture lessons, including prototype concrete resilience building interventions, suitable for replication and scaling up in communities and larger coastal areas in other countries in West Africa. This component is also required to develop enabling institutional and legal frameworks for the operation and sustainability of this project but also to improve cooperation in the region. Even though regional cooperation is

challenging, it is the most sustainable way to face the existing issues. It has proven to be successful in many places, particularly where the issue addressed represented a priority challenge to the countries affected. Efforts to build trust and coordinate efforts will help policymakers and community chiefs to protect the lives and livelihoods of the people in the region and allow their countries to build on the development gains made in recent years rather than see them rolled back as a result of climate change.

Target areas

Both Côte d'Ivoire and Ghana have large coastal strips, 566km and 540 km respectively. To identify the target areas for this project, in depth research was undertaken through literature review and consultations with relevant stakeholders. For this detailed analysis refer to Annex 4.

Côte d'Ivoire

Map 1. Target areas in both countries

The implementation of the project in Côte d'Ivoire will be focused on Greater Abidjan region, specifically on the area along the coast between Grand-Lahou district in the west and Adiake district in the east. Within this area, Grand-Bassam and Jacqueville departments were selected.

This selection was done through an analysis of existing needs and vulnerabilities, and through a multi-criteria methodology. For more information on target areas selection refer to Annex 2.

Map 2. Target departments and communities in Côte d'Ivoire

Aligned with the strategies presented under Project Approach section, the project components directly impacting local communities in the target areas are:

- Component 1 - Spatial development plans for resilience building
- Component 2 - Resilience building at community level
- Component 3 - Transformative concrete adaptation measures at district level
- Component 4 - Catalytic concrete adaptation measures at community level

Table 3. Target region, departments, and communities' populations. Côte d'Ivoire.

COMPONENT 1

		Total	Female %	Youth %			Total	Female %	Youth %
	Grand-Ponts	356,495	48	31	DEPARTMENTS	**Dabou**	148,874	49	32
						Jacqueville	56,308	49	30
						Grand-Lahou	151,313	47	35

COMPONENTS 2,3 and 4

		Total	Female %	Youth%			Total	Female %	Youth %
DEPARTMENTS	**Grand Bassam**	84,028	50	43	COMMUNITIES	Quartier France	2,333	45	27
						Gbamélé	395	43	37
						Azuretti	1,362	52	25
						Vitre 2	1,376	45	15
						Mondoukou	1,400	48	33
	Jacqueville	56,308	49	30		Grand Jack	3,318	45	12
						Tiémien	527	42	78
						Couve	307	43	37
						Tefredji	3,632	50	6
						Taboth	876	55	18
						Attoutou B	1,268	45	42
						Koko	762	47	18
		140,336					**17,556**		

The total amount of population targeted in the project is 496,831. Women account for around half of the population, and youth between one and two thirds. In general communities have nearly the same number of women and men, and around one third of the inhabitants are youth. The main religions in the target areas are Christian (approximately 2/3 of total) and Islam (approximately 1/5 of total). The main ethnic group is Akan (almost 4/5 of total), followed by Krou and Mande du Nord. Within the Akan population there are ethnic sub-groups, including e.g. Adioukrou and Baoule. Quite a large portion (i.e. up to 1/3 of total) of the population does not originate from Côte d'Ivoire. Communities are often dependent on specific livelihoods, especially fishing and farming. Tourism has a high potential with heritage and cultural

sites and beautiful beaches. Some areas in Jacqueville and the department east of Grand-Bassam are known as tourism spots, including some high-end options. The project may also include these 'resorts' in the private sector / tourism sector alliance', as discussed later. In the target communities, Women, Fishermen, youth, elderly and religious groups are present and play an important role within them During field visit, they have been consulted through focus group discussions to understand the gaps and needs. In addition, there are immigrants from surrounding countries living in these communities. Many of the fishing communities are Ghanaian or from other countries because majority of Ivorian inhabitants believe the sea is too dangerous, which means they only fish in the lagoons.

For a detailed overview of community level data, localized climate change impacts / hazards and effects, underlying vulnerabilities, barriers to adapt and resilience building needs, see Annex 2. For more detailed info about vulnerable groups see section II.C

Communities overview

Location

Grand Bassam

Grand-Bassam is located in the south-east of Côte d'Ivoire, in the administrative region of Sud-Comoe, 43 kilometer east of Abidjan. The communities that the project will support in Grand Bassam are Quartier France, Azuretti, Gbamele, Mondoukou and Vitré 2.

The three first communities are located directly along the coast on a small strip of land between the sea and the lagoon Ebrié, and a river at the east side. The other two, Mondoukou and Vitré, are located more inland close to the lagoon. The whole area of Grand Bassam is very significant from a cultural and historical point of view as it was the country's old colonial capital. Quartier France has been listed as a UNESCO World Heritage Site since June 2012. The whole area is also surrounded by a rich natural environment and ecosystems; indeed, mangrove can be found along the lagoon and the Comoé River. However, they are today in a state of degradation due to their use for firewood and urbanization

Jacqueville

Jacqueville is located 60 km west of Abidjan, in the administrative region of Grand-Ponts. The communities where the project will work on are Jacqueville commune, Grand-Jack, Tefredji, Tiémien, Taboth, Couve, Attoutou B and Koko. Apart from Jacqueville and Grand-Jack, all the communities are directly located along the lagoon, some of them fully surrounded by waterbodies. Jacqueville commune and Grand-Jack are the most populated communities located directly on the seaside.

Impacts

Impacts in these communities are very similar. Coastal erosion and coastal retreat is threatening the disappearance of villages. In forty years, about 150 meters of land have been swallowed by the sea, causing destruction of infrastructures and affecting economic activities and tourism.

Severe floods are also challenging communities and disrupting the ecosystems services. The lagoon is becoming more prone to flooding putting villages at risk and bringing serious environmental sanitation challenges. Other environmental preoccupations are related to disruption of natural resources, water pollution, lack of waste management and loss of aquatic biodiversity in the lagoon affecting the livelihoods of the communities. Furthermore, mangrove deforestation is increasing due to harvesting for fuel. This has damaged the coastal lagoons ecosystems, reduced lagoons productivity, and increased flood risk, water pollution and shoreline erosion.

Communities capacities to cope with climate change

Despite the willingness of coastal and community protection, Grand-Bassam's population has limited capacities to adapt and cope with the challenges. Furthermore, insufficiency of funds and a lack of planning regulations are exacerbating the challenges.

During consultations, communities have proposed several adaptations measures:

- Provision of barriers to reduce coastal erosion and coastal retreat
- Provision of bariers for flooding
- Construction of drainage systems
- Providing alternative livelihoods and jobs creation
- Mangrove restoration
- Awareness raising for the preservation of natural environment
- Support for sanitation and waste management

Opportunities

Populations in these communities mainly rely on agriculture and fishing activities. For that matter, a concerted and coordinated effort towards maintenance of their natural environment and ecosystems and more sustainable human activities could bring potential for a prosper and resilient development with enhanced livelihoods activities and better employment.

Ghana

Within the coastal strip, the project will implement its approach in Greater Accra and Volta regions. Within this, Ada West, Ada East, and Keta districts were selected. This selection was done through an analysis of existing needs and vulnerabilities, and through a multi-criteria methodology. For more information on target areas selection refer to Annex 2.

Map 3 Target districts and communities in Ghana

Aligned with the strategies presented under Project Approach section, the project components directly impacting local communities in the target areas are:

Component 1 - Spatial development plans for resilience building
Component 2 - Resilience building at community level
Component 3 - Transformative concrete adaptation measures at district level
Component 4 - Catalytic concrete adaptation measures at community level

Table 4. Target districts and communities' populations. Ghana.

COMPONENTS 1, 2, 3, 4

		Total	Female %	Youth%			Total	Female %	Youth %
DISTRICTS	**Ada West**	59,124	51	43	COMMUNITIES	Aklabanya	5,101	51	35
						Goi	3,657	53	34
						Wokumagbe	1,630	53	51
	Ada East	71,671	52	54		Kewunor/Azizanya	2,830	50	52
	Keta	147,168	53	35		Vodza	3,369	55	30
						Dzita	2,949	53	51
						Woe	10,639	51	49
						Tegni	12,164	54	54
						Lagbati	22,722	53	58
						Agbledomi	4,864	51	55
						Agorkedzi/Atiteti	2,448	53	53
						Whuti	2,316	53	46
		277,963					**74,689**		

The total population of the three districts is 277,963, and the total population from selected communities is 74,689 (around 27% of the district). In general communities have nearly the same number of women and men, and around one third of the inhabitants are youth. In terms of ethnicity, districts are quite homogeneous with Ga-Adangbes being a majority in Ada West and Ada East, and the Ewes in Keta.

Since ecosystem services play a key role in livelihood creation, communities in these districts highly depend on their natural environment. Main income activities are agriculture, fishing, clam collection, and to less extent salt mining. As ecosystems are hindered by climate change and unsustainable human practices, traditional livelihoods are being lost. Lack of opportunities, as well as education, sometimes results in illicit activities like drug use. In addition, families are getting poorer and children labour is becoming a common practice. Another challenge rising poverty levels is the growing landless population especially affecting youth, disabled and elderly people. In order to alleviate this poverty, the government under the Livelihood Empowerment Against Poverty (LEAP) Programme, is supporting with cash hand-outs to some of the most vulnerable groups.

From all different livelihoods fisheries is the most common, often both men and women work in fishing related activities. While men go out fishing, women are responsible for smoking and selling the fish. Women are also responsible for finding and collecting wood for cooking and smoking. This implies high levels of deforestation, mainly from mangroves,

which adds pressure to the already threatened coastal ecosystem. For each work sector, organized groups exist at the community level like the farmers/vegetable Producers Associations, the Fishermen Associations, and the salt miners' groups. Similarly, for women, there are fish-, processors- and traders' groups. In some communities, other bodies exist representing youths and physically challenged people. These are the identified bodies with which formal contacts or project interventions will be directed.

For a detailed overview of community level data, localized climate change impacts / hazards and effects, underlying vulnerabilities, barriers to adapt and resilience building needs, see Annex 2. For more detailed info about vulnerable groups see section II.C

Communities overview

Location

Ada West and Ada East

Ada West and Ada East communities are very similar. In Ada West the project will work on Wokumagbe, Aklabanya and Goi, and in Ada East in Azizanya/Kewunor. Geographically, they are characterised for having a flat relief, generally gentle and undulating. The whole area is a low plain with heights not exceeding 60 meters above sea level. The topography is marked by a succession of ridges and spoon shaped valleys.

All the communities are located on the edges of the beach and are enclosed by the sea and the system of lagoons. In addition, all communities lie close to major water bodies such as the Songhor lagoon in Ada West and the Volta estuary in Ada East. In terms of vegetation, we mainly find short savannah grasses, shrubs, and short trees. Along the coast, there are stretches of coconut trees and patches of coconut groves. Also, along the lagoons and especially along the estuary, large areas of mangroves can be found.

Surrounded by this rich natural environment, these communities socio-economic and cultural dynamics highly interact and depend on ecosystem services.

Keta

The communities the project will support in Keta district are Agorkedzi/Atiteti, Agbledomi, Dzita, Lagbati, Whuti, Woe, Tegbi and Vodza. These communities are located in a low-lying coastal plain with the highest point of 53 meters above sea level and the lowest between 1 to 3.5 meters below sea level.

These communities are close to the Volta estuary on a narrow land strip in between the sea and the Keta lagoon. The lagoon basin is below sea level making the area marshy due to the underlying sandy-clay geological formation. The Anlo- Keta wetlands have been designated as a Ramsar site, because it provides sanctuaries for several birds including migratory and resident ones, especially waterfowls. It is said that the Anlo-Keta Ramsar site is at the crossroad of several thousands of migratory birds that fly the Mediterranean and the South-Atlantic flyway.

Impacts

Coastal erosion and flooding are challenging these traditional ways of living in the communities as beach morphology and the environmental characteristics are being altered. Erosion is changing the shape of beaches with high rates of coastal retreat, making it more difficult for fishing activities in a secure way. In addition, coastal erosion has also affected fishing activities since most landing sites have been disrupted.

Shoreline retreat is also getting the sea line closer to the communities and fishing devices such as canoes and other related activities (trading, markets and workshops) along these beaches are decreasing. This is due to the limited space and damaged infrastructure resulting from flooding events and storm surges.

In terms of biodiversity, there is both loss of habitat and wetland areas that used to host wide array of flora and fauna as most of these habitats have been filled or reclaimed with waste materials. The lagoons are poorly managed resulting to not only serious environmental sanitation challenges, but also making the area prone to flooding. These are potential threats to the general health condition of the people living in these areas. Another challenging dynamic is mangrove deforestation for energy generation. Ultimately, in Keta agriculture land is experiencing very high salinity levels which is limiting their productivity.

Communities capacities to cope with climate change

Though there is high willingness to protect the community, people's capacity to cope with these challenges is very limited. As of today, they are filling up the wetlands, lagoon areas with plastic rubbers aiming at preventing floods.
The communities have proposed several adaptation measures:

- Increase lagoons' storage capacity
- Provision of alternative employment or livelihoods
- Provision of barriers for flooding and erosion
- Obtaining an appropriate site for dumping refuse
- Construction of drainage systems
- Provision of portable drinking water
- Awareness raising

Opportunities

Population in these communities are mainly agricultural and fishery value chain workers. If their natural environment and ecosystems are properly maintained and human activities become more sustainable, there is huge potential for a prosper and resilient development. In addition, communities are highly skilled in their traditional livelihood activities and have large local knowledge on how to leverage these into new ways of working.

Table 5. Overview proposed project activities

Problem description and climate change adaptation needs statement	Adaptation measure outcome (to address the problem and needs)	Outputs	Detailed activities	Target areas	Suitability	Beneficiaries (Total, Women, Youth)		Budget (USD)	Executing entity	Effectiveness of measure (ha of ecosystems; number of fish, etc.
						Direct	Indirect			
	Component 1: Promote climate change resilience through spatial development frameworks									
Spatial planning practices are lagging behind on-going growth due to lack of institutional and technical capacities. This results in hazard prone settlements, encroachment of natural assets, and pollution. Ultimately this not only increases communities' vulnerability to climate change impacts, but also compromises their path towards sustainable development.	Promote climate change resilient coastal development through sub-regional and district-level spatial development frameworks and to strengthen institutional capacities to develop, use and update these spatial frameworks .	1.1. One (1) Sub-national-level Spatial Development Framework	- Institutional collaboration - Data analysis, risks identification and options modelling - Plans preparation - Plans adoption - Strategic Environmental Assessment (by law)	Ghana. Volta Delta coastal area including districts: Ada West, Ada East, Keta.	Spatial planning is an effective decision-making tool to manage development along the coast, including (spatially) identifying climate change-related risks / impacts and vulnerabilities with the purpose to avoiding future development in risk areas and identifying sustainable development options. Governments recognize lack of regional and district development frameworks with climate change mainstreamed in it, as well as insufficient capacity for spatial plan preparation and implementation. It will be ensured plans will be	T:200 W: 40%	**T:277, 963** W: 52% Y: 43%	389,800	Land Use Spatial Planning Authority (LUSPA)	Activities under this component will allow national- and district-level government to plan and manage coastal and urban development in a forward looking way, by also considering climate change-related risks, esp. erosion and inundation / flooding and avoid development in risks areas. This will benefit the populations living along the coast in the target areas and avoid investment in infrastructure / assets that may be damaged or lost in the future
		1.2. Two (2) District-level Spatial Development Frameworks		Ghana. Ada East and Keta districts.		T:150 W: 40%	T:218, 839 W:53 % Y: 41%	332,000		
		1.3. Strengthen capacity of LUSPA and MMDAs	- Guiding LUSPA and MMDAs - Alignment with international methods / standards	Ghana.		T:40 W: 40%	T:100 W: 40%	143,800	UN-Habitat	
		1.4. One (1) Sub-national level Spatial Development Framework (*Schéma Régional d'Aménagement du Territoire (SRAT)*)	- Institutional collaboration - Data analysis, risks identification and options modelling - Plans preparation - Plans adoption - Strategic Environmental Assessment (by law)	Côte d'Ivoire Région des Grands ponts		T:200 W: 40%	T:356, 495 W: 48% Y: 31%	445,800	Ministry of Planning and Development	
		1.5. One (1) Department-level Spatial Development Framework (Local Development plan)		Côte d'Ivoire Jacqueville		T:70 W: 40%	T:56,308 W: 49% Y: 30%	199,000		

		1.6. Strengthened capacity of Ministtee du Plan and municipalities	- Guiding the Ministry of Plan and Municipalities - Alignment with international methods / standards	Côte d'Ivoire	aligned with National and Regional coastal management and sectoral development strategies.	T:40 W: 40%	T:100 W: 40%	143,200	UN-Habitat	
Total								**1,653,600**		
	Component 2: Resilience building planning at community level									
One main vulnerability of coastal communities is their limited capacity to adapt to climate change related hazards. This is largely due to lack of awareness and knowledge on climate change impacts and its linkage to unsustainable human processes.	Strengthen community awareness and capacities to adapt to climate-related coastal hazard and threats through community planning Community planning is needed for ownership of proposed concrete climate change adaptation measures.	2.1. Community level plans including planning, operation, maintenance, monitoring and replication.	- Community mobilisation / awareness - CREMA mechanism set up - Concrete interventions planning - Concrete interventions start-up/operation - Concerte interventions maintenance - Concerte intervention replication options - Verification operation, maintenance, monitoring and replication - Development of CREMA constitution	Ghana. Same as outputs 3.1.1, 3.1.2, 4.1.1, and 4.1.2	Resilience is to be built also through bottom-up initiatives since communities have the capacity to better adapt to climate change. These activities will empower the most directly impacted people and ensure the long-term sustainability of the whole project. The target communities have been identified as the most climate change vulnerable communities along the coast.	T:300 W:40 % Y:20 %	T:74,689 W: 52% Y: 53%	670,600	NGO Ghana	Increased capacity to operate, maintain and replicate nature-based interventions, including monitoring. Increased awareness on climate change hazards
		2.2. Community level plans including planning, operation, maintenance, monitoring and replication.	- Community mobilisation / awareness - Community management mechanism set up - Concrete interventions planning - Concrete interventions start-up/operation - Concerte interventions maintenance - Concerte intervention replication options - Verification operation, maintenance, monitoring and replication	Côte d'Ivoire. Same as outputs 3.1.3, 3.1.4, 3.1.5, and 4.1.3.		T:300 W:40 % Y:20 %	T:17,556 W: 47% Y: 31%	695,100	NGO Côte d'Ivoire	
Total								**1,365,700**		
	Component 3 Transformative concrete ecosystem / natural resource adaptation interventions at sub-regional and district level									

Climate change related sea level rise and storms (combined with hard infrastructure, planned without consideration of CC impacts and vulnerabilities) is already resulting in coastal erosion and will result in inundation of large parts of target areas as soon as 2030-2050. There is a need to protect the coast, including critical infrastructure, settlements, ecosystems and livelihoods from above through nature-based solutions (as hard infrastructure often has a negative impact and is very costly).	Increased climate change resilience of coastal areas through increased ecosystem / natural environment resilience. The focus will be on coastal protection through nature-based climate change adaptation interventions. This will also provide the enabling environment for supporting sustainable livelihoods under component 4.	3.1. Mangrove restoration.	- Detailed engineering study and design - Buying materials - Mangrove nursery - Wildlings/seeds - Mangrove planting - Nursery personnel - Nursery management - Transport - Coordination support - Maintenance - Field monitoring	Ghana. Keta district along the coast and the Volta estuary.	These interventions are suitable for the local context because they build on the existing ecosystems, and environmental and socio-economic dynamics. They aim at protecting and enhancing natural assets that protect coastal communities and to provide a living habitat as a source of sustainable income.	T:13,082 W: 51% Y: 53%	T:5,657 W: 52% Y: 51%	1,222,053	Development Institute	1,500 ha planted
		3.2. Coastal lagoons restoration.	- Detailed engineering study and design - Lagoons assessments - Lagoons cleaning - Waste management - Dredging - Replanting mangroves and sea grass - Transport - Coordination support - Maintenance - Field monitoring	Ghana. Ada East, Ada West and Keta districts.		T:23,480 W:52% Y: 53%	T:34,354 W: 48% Y: 58%	1,125,126	Development Institute	10 lagoons restored
		3.3. Mangrove restoration along the coast and lagoons	- Detailed engineering study and design - Buying materials - Mangrove nursery - Wildlings/seeds - Mangrove planting - Nursery personnel - Nursery management - Transport - Coordination support - Maintenance - Field monitoring	Côte d'Ivoire Grand Bassam and Jacqueville.		T: 8,318 W: 48% Y: 30%	T: 11,214 W: 50% Y: 30%	614,953	NGO	110 Hectares planted
		3.4. Sand nourishment along the coast	- Detailed engineering and design study - Purchase of sand (including loading) - Transport of sand from Songon to the Grand-Bassam site - Sand unloading - Spreading the sand on the site over a period of 1 month - Sand stabilization with coconut palms - Project management in the office and in the field	Côte d'Ivoire Grand Bassam.		T: 4,090 W:47 % Y: 30%	T: 7,263 W: 48% Y: 27%	1,265,527	NGO or private sector	7-11 km of sand nourishment along the coastline

			- Maintenance							
		3.5. Embankment of lagoons	- Detailed engineering and design study - Purchase of loose sand for backfill - Purchase of sand for the dike in sandbags - Purchase of wooden supports for the dike in sandbags - Purchase of bags for the dike in sandbags - Transport of sand in bulk and in bags from Songon to Jacqueville - Unloading of sand on a temporary storage area - Stitching of wooden supports - Sand bagging - Stacking of bags - Project management in the office and in the field - Maintenance	Côte d'Ivoire. Jacqueville.		T: 2,906 W:49 % Y: 29%	T: 3,305 W: 46% Y: 31%	900,000	NGO	2km of lagoons banks
Total								**5,127,659**		
	Component 4 Catalytic concrete climate change adaptation interventions at community level									
Climate change related sea level rise and storms (combined with hard infrastructure such planned without consideration of CC impacts and vulnerabilities) is already resulting in coastal erosion and will result in inundation and or flooding of large parts of target areas as soon as 2030-50. This is negatively impacting coastal communities as their main means of income are being lost. Due to sea level rise, storms and increased	Increased climate change resilience of coastal communities through diversified and strengthened livelihoods. • Building up on traditional livelihoods and communities' skills, the focus will be on supporting sustainable livelihoods that will be resilient to climate change impacts.	4.1. Pen culture systems installed and operational.	- Detailed engineering study and design - Material - Storage structure - Pen installation - Pen culture - Transport for fish food - Fish - Coordination support - Maintenance - Field monitoring	Ghana. Ada East, Ada West, and Keta districts.	These interventions are suitable for the coastal communities in Ghana because it builds upon successful ongoing adaptation measures. It is a cost-effective production system that allows continuous interaction with the ecosystems and local communities. It is an adaptive economic measure that	T:26, 849 W:52 % Y:53 %	T:30,6 97 W:48 % Y: 58%	810,099	Develo pment Institut e	16 pens installed in 10 lagoons
		4.2. Salt resilient crops and water infiltration systems installed and operational.	- Detailed engineering study and design - Identification of plots (stakeholders meeting and field work) - Water infiltration construction - Realization of training centre for salty crops - Training costs - Travel cost - Coordination support - Water infiltration and salty crops maintenance	Ghana. Keta district.		T:48, 346 W:53 % Y: 57%	T:40,3 29 W: 54% Y: 59%	1,068,326	Develo pment Institut e	3,500m^2 of salty crops

erosion, are making sea fishing is increasingly challenging. Coast profiles are being altered and stocks are reducing. Due to climate change and changes in water and soil dynamics, salinity has become an increasing challenge and agricultural land is losing productivity and some crops are not able to grow anymore.		4.3. Pen culture systems installed and operational.	- Detailed engineering study and design - Material - Storage structure - Pen installation - Pen culture - Transport for fish food - Fish - Coordination support - Maintenance - Field monitoring	Côte d'Ivoire. Grand Bassam and Jacqueville.	not only supports the social and cultural heritage in the region, but also generates income opportunities dependent on the protection of the existing ecosystems as well as distributing benefits, which will not also be economic but also social and environmental.	T:12,388 W: 55% Y: 29%	T :16,560 W: 53% Y: 32%	951,229	NGO	22 pens installed in the Ebrie lagoon
Total								**2,829,653**		
Component 5: Knowledge sharing and monitoring										
Limited planning for coastal climate change resilience (incl. identified coastal risks) because of limited understanding of coastal dynamics, National activities currently do not give sufficient priority to climate change issues	Identified / mapped accurate coastal dynamics, incl. climate change impacts / risks and info use / integrated into decision-making tools (risks maps, data set, software)	5.1. Coastal dynamics (i.e. erosion and inundation/flood) impacts and risk prediction model and assessment method	- Assessment data needs and availability - Data collection and responsibilities mapping - Model and assessment method development, incl. risks maps produced - Guidelines development	Ghana and CdI project target areas	Ghana and CdI are increasing their efforts to manage the coast and climate change risks and impacts (also with support LUSPA and Ministry du Plan). Therefore, these is a need and support for this model and monitoring system for coastal building with nature adaptation interventions; communities will support monitoring under component 2	Everyone with internet access, esp planners		125,000	UCC In cooperation AbC and MoLOA	The model will allow for accurate assessment and mapping of coastal risks, esp. erosion, inundation/flooding, which will allow governments to better plan for the future
Limited evidence and understanding of effectiveness and impacts of coastal building with nature concrete adaptation measures, also so these can be replicated in West Africa	In line with above model, established evidence-based monitoring sensor system to measure effectiveness and impacts of proposed concrete adaptation measures	5.2. Monitoring sensor system to assess and monitor the effectiveness and impacts of the proposed concrete adaptation interventions under component 3 and 4	- Assessment of monitoring needs - Monitoring plan / mechanism, incl. responsibilities - Development of monitoring guidelines - Development of sensor system, incl. drone for mapping land use and land cover changes and other (remote) sensing systems	Ghana and CdI project target areas		Everyone with internet access, esp planners and development professionals		95,000	UCC In cooperation with ANDE, SODEXAM and CRO) in CdI	Evidence of effectiveness and impacts of coastal building with nature adaptation interventions will be provided, which is needed for potential replication

Lack of national and district-level capacity to plan for coastal climate change resilience and to monitor and sustain project activities	Strengthened national and district level government capacities to manage the coast, including taking into consideration climate change impacts / risks and to monitor and sustain project activities	5.3. Strengthened capacity of national and district-level governments to use above model, assessment method and monitoring systems	- Workshops / trainings at national level (8) - Workshops / trainings at district level (8) - To mainstream the model and monitoring system into government processes of planning and monitoring	Ministries and target districts in Ghana and Côte d'Ivoire	Taken the Abidjan Convention mandate, it is best placed to strengthen capacities of government institutions related to coastal management and climate change in Ghana and CdI and to share lessons in the region and promote replication of best practices	T: 240; W: 40 % T: 240; W: 40 %	Target districts	140,000	AbC In cooperation with government institutions	Governments will have the capacity and tools to accurately identify and manage coastal climate change-related risks / impacts and plan for the future
Lack of knowledge / concrete examples of coastal climate change adaptation measures in West Africa, so these can be accelerated, scaled-up and/or replicated. Examples will come from comp 3 and 4 and vulnerability assessment from comp 1	Improved knowledge sharing of concrete coastal climate change adaptation measures from Ghana and CdI	5.4. West Africa / international knowledge management and sharing mechanism with a focus on feasible building-with-nature adaptation options to protect the coast and diversify and/or strengthened livelihoods, incl. to replicate these	- Project regional SC meetings (5), also to share lessons - Project national SC meetings (7 in each country), also to share lessons - Best practices and guidelines published and shared online - Project video with baseline and results - Developing and producing communication materials - Peer-learning events (4) - Support to the Abidjan Convention Resource Center	West Africa		T: 400 W 40 % T: 280; W 40 %	West Africa governments	326,000	AbC In cooperation with government institutions	Governments in West Africa will have concrete best practice examples of building-with-nature adaptation options to protect the coast and diversify and/or strengthened livelihoods
Total								**686,000**		
Grand total								**11,662,611**		

Part II.B PROMOTION OF INNOVATIVE SOLUTIONS

Innovations to adapt to climate change may be technological, such as the development of new varieties and new breeds, or institutional, such as implementing new rules, norms or organizations that improve collaborations to reduce the impacts of climate change (Asayehegn, 2017).

In this sense the project proposes a number of innovative solutions to adapt to climate change mainly:

Financial innovations: Innovative mechanism to finance climate change adaptation in the different types of interventions in the project, such as:

- Private Sector – communities partnerships to finance sand nourishment in coastal areas in West Africa, as an alternative to the developed countries model of government subsidies.
- Sale of carbon credits to finance mangrove restoration, following the successful example for mangroves in Kenya.
- Use of a percentage of the occupancy tax as a financial mechanism to pay for recurrent sand nourishment for businesses benefited by the intervention.
- Use of Municipal Service District (MSD) model to have properties and businesses benefiting by sand nourishment contributing through ad valorem increased taxes.

Institutional innovations: New or innovative structures to organize stakeholders (government, private sector and communities) to address climate change.

- Territorial, urban and community plans with a specific focus on climate change adaptation
- Use of spatial planning in Ghana and Cote d'Ivoire to physically define climate change adaptation measures and reduce uncertainty and increase awareness of climate change.
- CREMAS: Community Resource Management Areas, as community-based initiatives to localize the adaptation interventions, to ensure its co-design, implementation and maintenance, with resemblance to the Natural Resource Management Committee (NRMC) following the example developed in Mozambique, to avail additional resources for mangrove restoration from the 50% of community entitlement to fees charged from illegal cutters of mangroves reported by the community.

Technical innovations: Testing and promoting cost-effective alternative solutions and innovative techniques (i.e. ecosystem-based solutions and building with nature) to protect the coast (i.e. reduce the impacts of climate change and erosion and inundation / flooding) and enhance community level income generation through diversified and strenghtened livelihoods in the inland, which can be replicated in other countries in West Africa, through:

Transformative interventions: the following ecosystem-based solutions and 'building with nature' concrete coastal ecosystem / natural resource adaptation interventions have been selected:

- Mangrove restoration
- Coastal lagoons restoration
- Sand nourishment

Catalytic interventions: the following community-level concrete coastal adaptation concrete interventions have been selected:

- Pen culture
- Salt resilient crops and water infiltration

Additionally, in the various definitions that exist of innovation, there are two central concepts: creation and implementation, with the creation as the ability to develop new ideas and implementation as the global and local exploitation of those ideas.

According to this, innovations in the project can be classified as follows:

1. **Global innovations or state-of-the art new ideas being applied globally, such as:**
    - Performance-based contracts for the execution of project components, specifically the sand nourishment and lagoon stabilization, as a type of contracting with (1) a clear set of objectives and indicators, (2) systematic efforts to collect data on the progress of the selected indicators, and (3) consequences, either rewards or sanctions for the contractor, that are based on performance.
    - Sale of carbon credits to finance mangrove restoration, following the successful example for mangroves in Kenya.
    - Use of a percentage of the occupancy tax as a financial mechanism to pay for recurrent sand nourishment for businesses benefited by the intervention.
    - Use of Municipal Service District (MSD) model to have properties and businesses benefiting by sand nourishment contributing through ad valorem increased taxes.
2. **Local innovations as existing practices that have not been tested or implemented in Ghana and Cote d'Ivoire and therefore represent a local innovation**:
    - Territorial, urban and community plans with a specific focus on climate change adaptation

- Use of spatial planning in Ghana and Cote d'Ivoire to physically define climate change adaptation measures and reduce uncertainty and increase awareness of climate change.
- CREMAS: Community Resource Management Areas, as community-based initiatives to localize the adaptation interventions, to ensure its co-design, implementation and maintenance, with resemblance to the Natural Resource Management Committee (NRMC) following the example developed in Mozambique, to avail additional resources for mangrove restoration from the 50% of community entitlement to fees charged from illegal cutters of mangroves reported by the community.
- Use of diversified crops, nonconventional water resources and rehabilitation of marginal lands for agricultural uses, climate smart agriculture practices, agroecology activities, and crop-based management packages.
- Test the recent advancements on specialty group of alternate crops (oil seeds, legumes, cereals, medicinal, lignocellulose, and fruit crops) which can adapt in the marginal environments.
- Test the availability of alternate water resources (saline water, treated wastewater) for irrigation.
- Crop diversification systems involving drought and salt-tolerant crops.

Although sand nourishment is a well-established climate change adaptation solutions, it has not been thoroughly applied including sustainability and community engagement components. Sand nourishment also represent an innovation for Governments in West Africa to move from high-cost high maintenance solutions such as groynes to more lower cost, more adaptative ecosystem-based solutions such as sand nourishment.

During the last decade, the Ghanean government attempted to reduce coastal erosion in Ada district through the construction of 15 groynes. The structures did trap sediments and built up the beach at Keta. However, the structures also reduced sediment flow to the east, resulting in increased coastal erosion there. Moreover, the interventon came at a high cost: US$183 million. Therefore, for the government to be able to protect other coastal areas from erosion and inundatin / floods (caused by a combination of sea-level rise, increase of intensity of storms and human causes), alternative lower-cost bulding with nature coastal protection solutions need to be identified. The same accounts for Côte d'Ivoire, where the government doesn't have the financial means for such hard infrastructure interventions. Therefore, this project aims to show what building with nature coastal protecton measures are effective and cost-effective and promote the best options in West Africa. The same will be done for community-level income generation adaptation measures, for which risks at living and close to the sea will be reduced. During the project, the effectiveness and impacts of these interventions will be monitored, including at the international scale. For this purpose UN-Habitat works together with internationally recognised institutions and companies such as Arcadis, Deltares and Delta Alliance.

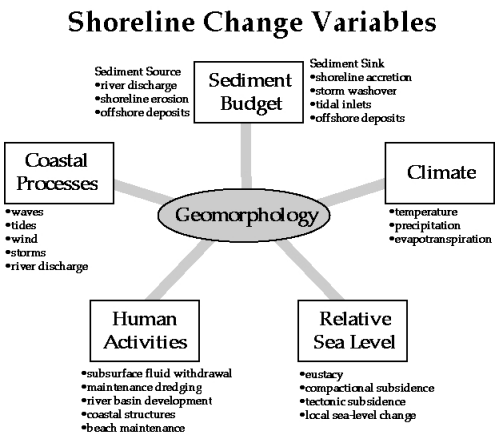
Integrative innovation through spatial planning for climate change adaptation:

Developing spatial development plans that can be used as tools / decision-making frameworks to move away future development from risk areas and identify and prioritise adaptation measures to those areas currently at risk (i.e. vulnerable). Thus, by integrating climate change (and gender) into spatial planning, governments better prepare the coast and people living there for future risks with a common long-term vision, combined with short-term priorities.

The understanding of spatial planning in this project shifts from current trends of detailed, prescriptive and static plans to developing more flexible and dynamic guiding tools for national and local governments. Strategic planning aims at being flexible to continuously changing demands, directing efforts towards processes through rapid planning methodologies focusing on the urban structure. This methodology will integrate climate change risk and vulnerability data and the knowledge acquired from the to-be-tested interventions as to guide the planning processes at the larger scale and define new prioritiy projects, supporting the long and short term decision making. Sustainability of this approach is ensured by collective knowledge playing a key role through participation, and by targeting implementation through strategic and feasible interventions. These planning processes will tackle potential areas for growth and development, key infrastructure development, areas for environmental preservation and non-aedificandi areas.

At any scale, these plans will establish a strategy for development that is flexible to regular updating and evaluation. Furthermore, it enables the integration of key issues not always considered in planning processes such as environmental protection or climate change resilience. Its strategic level and flexibility allows the synthesis of all these urban critical parameters to structuraly input the future development of an area. However, crucially important is the identification of high risk coastal erosion and flooding areas, where development should be avoided and / or, where possible, existing infrastructure and assets should be protected. For this, an erosion and flood impact and risk prediction model (see figure below) and assessment method needs to be developed, including information on predicted sea level rise, coastal processes (especially swells / waves), climate, sediment behavious and human activities. Although some models and methods exist, combining all elements influencing the behaviour of the coast has not been done properly.

Local and social innovation: Support monitoring of project activities, including innovative models and methods to do so, and sharing and replication of project best practices / lessons in Ghana and Côte d'Ivoire and West Africa, including districts and departments where these type of solutions and knowledge sharing has not yet happened in a systematic and programmatic manner.



Additionally, the project builds on an existing social innovation, the use of the CREMAS (Community Resource Management Areas) as community-based initiatives to localize the adaptation interventions, to ensure its co-design, implementation and maintenance. Another component for innovation is the link between environmental services and the mechanisms established to pay for them. In this sense, coastal protection is funded through the activities and benefits that it provides to residents, local businesses and communities, with the plans at the community level acting as the negotiating board to establish agreements for next phases of funding between private sector receivers of environmental services and community / government as providers of the environmental services to protect from coastal erosion.

Addressing the coastal challenges in West Africa described before, requires the involvement of and close collaboration between academic experts, engineers, decision-makers and local communities within a joint learning environment. Data and assessment and monitoring models and methods need to be shared, as well as best practices. This will be done through the Abidjan Convention and the University of Cape Coast.

Part II.C ECONOMIC, SOCIAL AND ENVIRONMENTAL BENEFITS

The current unsustainable growth patterns and inadequate infrastructure development, coupled with climate change trends, are causing loss of lives, assets, livelihoods and ecosystems. If no action is taken, risks in the already vulnerable communities are expected to potentially increase. By implementing a combination of concrete coastal protection measures, initiatives to protect and / or enhance livelihoods, and spatial planning strategies to avoid future development in risk areas, this project is expected to reduce future climate change related risks as well as economic, social and environmental loss.

Given that communities, and especially vulnerable groups and women, have been involved during the project design phase and will be involved during the project implementation, they had the opportunity to directly influence the design and selection of project activities and outcomes, thus influencing their direct project benefits. For instance, the way livelihood options will be enhanced depends on the inputs (i.e. specific needs and issues expressed) from vulnerable groups and women. The project will specifically target women committees and select women and youth groups for certain trainings.

The design and implementation of the project focuses on maximizing the impact of 'concrete' interventions under component 3 and 4 to directly benefit the most vulnerable populations. Criteria used to select interventions included adaptation effectiveness to respond to coastal challenges, benefits to the communities and specific groups, and maximizing beneficiaries' numbers (i.e. cost-effectiveness) where possible. Beneficiaries from interventions including disaggregated data are detailed in.

Lessons learned will benefit governments not only at the national, district and community level in Côte d'Ivoire and Ghana, but also other governments in West Africa, through activities under component 5.

Economic benefits*:* the impact of climate change on the economic activities of the coastal area has been widely recognized by the targeted communities. Sea level rise, erosion, coastal and inland flooding and saltwater intrusion are leading to increasing economic, households' assets and land losses, while also threatening the livelihoods these communities rely on. Natural dynamics that support the ecosystems and its biodiversity are being unbalanced, compromising local and national economy. Food security is also at risk, increasing the vulnerability of communities.

The project targets the most vulnerable coastal groups and low-income communities, who are relying on natural resources such as fisheries and agriculture for income. In the case of fishermen, on the one hand, the changing climate is reducing the periods when they can go out fishing (i.e. fishing is unsafe and fishing practice is suspended). This specially affects women, who become the only household support for families. In many cases, women sell what it is fished by men so during this period they do not have product for the market. On the other hand, erosion and flooding impact key economic assets such as areas for markets, fish processing and boat repairing. Again, women are particularly vulnerable to this as many of them rely on such markets for subsistence.

In the case of Côte d'Ivoire, the coastline is the principal economic national resource. The diverse habitats that characterize the littoral constitute an asset, with important cultural and touristic value. The principal activities in the coastal area include fishing, agriculture, forestry, factories and tourism. Also, the Ebrie Lagoon has an important socio economical location at a countrywide scale, mostly due to Abidjan being situated there. Abidjan represents 60 percent of the industrial sector employment, 80 percent of the industrial production and concentrates 90 percent of the commercial added value of the country, due to its coastal location

Under clear signs of agriculture and water resources in the coastal zone being highly impacted, Ghana's Government has recognized how climate change and the cost of climate change response is a serious threat to progress. This increases the level of poverty and especially impacts women. Flooding, for example is an obvious and immediate threat to economic growth, energy supply, roads and transport, food and agriculture, education, health, water and sanitation, and social protection.

The above highlights how the existing degradation of the environment in the coastal areas is a major threat to national and local economies. Planning for a more sustainable development (as per components 1 and 2) and the implementation of concrete adaptation interventions (as per components 3 and 4) will reduce losses, support food security, and support a more sustainable economy. The project will protect the current communities' assets and sources of income, where possible, and support livelihood opportunity in less risk / vulnerable areas (i.e. more land-inwards). It will also aim at generating revenue through community work, whenever possible, giving opportunities for youth employment in construction activities. The above would especially support women as they face challenges related to working opportunities and its derived poverty.

Social benefits: when dealing with climate change, it is frequent to find that most socially vulnerable communities are the ones located in risk areas with high exposure to climate change hazards. These communities tend to be socially excluded, often neglected from development investments which implies, among other challenges, lack of basic services and possible health problems. In addition, current trends of development are deriving in inefficient use of resources, enhancing insecurity and inequality. Women are specially affected due to persisting gender inequalities that undermine their adaptive capacities.

In Côte d'Ivoire, this inequality and its derived poverty, have led to an increased need for means of livelihood with consequent migration of the population towards the coastal zones. This pressure on ecosystems is enhancing several problems such as over-exploitation of resources, land property and social conflicts.

In Ghana, urban sprawl and unplanned growth is having the same effects. In the project targeted area, a direct linkage between highest levels of poverty and low-density areas has been identified. This also explains rural migration to urban areas, which frequently derive in informality. As indicated in the National Development Framework 2015-2035, urbanization is a driver of Ghana's economy and it is clearly linked to poverty reduction.

The above illustrates the need of a more resilient and social inclusive planning approach towards development (as per components 1 and 2) that will reduce climate change induced poverty, mortality, diseases and insecurity. These components will work on preventing communities from settling in high risks areas, which will reduce their exposure, and increase empowerment and long-term opportunities. Planning can also avoid diseases coming from environmental pollution and bad quality of urban spaces, and support on ensuring better services provision. These issues were highlighted by elderly people as a challenge they face. The implementation of concrete interventions (as per components 3 and 4) will protect these communities, reducing their vulnerability and improving their quality of life. This will directly increase their social resilience since their current poverty and lack of capacity prevents them from coping with the impacts of climate change.

Regarding social resilience, children have been identified as being specifically vulnerable. Due to high poverty and lack of adequate services and infrastructure, they face health risks (e.g. diarrhoea or respiratory infections). Some educational services have been destroyed by coastal erosion and children have to travel for long through poor infrastructure. Moreover, in the project target areas in Ghana, especially in fishing communities, children trafficking exists and there is a high percentage of orphanages. This is a direct effect of extreme poverty, where parents are not able to take care of their children anymore because of reducing incomes and costs related to erosion. Through planning and concrete interventions, the project will aim at reverting and improving these conditions, ensuring long-term resilience.

Ultimately, capacity building to strengthen community knowledge and response to climate change related hazards (as per component 2), as well as the participatory process through the whole project, will facilitate the contribution of local communities to the project. This will ensure ownership and it will enhance the inclusion and empowerment of minorities and vulnerable population in the decision-making processes. The integration of most vulnerable groups, for example women, will be ensured by quotas of participation, women group discussions and collaborations with women organizations. Youth also plays a key role in the whole process as a youth led development will facilitate sustainability and potentialize resilience.

Environmental benefits: as previously mentioned, the way urbanization and development is taking place together with the changing climate, are strongly affecting the environment. For long time growth has not considered the natural

dynamics in which it settles, and it has derived in land reclamation from environmental areas. The misuse of natural resources is altering to a great extent the ecosystems and its biodiversity, also increasing vulnerability to climate change.

In Côte d'Ivoire, due to industrial development, coastal habitats have degraded. It is estimated that 60 percent of mangroves areas around Abidjan have been lost. Infrastructure development has also impacted natural dynamics by reducing the amount of sediment that will flow downstream, deriving in coastal erosion and saltwater intrusion. The erosion in the littoral zone from Abidjan to Assinie is currently around 1-2 m per year putting shoreline settlements at risk, and the salinization of water and soil are negatively affecting mangroves and crops. Moreover, there is a waste management problem, and many lagoons are polluted.

In Ghana, deforestation is a critical problem. The extraction of mangrove for fuel wood and urban encroachment is particularly alarming. In the Volta region grassland gain and cropland loss has reached 30 percent in the last decade, while in Greater Accra region 22 percent of wetlands have been lost. In coastal areas erosion rates is around 1.5 per year, with bigger rates in the Volta estuary, 2-3m a year, and in Keta, around 8m per year. Moreover, there is a waste management problem, and many lagoons are polluted.

Spatial planning, both at sub-national and district/department level (as per component 1) will aim at integrating the territory and its dynamics into the planning process. Nature and its systems will become part of the resilience development strategy in order not only to restore what has been lost and protect what remains, but also to potentialize and maximize the interaction of the built and natural environment. This will be implemented through the ecosystem-based interventions (as per components 3 and 4), which will tackle the roots of climate change challenges by working with nature. The community-based interventions will also benefit the environment by raising awareness and ownership from the local people on the importance of the ecosystems as a structural and indispensable element for their resilience. Moreover, Resources management plans will be developed (component 2) to ensure the long-term sustainability of the interventions.

Table 6. Benefits per proposed concrete project activity

Transformative and catalytic interventions	Economic Benefits	Social Benefits	Environmental Benefits	Specific benefits to vulnerable groups incl. women and youth.
Mangrove restoration along the Volta estuary in Keta district	• Livelihood creation (fisheries, mollusc collection, eco-tourism). • Reduction of loss and damage from natural hazards (flooding and erosion).	• Increased security due to flood and erosion protection. • Poverty reduction. • Improved food security. • Capacity building. • Protection of social dynamics and traditions.	• Soil stabilization. • Flood reduction. • Biodiversity conservation. • Water quality maintenance. • Carbon storage. • Protection of ecosystem services	• Women: increased livelihood opportunities. Between 1,000 to 2,000 women are involved in clam and wood collection. • Youth: increased livelihood opportunities linked to capacity built on restoring mangrove ecosystems, as well as on traditional fisheries, or educational/eco-tourism activities. • Elderly: increased security due to flood protection and reduction of loss and damage. • Children: increased food security and access to education by promoting sustainable livelihoods that will improve families' economic capacities.
Coastal lagoons restoration in Ada East, Ada West and Keta districts	• Livelihood creation (fisheries, eco-tourism). • Reduction of loss and damage from natural hazards (flooding and erosion).	• Increased security due to flood and erosion protection. • Poverty reduction. • Improved food security. • Capacity building. • Protection of social dynamics and traditions.	• Soil stabilization through vegetation replanting. • Flood reduction through increase water storage. • Biodiversity conservation. • Reduced pollution. • Protection of ecosystem services. •	• Women: they will benefit from the fishing resources mainly working on processing and market. • Youth: increased livelihood opportunities linked to capacity built on restoring lagoons ecosystems, as well as on new forms of sustainable fisheries, or educational/eco-tourism activities. • Elderly: increased security due to flood protection and reduction of loss and damage. • Children: increased food security and access to education by promoting sustainable livelihoods that will improve families' economic capacities.
Mangrove restoration along the coast in Grand Bassam and Jacqueville	• Livelihood creation (fisheries, mollusc collection, eco-tourism). • Reduction of loss and damage from natural hazards (flooding and erosion).	• Increased security due to flood and erosion protection. • Poverty reduction. • Improved food security. • Capacity building. • Protection of social dynamics and traditions.	• Soil stabilization. • Flood reduction. • Biodiversity conservation. • Water quality maintenance. • Carbon storage. • Protection of ecosystem services	• Women: increased livelihood opportunities. Between 1,000 to 2,000 women are involved in clam and wood collection. • Youth: increased livelihood opportunities linked to capacity built on restoring mangrove ecosystems, as well as on traditional fisheries, or educational/eco-tourism activities. • Elderly: increased security due to flood protection and reduction of loss and damage. • Children: increased food security and access to education by promoting sustainable livelihoods that will improve families' economic capacities.
Sand nourishment along the coast of Grand Bassam	• Reduction of loss and damage from natural hazards (flooding and erosion). • Increase of subsistence means by resuming seaside activities.	• Increased security due to flood and erosion protection. • Poverty reduction.	• Soil stabilization. • Flood reduction. • Biodiversity conservation. • Protection of ecosystem services • Increase in the available beach area	• Women: women empowerment through the protection of key assets they rely on for livelihoods, such as markets. • Youth: employment opportunities. • Elderly: increased security due to flood protection and reduction of loss and damage. • Children: increased food security and access to education by reducing poverty levels.
Sand nourishment of lagoons in Jacqueville	• Reduction of loss and damage form natural hazards (flooding and erosion). • Increase of subsistence means by resuming seaside activities.	• Increased security due to flood and erosion protection. • Poverty reduction.	• Stabilization of the lagoon shore • Flood reduction. • Biodiversity conservation. • Protection of ecosystem services	• Women: women empowerment through the protection of key assets they rely on for livelihoods, such as markets. • Youth: employment opportunities. • Elderly: increased security due to flood protection and reduction of loss and damage.

				• Children: increased food security and access to education by reducing poverty levels.
Pen culture systems installed and operational in Ada East, Ada West, and Keta districts	• Livelihood creation (fisheries).	• Poverty reduction. • Improved food security. • Capacity building. • Protection of social dynamics and traditions. •	• Environmental protection including biodiversity conservation and reduced pollution.	• Women: increased livelihood opportunities. Between 1,000 to 3,000 women are involved in fishing. • Youth: increased livelihood opportunities linked to capacity built on sustainable fisheries, or educational/eco-tourism activities. • Elderly: increased food security and nutrition due to improvements in fishing. • Children: increased food security and access to education by promoting sustainable livelihoods that will improve families' economic capacities.
Salt resilient crops and water infiltration introduction systems installed and operational in Keta district	• Livelihood creation (climate resilient agriculture).	• Poverty reduction. • Improved food security. • Capacity building. • Protection of social dynamics and traditions.	• Environmental protection by reducing salinity levels induced by climate change.	• Women: increased livelihood opportunities. Between 2,000 and 4,000 women are involved in farming and agro industrial related processing activities and marketing of agric products. • Youth: increased livelihood opportunities linked to capacity built on improving agriculture as well other traditional fisheries, or educational/eco-tourism activities. • Elderly: increased food security and nutrition due to improvement in agriculture. • Children: increased food security and access to education by promoting sustainable livelihoods that will improve families' economic capacities.
Pen culture systems installed and operational in Grand Bassam and Jacqueville	• Livelihood creation (fisheries).	• Poverty reduction. • Improved food security. • Capacity building. • Protection of social dynamics and traditions.	• Environmental protection including biodiversity conservation and reduced pollution.	• Women: increased livelihood opportunities. • Youth: increased livelihood opportunities linked to capacity built on sustainable fisheries, or educational/eco-tourism activities. • Elderly: increased food security and nutrition due to improvements in fishing. • Children: increased food security and access to education by promoting sustainable livelihoods that will improve families' economic capacities.

Part II.D COST-EFFECTIVENESS

The project aims to maximise 'concrete' interventions under components 3 and 4 to benefit the most vulnerable populations directly. Thus, limiting the 'non-concrete' components to those activities required to supporting the appropriate implementation of the 'concrete' interventions (components 3 and 4), to develop a framework further, to enhance climate resilience through spatial and land use planning (component 1), and to ensure ownership, sustainability and replication of the whole project (components 2 and 5).

In general, the regional approach stimulates cost-efficiency on several levels. First, in the West of Africa, economies of scale can be applied to reduce costs of interventions. Second, although the proposed interventions are small-scale, upscaling options can be identified within the entire region, connecting the system as a whole. Third, during the upscaling process, knowledge gained in specific projects can be shared, allowing the whole region to adapt to climate change. Fourth, moving from a larger regional scale to the most vulnerable communities through stakeholder consultation provides the most vulnerable with adaptation options, whereby high damage costs are reduced/avoided for the region.

***Cost-effective rational - component 1 - Urban and territorial management and planning at National and district/department levels**:* Spatial and land use planning is considered one of the most cost-effective ways to understand and respond to climate change risks and vulnerability. Spatial planning can help avoid development in disaster-prone areas (and associated costs, such as reconstructing destroyed houses and assets). By applying spatial planning tools at an early stage, governments and communities can anticipate and react in due time to challenges, resulting in economic savings associated with prevention instead of reaction and social and environmental benefits.

Cost-effective rational - component 2 - Resilience planning at the community level: The project aims to maximise the positive impacts of concrete interventions for communities. NGOs' supporting role represents a key aspect of the project. They work directly with communities and vulnerable groups to achieve positive impacts. NGOs' role will focus on assessing communities and establishing relations with them, thereby ensuring that capacity gaps are filled. NGOs will also play a key role in securing ownership of the project by the communities and contributing to the operation and maintenance of the projects that the community cannot directly execute.

Cost-effective rational - component 3 - Transformative concrete coastal resilience building interventions: A cost-effectiveness analysis of the different interventions was conducted during the full proposal development phase. From this analysis, interventions are proposed that benefit most communities and people. The selection criteria prioritised interventions with the most significant social, economic, and environmental impacts with the lowest financial implications. In addition, the proposed measures significantly improve disaster prevention, whereby every dollar invested in prevention represents a fraction of what would have been necessary for disaster response and recovery.

Besides, the project seeks to achieve cost-effectiveness through economies of scale in procurement processes and contracts whenever possible. The regional scale allows for activities to be developed simultaneously in both countries. The project also seeks to develop procurement and partnerships with governments and their agencies (e.g., using dredging machines) and the private sector to minimise project costs. The outcomes of consultations shaped the selection of proposed interventions. In line with the regional approach, the interventions selected were already identified and coincide with the local needs, risks, and opportunities in regard to climate impact; therefore, communities are likely to support the interventions, which saves costs on intervention identification processes. Some of the proposed interventions were excluded due to cost-inefficient (high costs), non-feasibility due to, e.g., environmental risks and non-preference of beneficiary groups. In some discussions, communities suggested new interventions (e.g., pen culture).

Cost-effective rational - component 4 – catalytic concrete coastal resilience building interventions: Some of the interventions proposed are no-regret measures. These measures will be necessary regardless of the uncertainty within climate change and can, therefore, substantially reduce, e.g., harvest loss or property destruction during a drought or flood. The proposed interventions will be scaled to a size manageable by communities. This is required to enhance ownership and sustainability of the project and mitigate potential social and environmental risks. The community-based approach, which has been used across multiple cities and sectoral contexts, is most cost-effective compared to larger-scale procurement. This approach builds on community decision-making, local know-how and networks, and facilitation. Besides, it provides communities with flexibility to adapt according to their financial means and needs, allowing them to opt for the most cost-efficient intervention at the right time and context specific. Each dollar is spent to amplify the communities' benefit in a transparent decision-making process.

***Cost-effective rational component 5 - institutional and regulatory framework**:* Although this component is required to institutionalise the project, the replication of lessons learned and interventions focus on effective and low-cost options, which will benefit communities from a cost-effectiveness point of view. Communities might adopt different interventions at different moments, whereby knowledge, experiences, and lessons learned can be exchanged to save costs and ensure continuity of the gained and applied knowledge after the project. Early warning systems are an example of an intervention requiring institutional change and acceptance but are cheaper than engineered defence structures.

Below two types of tables can be found; one pertaining to the intervention and associated estimated costs per region and another highlighting the differences per selected interventions. Based on discussions with communities, local, and international technical experts, the interventions were ranked (from low to high with colours indicating the effects). Local acceptance (local preference); costs per beneficiary; environmental risk; local capacity (to construct or implement the intervention); and maintenance (can be executed by the communities or others in the region).

Component 3:

Table 7 Mangrove restoration (mangrove planting)

Output/activity	Total project cost	Beneficiaries		Cost-effectiveness (Total Cost/Beneficiaries)		To address
		Direct	Indirect	Direct (USD/Beneficiary)	Indirect (USD/Beneficiary)	
3.1. Mangrove restoration along the coast and Volta estuary (Keta District – Ghana)	1,222,053	13,082	5,657	93	216	Lagoons flooding and erosion
3.3 Mangrove Restoration along the coast and lagoon (Grand Bassam & Jacqueville – Côte d'Ivoire)	614,953	8,318	11,214	74	55	

Criteria ranked in order of decreasing importance	Selected measure	Alternative measures		
	Mangrove restoration (mangrove planting)	Sand by-passing: Dredging sediment from the river mouth and relocate to erosive areas	Construction of groyne to improve sand by-passing	Zero - option: do nothing, relocate people or avoid people moving to a risky area
Technical feasibility	High	High	High	High
Local acceptance	High	Medium	Low	Low
Manageable at the regional level	High	High	High	Medium
Environmental risk	Low	High	High	Low
Financial feasibility	Medium	Low	Low	High
Potential for community participation	High	Low	Low	Medium
Operational feasibility	Medium	Medium	Low	Medium
Sustainable/ effectiveness	High	Medium	Medium	Low
Potential for women's' involvement	High	Medium	Medium	Low
Costs per beneficiary	Low	High	High	Low

Several measures were proposed and discussed with communities to protect lagoons against flooding and erosion. Mangrove restoration was identified as the most suitable measure for these specific locations. The table above indicates that although the success rate of mangrove restorations is not too high, local acceptance, feasibility, and overall cost-efficiency are the highest for mangrove restoration in comparison to the alternatives that protect against flooding and restore erosive areas. Furthermore, mangrove restoration has several positive side effects improving widespread adaptation to climate change, such as the possibility of mangrove growth keeping pace with sea level rise, as described in the project sheets (Annex 8).

Table 8 Coastal lagoon restoration incl. cleaning and waste management

Output/activity	Total project cost	Beneficiaries		Cost-effectiveness (Total Cost/Beneficiaries)		To address
		Direct	Indirect	Direct (USD/Beneficiary)	Indirect (USD/Beneficiary)	
3.2. Coastal lagoon erosion (Ada East, Ada West & Keta district – Ghana)	1,125,126	23,480	34,354	48	33	Flooding

Criteria ranked in order of decreasing importance	Selected measure	Alternative measures for the waste management		
	Coastal lagoon erosion: incl. cleaning and waste management	Provision of fresh/ potable water	Connect river to the lagoon as freshwater source	Zero - option: do nothing
Technical feasibility	High	High	Medium	High
Local acceptance	High	Medium	Medium	Low
Manageable at the regional level	High	High	High	Low
Environmental risk	Medium	Low	High	High
Financial feasibility	High	Medium	Medium	High
Potential for community participation	Medium	Low	Low	Medium
Operational feasibility	High	Medium	Low	Medium
Sustainable/ effectiveness	Medium	High	Medium	Low
Potential for women's' involvement	High	High	Medium	Low
Costs per beneficiary	Medium	High	Medium	Low

Several measures were proposed and discussed with communities to protect coastal lagoons against erosion and flooding. Besides prevention against flooding also a cleaning and waste management was identified as the most suitable measure for the specific location to reduce pollution that limits productivity of the lagoon. The cleaning and waste management measure is a comprehensive measure that, in comparison to the alternative measures is a cost-efficient and sustainable way. Alternatives proposed will not have the same lasting positive effect for the region and could result in higher installation costs or maintenance.

Table 9 Sand Nourishment

Output/activity	Total project cost	Beneficiaries		Cost-effectiveness (Total Cost/Beneficiaries)		To address
		Direct	Indirect	Direct (USD/Beneficiary)	Indirect (USD/Beneficiary)	
3.4. Sand Nourishment along the coast (Grand Bassam – Côte d'Ivoire)	1,265,527	4,090	7,263	309	174	Floods

Criteria ranked in order of decreasing importance	Selected measure: Sand Nourishment along the coast (Grand Bassam – Côte d'Ivoire)	Alternative measures: Groynes construction and other hard infrastructure sea defence	Perched beach: submerged dams combined with beach nourishment. Submerged dams may be possible areas for aquaculture	Zero - option: no coastal defence, relocate people or avoid people moving into risk area through spatial planning.
Technical feasibility	High	Medium	Medium	High
Local acceptance	High	Medium	Low	Medium
Manageable at the regional level	High	High	High	Low
Environmental risk	Medium	High	High	Medium
Financial feasibility	Medium	Low	Low	High
Potential for community participation	Low	Low	Low	Medium
Operational feasibility	High	Medium	Low	High
Sustainable/ effectiveness	Medium	Medium	High	Low
Potential for women's' involvement	Medium	Medium	Medium	Low
Costs per beneficiary	High	High	High	Low

Several measures were proposed and discussed with communities to protect them from floods. Sand nourishment was identified as the most suitable measure for the specific location. Sand nourishments are large interventions and depend on professional contractors to execute the implementation. Although the implementation might lead to substantial costs, the alternatives also demand high continuous investments and do not provide the same benefits, such as local acceptance, operational feasibility, the potential for nature-based solutions, and easy adaptability to increasing sea level rise. The lessons learned from the sand nourishment in this region can be upscaled to the whole West African Coast to reduce future costs.

Table 10 River embankment of the lagoon

Output/activity	Total project cost	Beneficiaries: Direct	Beneficiaries: Indirect	Cost-effectiveness (Total Cost/Beneficiaries): Direct (USD/Beneficiary)	Cost-effectiveness (Total Cost/Beneficiaries): Indirect (USD/Beneficiary)	To address
3.5. River embankment of the lagoon (Jacqueville – Ivory Coast)	900,000	2,906	3,305	309	272	Floods and erosion

Criteria ranked in order of decreasing importance	Selected measure: River embankment of the lagoon (Jacqueville – Ivory Coast)	Alternative measures: Sand by-passing: Dredging sediment from the river mouth and relocate to erosive areas	With the construction of groyne upstream of the river mouth. Sediment is trapped at the groyne, which makes by-passing easier	Zero - option: do nothing
Technical feasibility	High	High	High	High
Local acceptance	High	Low	Low	Medium
Manageable at the regional level	High	High	Medium	Low
Environmental risk	Medium	High	High	Medium
Financial feasibility	Medium	Medium	Medium	High
Potential for community participation	Medium	Low	Low	Medium
Operational feasibility	High	Medium	Low	High
Sustainable/ effectiveness	High	Medium	Medium	Low
Potential for women's' involvement	Medium	Low	Medium	Low
Costs per beneficiary	Low	High	High	Low

Several measures were proposed and discussed with communities to protect them from floods and erosion. A river embankment was identified as the most suitable measure for the specific location. The proposed river embankment has several outstanding cost-efficiency benefits compared to the alternatives, such as low costs per beneficiary, the potential involvement of communities, and high operational feasibility. Although all selected and alternative measures will need continuous maintenance, a sand by-pass and the construction of gryones will depend on extensive and constant dredging, which is financially draining.

Component 4:

Table 11 Pen culture

Output/activity	Total project cost	Beneficiaries: Direct	Beneficiaries: Indirect	Cost-effectiveness (Total Cost/Beneficiaries): Direct (USD/Beneficiary)	Cost-effectiveness (Total Cost/Beneficiaries): Indirect (USD/Beneficiary)	To address
4.1. Pen culture systems installed and operational (Ada East, Ada West & Keta district – Ghana)	810,099	26,849	30,697	30	26	Economic resilience through livelihoods diversification.
4.3. Pen culture systems installed and operational. (Grand Bassam & Jacqueville – Côte d'Ivoire)	951,229	12,388	16,560	76	57	

	Selected measure	Alternative measures		
Criteria ranked in order of decreasing importance	Pen culture	Improved fisheries management	Salt mining on lagoon marshes	Zero - option: do nothing
Technical feasibility	High	High	Medium	High
Local acceptance	High	Medium	Low	Medium
Manageable at the regional level	Medium	High	High	Low
Environmental risk	Medium	High	High	High
Financial feasibility	Medium	Medium	High	High
Potential for community participation	High	Medium	Low	Medium
Operational feasibility	Medium	Medium	Low	High
Sustainable/ effectiveness	Medium	High	Medium	Low
Potential for women's' involvement	High	High	Medium	Low
Costs per beneficiary	Medium	Medium	Medium	Low

Several measures were proposed and discussed with communities to increase economic resilience through livelihoods diversification. Pen culture was proposed and identified by communities as the most suitable measure for the specific location. Compared to the alternative measures, pen culture provides communities with more independence from seasonality and climate change effects. While the current condition of the lagoons is abysmal, pen culture allows communities to utilize the lagoons effectively and reduce pressure on the natural ecosystem. Overall, pen culture is more cost-efficient and sustainable compared to the alternatives. For further information, see the project sheets (Annex 8).

Salt resilient crops and water infiltration systems

		Beneficiaries		Cost-effectiveness (Total Cost/Beneficiaries)		
Output/activity	Total project cost	Direct	Indirect	Direct (USD/Beneficiary)	Indirect (USD/Beneficiary)	To address
4.2. Salt resilient crops and water infiltration systems installed and operational. (Keta District – Ghana)	1,068,325	48,346	40,329	22	26	Economic resilience through livelihoods diversification.

	Selected measure	Alternative measures		
Criteria ranked in order of decreasing importance	Salt resilient crops and water infiltration systems	Improved agriculture management.	Infrastructure to enforce the coast and reduce water intrusion	Zero - option: do nothing
Technical feasibility	High	High	Medium	High
Local acceptance	High	Medium	Low	Medium
Manageable at Regional level	High	High	High	Low
Environmental risk	Medium	High	High	Medium
Financial feasibility	Medium	Medium	Low	High
Potential for community participation	Medium	Medium	Low	Medium
Operational feasibility	Medium	High	Medium	Low
Sustainable/ effectiveness	High	Medium	Low	Low
Potential for women's involvement	High	High	Low	Low
Costs per beneficiary	Medium	Medium	Medium	Low

Several measures were proposed and discussed with communities to increase economic resilience through livelihoods diversification. Communities and experts identified salt resilient crops and water infiltration systems as the most suitable measure for the specific location. Although improved agriculture management can alleviate some of the issues, continued salt intrusion requires more substantial agricultural changes, such as introducing a salt resilient crop. Both alternative measures provide short-term relief from salt intrusion, whereas salt resilient crops are a longer-term adaptation option.

Altogether, the project will be cost-effective by:

- ☐ Avoiding future costs associated with damage and loss due to climate change impacts (especially floods) and to ensure the interventions are sustainable.
- ☐ The regional approach emphasizes the benefit of local solutions, as these interventions can work within the financial framework of communities and aligns with their needs.
- ☐ Efficient project operations because of 'in-house' technical support options and capacity building expertise and because of direct partnering with the municipality (thereby building their capacity as well as reducing costs).
- ☐ Community involvement with development/construction of concrete interventions and because of community capacity building

Selected technical options based on cost-, feasibility and resilience/sustainability criteria

Part II.E CONSISTENCY WITH NATIONAL OR SUB-NATIONAL STRATEGIES

The proposed project is supporting reaching Ghana and Côte d'Ivoire goals under the SDGs, particularly by contributing to the progressive achievement of **SDGs 6, 11, 13, 14 and 15.** Furthermore, the project has direct linkages with the implementation of the New Urban Agenda as it promotes integrated and participatory approaches involving all relevant stakeholders and all inhabitants, especially people in vulnerable situations and both genders, avoiding spatial and socio-

economic segregation and gentrification, while preserving cultural heritage, protecting the environment and preventing and containing urban sprawl and climate hazards. Its objectives align as well with the Paris Agreement, particularly on articles 2, 7, 8, 11, 12, by aiming to strengthen resilience and the response to the threat of climate change, in the context of sustainable development and to eradicate poverty and reduce vulnerability.

The project is also in line with the **4 Domains of Changes of UN-Habitat Strategic Plan 2020-2023** and the **flagship Programme 3: RISE UP: Resilient Settlements for the Urban Poor**, by tackling issues of poverty, spatial inequality and resilient settlements (see below). The following domains of change and subdomains link to the outputs of the project.

DoC1: Reduced spatial inequality and poverty in communities across the urban – rural continuum (1.1, 1.3)
DoC2: Enhanced shared prosperity of cities and regions (2.1)
DoC3: Strengthened climate action and improved urban environment (3.2, 3.3)
DoC4: Effective urban crisis prevention and response (4.1, 4.2, 4.3)
Flagship Programme 3: RISE UP: Resilient Settlement for the Urban Poor

Ghana

The project will help achieving the goals of Ghana's Intended Nationally Determined Contribution 2015 (INDC) which is based on Ghana's Shared Growth Development Agenda II, the 40-year socio-economic transformational plan and the National Climate Change Policy (2013). The project will focus on building climate resilient strategic infrastructure, which is identified as an strategic area for policy action in the INDC. More specifically, it addresses the objectives, strategies and priority actions specified by the National Climate Change Adaptation Strategy from 2012. The different components will focus on the areas prioritised by the National Climate Change Policy (2013), also supporting and giving continuation to Ghana's Plan of Action on Disaster Risk Reduction and Climate Change Adaptation (2011/2015). The components of the proposed project will support activities of the plan such as ensuring regional, national and local coordination; identification and assessment of disaster risks; use knowledge, innovation and eductation to build culture of safety and resilience; and reinforcing land-use planning and other technical measures to build resilience. Ultimately, the project will leverege the achievements of the National Adaptation Plan Framework 2018 (NAP) process established under the UNFCCC. In relation to sustainable urban development of cities and towns the project will be aligned with the National Urban Policy Framework (2012) and Action Plan and be consistent with the National Spatial Development Framework 2015-2035 and the pertinent Regional Spatial Development Frameworks, District Spatial Development Frameworks, structure plans and local plans.[74]

In the National Spatial Development Framework 2015-2035 more issues and challenges are identified, such as the need for environmental protection and conservation, more sustainable development in the coastal zones and shift from the urban sprawl trend. The project will aim at tackling these challenges as well as promoting proposed strategies, like urbanisation as a driver for economic growth and poverty reduction. These issues are not only a concern at national level but also at regional level. The Greater Accra Spatial Development Framework also showcases population growth, open space degradation and urban sprawl as problems and aims at a more sustainable, liveable and safe region.

Ultimately, through improved development planning the project will assist on mantaining the ecological integrity of wetlands and other ecosystems, guiding on healthy development practices, integrating environmental considerations in sectoral structural planning, and facilitating a more efficient use of natural resources. This approach is directly aligned to main needs and issues described in the Coastal Wetlands Management Plan, the Environmental Action Plan and the Ghana National Aquaculture Development Plan.

Other relevant strategies are:

- ☐ Nationally Appropriate Mitigation Action
- ☐ Ghana's First (2002), and Second (2006) National Communications to the UNFCCC
- ☐ Climate Change Technology Needs Assessment (2003)
- ☐ Ghana Climate Change Impacts, Vulnerability and Adaptation Assessments (2008)
- ☐ The Clean Development Mechanism

Cote d' Ivoire:

The project will work on several of the most relevant national challenges and will be aligned with strategies from the INDC, the National Adaptation Plan, the National Environment Action Plan, *the National du Developpement durable en Côte d'Ivoire dans la perspective de Rio+20*, the National Development Plan 2016-2020 and 2021-2025 (and the United Nations Sustainable Development Cooperation Framework (UNSDCF) 2021-2025, to ensure alignment of the UN System with the UNSDCF), and the Programme National Changement Climatique 2015-2020. Regarding risk reduction, the main document the project will be aligned with is the Stratégie Nationale de Gestion des Risques de Catastrophes & Plan d'Action and the Cadre National des Services Climatiques. The project will support initiatives from these plans such as: improvement of disaster risk reduction and coastal areas management, elaboration of a coastal adaptation strategy, build active protection structures, ecosystems restoration, better management of natural resources, and consolidation of co-operation links between Cote d' Ivoire, the West African region and the international community. The

[74] *As described in the National Urban Policy Framework of Ghana (2012)*

project will also leverage the achievements of the National Adaptation Planning (NAP) process established under the UNFCCC. In relation to development the project will be aligned with the Plan National de Developpement 2016-2020 and the Territorial Development Policy Framework (2006).as well as the pertinent development schemes and plans.

Regarding spatial development, at the national scale the project will be alligned with the key actions of the Territorial Development Framework adopted in 2006. This document sets a legal framework for central and local development. It ensures coherence between country, urban and sector infrastructure plans, and links national objectives with regional planning, through a participatory development process. At the district scale, the project for the Development of the Urban Master Plan in Greater Abidjan remarks managing pressure for urbanization, urban sprawl, and planning for population growth and competing land-uses, as key planning issues in the area. The document raises the concern of the continious degradation of the environment that will take place if these issues are not tackled. This degradation will keep evolving in loss of natural forest and biodiversity assests, low quality living, increasing pollution etc. The project will align with this Plan by addressing these challenges through the different components, aiming at a more sustainable and resilient urban area. Ultimately, the project approach strongly supports the strategic assests described in the Plan National de Développement 2016-2020, such as accelerating the development of human capital and social well-being, development of infrastructure harmoniously over the national territory and preservation of the environment, and stregthening regional integration and international cooperation.

For a detailed overview of project alignment with national and sub-national strategies, see Annex 7.

Part II.F COMPLIANCE WITH RELEVANT NATIONAL TECHNICAL STANDARDS

The project complies with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund. During preparation of the full proposal, a detailed risk screening and impact assessment of all project activities was been undertaken (see a summary in Part II, Section K and details in Annex 5).

In developing Component 3 and 4 of this project an analysis of relevant national standard was undertaken. The findings of the analysis are summarized in the tables below and reflected in the risks screening belonging to the ESMP (see risk screening regarding principle 1, law compliance, under Part II, Section K, Annex 5). A similar analysis was undertaken in relation to Component 1 and 2, and 5 which builds on the analysis undertaken for screening Component 3 and 4.

For cComponent 5, which focuses on regional activities, ~~; thus, interventions do not need to comply with national standards and legislation. However, the project will take into consideration applicable regional and~~ international frameworks (, in consultation with Abidjan Convention) were also considered. Major national standards worth highlighting due to its relevance to the overall project are labour laws, which will be complied for all employment contracts. More specifically, no activities of the project will be initiated without ensuring that the national legislations are applied for construction activities entailing infrastructure interventions in Component 3 and 4. Applicable laws are:(i) for Cote d'Ivoire Loi n°95/15 du 12 janvier 1995; (ii) for Ghana The Labour Act No 651 of 2003.

During the implementation of activities, the National Project Managers (see their role in Part III Section A) will ensure that all project activities comply with existing national technical standards. At the beginning of the project, when the sub-project implementation plans are fully developed with communities and municipalities, including detailed engineering studies, the necessary steps to comply with these standards will be detailed in addition to what is described for each country/city below.

Cote D'Ivoire:

The 2016 constitution of Côte d'Ivoire ensures the protection of the environment and sets the implementation rules. The detailed regulations for the EIAs are described in Decree No. 96-894 of November 8, 1996 determining the rules and procedures applicable to studies relating to the environmental impact of development projects. ANDE is responsible for formulating sectoral directives and implementing ESIA procedures. It has developed guides for the industry, energy, agriculture, transport and infrastructure sectors.

The integration of EIAs in the project cycle is essential for providing environmental information at key stages. Early results of an EIA may indicate practical design changes that would avoid or reduce adverse environmental impacts or better benefit from environmental benefits. A screening procedure is to be carried out by the Minister of the Environment, who makes the decision to approve the project and determines if the sub-project must be subject to an EIA or not.

Table 12 Cote d Ivoire ESIA Table

Outputs	Relevant rules, regulations, standards and procedures	Compliance, procedure, and Authorizing entity	Principle 1 triggered during project preparation (and mitigation measures if required)
3.1. Mangrove restoration along the coast in Grand Bassam and Jacqueville	- Decree n ° 2012-988 of October 10, 2012 establishing, attributing, organizing and operating the National Platform for Risk Reduction and Disaster Management. - Law No. 96-766 of 3 October 1996 on the Environment Code; - Law N°2019-675 of 23 july 2019 on Code Forestier - Loi 98-755 du 23 décembre 1998 portant le code de l'eau - Loi n° 2003-208 du 7 juillet 2003 relative au transfert et à la répartition de la compétence de l'État aux collectivités locales (en matière de protection de l'environnement et de gestion des ressources naturelles) - Décret 94-368 du 1er juillet 1994, visant à améliorer la gestion de l'exploitation forestière, à valoriser la ressource en bois par la transformation du bois, à réhabiliter la zone forestière par des activités de reboisement et à assainir la profession d'opérateur forestier.	The National Agency of Environment Protection (ANDE): ESIA approval. Ministry of Environment and Sustainable Development. (MINEDD): to give advise and monitor the intervention according to its impact on environment at all stages of the intervention. Ministry of Water and Forests: Technical support during implementation. EIA required.	Not triggered. An EIA is required, and it was submitted. However, no obstacles are foreseen to obtain an authorisation, as proposed intervention has been discussed with and agreed by authorities. Validation of sites and choices of species by the ministry of forestry in agreement with the communities. Supervision and technical validation of the creation of nurseries and planting by experts from the Ministry of Water and Forests The implementation will be supervised by the local directions of the forestry and environment administration.
3.2. Sand nourishment along the coast of Grand Bassam	- Law n° 2017-378 on development, protection and integrated management of the coastline littoral promulgated the 2 June 2017 - Law n° 2014-138 of 24 march 2014 on the mining code (dredging) - Décret 96-634 du 9 August 1996 of law 95-553 of 15 July 1995 on the mining code (dredging) - Décret n° 96-894 of 8 November 1996 determining rules and procedures applicable to studies related to the environmental impact of development - Decree n ° 2012-988 of October 10, 2012 establishing, attributing, organizing and operating the National Platform for Risk Reduction and Disaster Management. - Law No. 96-766 of 3 October 1996 on the Environment Code; - Loi 98-755 du 23 décembre 1998 portant le code de l'eau - Arrêté n° 990 / PMMD / CAB / du 21 octobre 2011 instituant le Comité interministériel de lutte contre l'érosion côtière	The National Agency of Environment Protection (ANDE) Ministry of Environment and Sustainable Development. (MINEDD): to give opinion and monitor the intervention according to its impact on environment at all stages of the intervention. The National Agency of Environment Protection (ANDE): Ministry of Mines and Geology . Validation by the Ministry of Environment through the national coastal management agency required.	Not triggered. Validation by the Ministry of Environment through the national coastal management agency (Agence Nationale de Gestion du littoral cotier).is required, but the Ministry has been involved in the process since the beginning: proposed intervention has been discussed with and agreed by authorities.
3.5 Embankment of lagoons by sandbag dikes in Jacqueville	- Law n° 2017-378 on development, protection and integrated management of the coastline littoral promulgated the 2 June 2017 - Law n° 2014-138 of 24 march 2014 on the mining code (dredging) - Décret 96-634 du 9 August 1996 of law 95-553 of 15 July 1995 on the mining code (dredging) - Décret n° 96-894 of 8 November 1996 determining rules and procedures applicable to studies related to the environmental impact of development - Decree n ° 2012-988 of October 10, 2012 establishing, attributing, organizing and operating the National Platform for Risk Reduction and Disaster Management. - Law No. 96-766 of 3 October 1996 on the Environment Code; - Loi 98-755 du 23 décembre 1998 portant le code de l'eau - Arrêté n° 990 / PMMD / CAB / du 21 octobre 2011 instituant le Comité interministériel de lutte contre l'érosion côtière »	The National Agency of Environment Protection (ANDE) Ministry of Environment and Sustainable Development. (MINEDD): to give opinion and monitor the intervention according to its impact on environment at all stages of the intervention. The National Agency of Environment Protection (ANDE): Ministry of Mines and Geology EIA required by law Validation by the Ministry of Environment through the national coastal management agency (Agence Nationale de Gestion du littoral cotier) Prior validation by the Ministry of the Environment through the national coastal littoral management agency. Coordinated by the project team and the communities EIA required.	Not triggered. An EIA is required, and it was submitted. No obstacles are foreseen to obtain an authorisation, as proposed intervention has been discussed with and agreed by authorities. The implementation will be supervised by the local directions of the environment administration.
4.1. Pen culture systems installed and operational in Grand Bassam and Jacqueville	- Law n° 2017-378 on development, protection and integrated management of the coastline littoral promulgated the 2 June 2017. - Law n° 2016-554 of 16 July 2016 related to fishing and aquaculture - Politique Nationale de Nutrition -2015 - Decree n ° 2012-988 of October 10, 2012 establishing, attributing, organizing and operating the National Platform for Risk Reduction and Disaster Management. - Law No. 96-766 of 3 October 1996 on the Environment Code; - Decree No. 2013-440 of 13 June 2013 determining the legal regime for the protection of water resources, hydraulic installations and structures; - Decree nº 2006-35 du 08 mars 2006 portant organisation du Ministère de la Production Animale et des Ressources Halieutiques - Arrêté n° 990 / PMMD / CAB / du 21 octobre 2011 instituant le Comité interministériel de lutte contre l'érosion côtière - Law 98-755 of 23 December 1998 related to water code	The National Agency of Environment Protection (ANDE) Ministry of Animal and Fisheries Resources: technical support during maintenance Ministry of Environment and Sustainable Development. (MINEDD): to give opinion and monitor the intervention according to its impact on environment at all stages of the intervention Ministry of Water and Forests prepares and implements government policy in the management of forest, wildlife and water resources. Agence Ivoirienne de Sécurité de Sanitaire des Aliments (AISSA). EIA required, together with Technical validation of Ministry of Animal Resources through the Jacqueville aquaculture center for the choice of species and location of pens.	Not triggered. An EIA is required, and was been submitted. Validation of sites and choices of species by the ministry in agreement with the communities. Implementation supervised by the Jacqueville nursery school and local directions of Ministry of Animal Resources.

	- Decreet n° 2012-988 of 10 October 2012 related to establishing, attributing, organizing and operating the National Platform for Risk Reduction and Disaster Management. - loi n°96-563, Politique National de Sécurité Sanitaire des Aliments		

Ghana

Environmental impacts Assessment in Ghana are carried out on the basis of The Environmental Protection Agency Act, 1994, and the Environmental Assessment Regulations, 1999. The integration of EIAs in the project cycle is essential for providing environmental information at key stages. Early results of an EIA may indicate practical design changes that would avoid or reduce adverse environmental impacts or better benefit from environmental benefits. A screening procedure is to be carried out by the Government and determines if the sub-project must be subject to an EIA or not. Table below presents all the relevant legislation, compliance, and mitigation measures adopted.

Table 13 Ghana ESIA Table

Sub-Projects	Relevant Rules, Regulations and Standards	Compliance, Procedure and Authorising Entity	Principle 1 Triggered During Project Preparation (and Mitigation Measure Required)
3.1. MANGROVE RESTORATION	• Environment Protection Act, Act 490, 1994; • Environmental Assessment Regulation 1999 (LI 1652); • Local Governance Act, 2016 (Act 936) • National Wetlands Conservation Strategy • Wetlands Management (RAMSAR site) Regulation 1999 • Pesticides Control and Management Act (1996) Act 528 • National Ambient Air Quality Standards (GS 1236, 2019) • National Ambient Noise Level Standards (GS 1222, 2018) • National Effluent Quality Discharge Standards (GS 1212, 2019	An Environmental Permit and certificate is required from the Ghana EPA before commencement of project implementation. The procedure starts with the completion of EA1 Registration Form and screening by the EPA. AF has already initiated the permit process and EPA requires the preparation of Environmental and Social Management Framework (ESMF). A processing and permit fees to be paid before issuance of the permit.	Not Triggered A draft ESMF has already been prepared and submitted for the consideration of the Ghana EPA. Comments for finalisation has been received for finalisation of the report and final issuance of the permit on payment of permit fees. Local governance act: The authorisation process has been initiated. A formal letter with development proposals attached to the District Assembly.
3.2. COASTAL LAGOON RESTORATION	• Environment Protection Act, Act 490, 1994; • Environmental Assessment Regulation 1999 (LI 1652); • Local Governance Act, 2016 (Act 936) • Lands Commission Act 2008 act 767 • National Wetlands Conservation Strategy • Wetlands Management (RAMSAR site) Regulation 1999 • Riparian Buffer Zone Policy, 2011 • National Ambient Air Quality Standards (GS 1236, 2019) • National Effluent Quality Discharge Standards (GS 1212, 2019	An Environmental Permit and certificate is required from the Ghana EPA before commencement of project implementation. The procedure starts with the completion of EA1 Registration Form and screening by the EPA. AF has already initiated the permit process and EPA requires the preparation of Environmental and Social Management Framework (ESMF). A processing and permit fees to be paid before issuance of the permit. An authorisation required from the Ada East; Ada West and Keta Municipal Assembly for Development and Building permit. Riparian Buffer Zone Policy: No separate permit required. The Policy directives are incorporated into the EPA permit schedule.	Not Triggered A draft ESMF has already been prepared and submitted for the consideration of the Ghana EPA. Comments for finalisation has been received for finalisation of the report and final issuance of the permit on payment of permit fees. Local governance act: The authorisation process has been initiated. A formal letter with development proposals attached to the District Assembly.
4.1. PEN CULTURE	• Environment Protection Act, Act 490, 1994; • Environmental Assessment Regulation 1999 (LI 1652); • National Wetlands Conservation Strategy • Wetlands Management (RAMSAR site) Regulation 1999 • Labour Act, 2003 (Act No. 651). • Labour Regulation (2007) LI 1833 • • Fisheries Act 625, 2002. • • Fisheries Regulation (L.I. 1968) - National Ambient Air Quality Standards (GS 1236, 2019) • National Ambient Noise Level Standards (GS 1222, 2018) • National Effluent Quality Discharge Standards (GS 1212, 2019	An Environmental Permit and certificate is required from the Ghana EPA before commencement of project implementation. The procedure starts with the completion of EA1 Registration Form and screening by the EPA. AF has already initiated the permit process and EPA requires the preparation of Environmental and Social Management Framework (ESMF). A processing and permit fees to be paid before issuance of the permit. Labour Act: No separate permit required for local communities to be engaged in fishing using traditional practices such as pen culture. However, provisions and guidelines under these laws and regulations would be spelt out clearly in the EPA permit for compliance. Fisheries Act: Permit is required for the intervention from the Fisheries commission especially when exotic species of fingerlings are to be introduced Fisheries regulation: relevant sections on food safety (e.g. permit for aquaculture operations, fish seed production certification) etc.	Not Triggered A draft ESMF has already been prepared and submitted for the consideration of the Ghana EPA. Comments for finalisation has been received for finalisation of the report and final issuance of the permit on payment of permit fees. Labour Act: The sub-project will ensure that under the CREMA Concept, no under-aged children are engaged in the fishing operation. Fisheries Act: The sub-project will not introduce any new species of fish to the lagoons. Only local species adapted to the environment will be promoted

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4.2. SALT RESILIENT CROPS	• Environment Protection Act, Act 490, 1994; • Environmental Assessment Regulation 1999 (LI 1652); • Local Governance Act, 2016 (Act 936) • Lands Commission Act 2008 act 767 • National Wetlands Conservation Strategy • Wetlands Management (RAMSAR site) Regulation 1999 • Pesticides Control and Management Act (1996) Act 528 - Plants and Fertilizer Act 2010, Act. 803. - Water Use Regulations, 2001, LI 1692 • National Ambient Air Quality Standards (GS 1236, 2019) • National Ambient Noise Level Standards (GS 1222, 2018) • National Effluent Quality Discharge Standards (GS 1212, 2019	An Environmental Permit and certificate is required from the Ghana EPA before commencement of project implementation. The procedure starts with the completion of EA1 Registration Form and screening by the EPA. AF has already initiated the permit process and EPA requires the preparation of Environmental and Social Management Framework (ESMF). A processing and permit fees to be paid before issuance of the permit. Local Governance Act: An authorisation required from the Ada East; Ada West and Keta Municipal Assembly for Development and Building permit. The Forestry Commission under the Ministry for Lands and Natural Resources is responsible for the implementation of these regulations. The Water Resources Commission is responsible for the execution of the Water Use Regulations. Subject to this Act, a person may obtain a permit from the Commission for: (a) domestic water use (b) commercial water use, (c) municipal water use, (d) industrial water use, (e) agricultural water use, (f) power generation water use, (g) water transportation water use, (h) fisheries (aquaculture) water. Compliance with air, noise and effluent quality standards will be incorporated into the EPA permit schedule for adherence. No separate permit required.	Not Triggered A draft ESMF has already been prepared and submitted for the consideration of the Ghana EPA. Comments for finalisation has been received for finalisation of the report and final issuance of the permit on payment of permit fees. Triggered Local Governance Act: The authorisation process has been initiated. A formal letter with development proposals attached to the District Assembly. The utilisation of hydrological resources within the project area for irrigation will be controlled by these Regulations and all the necessary water use rights would have to be secured in future especially where abstraction from the water bodies for agriculture becomes necessary

Part II.G DUPLICATION WITH OTHER FUNDING SOURCES

Table 14. Relevant projects, lessons learned and complimentary potential

Relevant projects/programme, executing entity and budget	Lessons learned (relevant for proposed interventions)	Complimentary potential And non-duplication
West/East Africa		
West Africa Coastal Areas Management Programme (WACA)[75] - WB 2015 – US$300 m Three pillars ☐ Strategic investment planning; ☐ Knowledge, information, and capacity building; ☐ Country and regional engagement and resource mobilization	☐ There is strong political support in Côte d'Ivoire ☐ Process is slower in Ghana – multi-sector risks assessment still to be finalized	Complementary ☐ WACA suggested to cooperate on strengthening the spatial planning component in Grand-Lahou ☐ Knowledge sharing on coastal management in West Africa Coastal Areas ☐ There is clear will to coordinate and share lessons learned ☐ WACA suggested to consider working together on coordinate on the multi-sector assessment in Ghana Non-Duplication ☐ A part from the collaboration on Grand-Lahou, the project focuses on different target areas
West Africa biodiversity and climate change (WA-BICC) – USAID (2015-2020) WA-BiCC will address both direct and indirect drivers of natural resource degradation to improve livelihoods and natural ecosystems across the region.	☐ Initiation stage (vulnerability assessments so little lessons learned)	Complementary Lessons learned and collaboration on their programme objective 2 Non-Duplication ☐ WA-BICC project focuses on Sierra Leone and West coast of Côte d'Ivoire; Not common target areas

[75] http://www.worldbank.org/en/programs/west-africa-coastal-areas-management-program

Mami Wata project[76] - by GRID-Arendal and the Abidjan Convention Secretariat	☐ Started in 2016 so no lessons learnt reported yet	Complementary ☐ The project will complement their capacity building initiative on coastal ecosystems protection and conservation Non-Duplication ☐ The project will address resilience through a different sector: urban and territorial planning as a tool for climate change adaptation
Transboundary projects climate-resilient Ministry of Environmental and Sustainable Development 2016 African climate Change Fund (ACCF)	☐ No lessons learned yet, ongoing project	Complementary ☐ The project complement climate resilience in different regions of the Abidjan-Lagos coastal corridors ☐ Enhances knowledge and capacity, and facilitating partnerships for climate-proofing African infrastructure projects. Non-Duplication ☐ Non geographical overlap regarding infrastructure projects; the ACCF project works in Togo Benin Zambia and Zimbabwe
Scaling up climate-smart agriculture In East Guinea Bissau AF / BOAD	☐ No lessons learnt yet	Complementary ☐ Both projects work on increasing resilience to climate change ☐ Lessons learnt and knowledge sharing from interventions on extremely vulnerable groups (women, elderly and children) Non-Duplication ☐ Non geographical overlap ☐ The Guinea project mainly focus on agriculture and farming sector
Reducing vulnerability and increasing resilience of coastal communities in the Saloum Islands (Dionewar), Senegal AF	☐ No lessons learnt yet	Complementary ☐ Both projects work on coastal erosion management and flooding ☐ Knowledge sharing from interventions that aim at tackling same challenges Non-Duplication ☐ Non geographical overlap
Reducing Vulnerability to Climate change in North West Rwanda through Community Based Adaptation AF / Ministry of Natural Resources (MINIRENA)	☐ The project relocated 200 households from high risk zones after being affected by flooding and landslides. ☐ Create off-farm jobs and generate income	Complementary ☐ The project can incorporate lessons learnt from this project regarding erosion and flood control measures Non-Duplication ☐ Non geographical overlap
Enhancing resilience of communities to climate change through catchment-based integrated management of water and related resources in Uganda AF	☐ No lessons learnt yet	Complementary ☐ Knowledge sharing regarding water management and flood control Non-Duplication ☐ Non geographical overlap

[76] https://mamiwataproject.org/

Least Developed Countries Fund project. Liberia. UNDP GEF funding	☐ Strengthening Liberia's capacity to provide climate information and services to enhance climate resilient development and adaptation to climate change. ☐ The private sector can be involved but other outputs of the project should not depend on it.	Complementary ☐ The project will make use of the improved climate database and archives developed by the LDCF project. ☐ The project will complement the LDCF capacity building on climate change mainstreaming in other countries in the region. Non-Duplication ☐ Non geographical overlap: The LDCF project will be implemented in 10 countries: Benin, Burkina Faso, Ethiopia, Liberia, Malawi, Sao Tomé and Principe, Sierra Leone, Tanzania, Uganda and Zambia. ☐ The project will not focus on generating databases nor implementing early warning systems.
Adaptation to Coastal Erosion in Vulnerable areas in Senegal AF	☐ Reduce exposure of vulnerable communities to coastal erosion through physical interventions, policies and regulations.	Complementary ☐ The project will apply the lessons learnt from this project regarding involvement of local communities and technical knowledge from interventions that aim at tackling same challenges. Non-duplication ☐ No geographical overlap
Projet Régional d'Investissement pour la Résilience des Zones Côtières d'Afrique de l'Ouest 2017 ResiP-WACA, BM et Partenaires	☐ Project still on-going	Complementary ☐ The project also has the objective of improving risk management by mainstreaming climate change. Non-duplication ☐ No geographical overlap on interventions investment. The project focusses on the city of Grand-Lahou and certain surrounding villages, in particular from Lahou-Kpanda; Ekpossa; Likpiassie; Groguida; Noumouzou; Old Braffedon; Braffedon new and N'zida Zoukouboli

Ghana

Ghana-Netherlands Universities Volta Delta Design Project Delta Alliance Ghana Wing	☐ Focus on sustainable management of the Volta Delta including coastal engineering, policy, institutions and livelihoods.	Complementary ☐ Delta Alliance will cooperate also on the urban lab ☐ Ongoing collaboration: Ghana Delta Wing / The Development Institute / students conducted the community assessments ☐ The project will maximize the use of findings from Delta Alliance ☐ Both projects will complement on transboundary strategies Non-Duplication ☐ The Volta Delta Design Project work with upstream communities of rivers Tordzie and Kplikpa (Blikpa); which are not included in our target areas
Global Alliance for Green and Gender Advocacy This project is in its second phase of building capacity for gender and environmental justice community organizations to better engage duty bearers on sustainable management of the Keta Lagoon Complex Ramsar site Both ENDS/MoF Netherlands and the Development Institute	☐ Find ways to Empower community gender and environmental justices' groups	Complementary ☐ The project works with the Development Institute to make use of their gender approach Non-Duplication ☐ Both projects have different core objectives, GAGGA is focused on women empowerment at decision-making leve. UN-Habitat project will make use of this gender advocacy as an input on the resilience strategies
Economic Empower of Women and Youth Both ENDS/Global Green Grants/ Women 2030 and The Development Institute	☐ Skills training in soap making and reed weaving into bags etc. and setting up of Village Saving and Loans Association have shown to be successful	Complementary ☐ The project works with the Development Institute to empower women and youth and to promote gender equality Non-Duplication ☐ The Development Institute project focuses mainly on women empowerment training and skills training, no spatial planning are included.

Enhancing community food security through management of saline soils Salt Farm Texel, Netherlands/ Crop Science Dept. Univ. of Ghana and The Development Institute	☐ Initial feasibility done for a potential area to manage soil salinity and introduce salt resistant vegetable/crops but no funding secured yet.	Complementary ☐ The project will use findings and work together with the Development Institute to enhance the management of saline soils and water Non-Duplication ☐ Both projects have different thematic area of focus
Community conservation & pro-poor tourism Project Wildlife conservation in Ada and Keta Calgary Zoo/ DI and The Development Institute	☐ Eggs of turtles also affected by erosion; therefore, they try to monitor erosion in Ada and Keta ☐ Protection of Turtles and whales, Manette, Sitatunga) through Marine protection area (MPA) concept and livelihood/ tourism	Complementary ☐ The project will identify hotspot areas along with the Development Institute and Wildlife conservation and align efforts ☐ UN-Habitat will work together with the development institute and Wildlife conservation to monitor coastal erosion and enhance livelihood options Non-Duplication ☐ (to be completed further)
Livelihoods and community management systems The Development Institute / IUCN-NL/Both Ends	☐ TEEB studies ☐ Coastal communities ready to engage in building resilience for themselves through setting of community conservation areas and planting of mangroves	Complementary ☐ The project will work with the Development Institute to ensure areas for safe haven in times of disaster are zoned out Non-Duplication ☐ Both projects have different focus; conservation and designation of safe havens.
Sustainable Delta Management The Development Institute and Delta Alliance	☐ Assessment of the Volta delta (Current doc) ☐ The need for Adaptive Delta Management and a governance and management system for the Volta Delta	Complementary ☐ The project would be working with the Development Institute to implement adaptive management through land use Spatial planning Non-Duplication ☐ Both projects have different focus; land use and spatial planning and delta management.
Sustainable Land and Water Management Project in Ghana[77] - WB (2014 -)	☐ Still on-going	Complementary ☐ Lessons learned from improved sustainable land and water management practices will be incorporated into the approach of the project Non-Duplication ☐ The project will focus on spatial planning at large scale which is not included in the WB project ☐ The WB project has a different target area: Nothern Savannah region
Integrating Flood and Drought Management and Early Warning for Climate Change Adaptation in the Volta Basin[78] - WMO Not yet started	☐ At pre-concept note phase so no lessons learned	Complementary ☐ Knowledge sharing on long-term Environmental development Non-Duplication ☐ The project will not focus on implementing early warning systems ☐ The WMO project does not address coastal resilience
Increased Resilience to Climate Change in Northern Ghana through the Management of Water Resources and Diversification of Livelihoods[79] - UNDP / AF 2016 - 2020	☐ At start-up phase. Project will monitor lessons learned regarding livelihoods	Complementary ☐ Knowledge sharing regarding water management in Ghana ☐ Both projects will support different regions in Ghana on building climate change resilience Non-Duplication ☐ The project will focus on Southern areas not included in the UNDP/AF proposal ☐ The project will address resilience through a different sector: urban and territorial planning as a tool for climate change adaptation
UN-Habitat National Priority Planned City Extension in the Greater Accra Region	☐ Strategic Development Framework for the physical plan for the extension of the	Complementary

[77] http://projects.worldbank.org/P132100?lang=en
[78] https://www.adaptation-fund.org/wp-content/uploads/2017/08/Pre-concept-AF-Volta-Basin-v5-18092017.pdf
[79] https://www.adaptation-fund.org/wp-content/uploads/2015/09/RESUBMISSION_Ghana-AF_proposal_-29-January-2015.pdf

	urbanized area inside Ningo-Prampram District	☐ The project will support inputing coastal erosion and climate change impacts in plan for the coastal area of the Ningo-Prampram District ☐ Coordination to align resilient development strategies Non-Duplication ☐ The city extension project only focuses on Ningo-Prampram District
Accra on the Greater Accra Resilient and Integrated Development (GARID) project	☐ Focus on Odaw basin in Accra Metropolitan area where 200 people died due to floods ☐ Most of the floods are caused by a combination of high tide and increased discharge. Erosion of lagoons and settlements does not only occur from the sea side but also from the river side	Complementary ☐ The project will use assessed hotspot mapping and hydrologically modelled of all basins in GA-region and flood hazard and risk maps for the spatial plans. Non-Duplication ☐ The project wll not include Odaw basin as a target area
Ghana Government Livelihood Empowerment Against Poverty (LEAP) Programme	☐ Cash-outs can help the most vulnerable, but drug use is difficult to change	Complementary ☐ Map all areas where the government (plans) to intervene and cooperate ☐ Consider cash for work approach for certain interventions ☐ Lessons learned from enhanced livelihood options of vulnerable groups will be integrated Non-Duplication ☐ The project will address poverty through a different mechanism, urban and territorial planning
Sustainable fisheries project USAID and Hen Mpoano	☐ Effective stakeholder engagements through one-on-one discussions and focus group discussions promotes high participation. ☐ Effective stakeholder engagements through communication (peer to peer discussion, study tour, focus group discussions) enhance behavioural change communication. ☐ Ownership is key to project success.	Complementary ☐ The project will incorporate the lessons learned from the Sustainable fisheries project regarding stakeholder engagements and participation ☐ Fishermen are part of the targeted groups Non-Duplication ☐ USAID Project focuses on fisheries management through policy and institutional strengthening, which the project does not focus on
Sustainable Fisheries Management project EU and FoN / Care Int.	☐ Recently launched so no lessons learned	Complementary ☐ Fishermen are part of the targeted groups Non-Duplication ☐ Focuses on ensuring sustainability of marine fisheries resources, which UN-Habitat does not focus on.
MWH Ada coastal protection works 1st and 2nd phase[80] - Ghana government / Deme Concluded in 2015 US$ 183 m 15 Groynes over 14.7 km stretch	☐ It is working at the beginning and the end of the stretch ☐ It is very expensive; thus, the UN-Habitat project should propose affordable interventions with results that come close	Complementary ☐ Lessons learned from these interventions should be integrated in the project approach Non-Duplication ☐ UN-Habitat could focus on livelihood enhancement /protection affords at the lagoon site
MWH Keta coastal protection works Concluded 2002 / 2003 US$ 52 million 6 Groynes over 6,5 km stretch		

[80] https://www.deme-group.com/references/ada-coastal-protection-works
http://www.franki.co.za/ada-coastal-protection-works-phase-2/

Integrated climate risk management for adaptation to climate change 2015-2018 GIZ	☐ Ensure vulnerable population groups, private businesses and governments against financial risks from extreme weather events.	Complementarity ☐ Both projects work on increasing resilience to climate change in Ghana. They complement each other by working on different sectors. Non-duplication ☐ The GIZ project works on risk management through insurance solution and other financial mechanisms,
Ghana Community Resilience Through Early Warning Systems 2013-2018 UNDP	☐ Build capacities within the country to reduce disaster risk.	Complementarities ☐ Both projects work on building resilience in the country and the project can get input from their hazard mapping and vulnerability assessments Non-duplication ☐ The UNDP project focuses on providing resilience through early warning systems for natural disasters.
Adaptation of agro-ecosystems to climate change 2012-2017 GIZ	☐ Define agricultural sector policy and national support measures for the adaptation of land use systems to climate change.	Complementarities ☐ Both projects work on ensuring food security under climate change in different areas of the country. ☐ Both projects work on capacity building to climate change adaptation. Non-duplication ☐ No geographical overlap. GIZ project works on savannah and transitional region. ☐ The GIZ project is focused on farming.
Côte d'Ivoire		
Grand-Bassam opening of river mouth project – Côte d'Ivoire government and Morocco No funding yet	☐ Not started yet but Deltares study is useful to understand dynamics	Complementary ☐ Sand could be used to create a sand motor ☐ Opportunities to integrate Deltares studies into the approach of the project Non-Duplication ☐ The project will not focus on Grand-Bassam river mouth
Climate finance readiness in Côte d'Ivoire Ministry of Environmental and Sustainable Development 2016 African climate Change Fund (ACCF)	☐ Advanced climate finance readiness at national level.	Complementary ☐ Both project could collaborate on capacity building on climate change at national level ☐ Mobilization of resources to fight against climate change (objective of ACCF project) could support replicability of successful intervention of UN-Habitat project Non-Duplication ☐ ACCF project only focuses on climate finance
Emergency Infrastructure Renewal Project World Bank 2012-2020	☐ The incorporation of local labor and women integration has proven to provide a positive social impact for people in the project area. ☐ The project aimed at supporting economic and social development of the municipality.	Complementary ☐ The project will incorporate and complement interventions from World Bank on basic infrastructure improvement: urban transport, water supply, sanitation and waste management. Non-Duplication ☐ No geographical overlap
Cocody Bay rehabilitation Marchica Med Company. 2014- ongoing	☐ Ecological review of the lagoon Ébrié and the Bay of Cocody. ☐ Cocody Bay Master Plan	Complementary ☐ The project will integrate strategies and plans from the Cocody Bay master plan Non-Duplication ☐ The project doesn't target Cocody bay
Abidjan integrated sustainable urban planning and management[81]	☐ Recently started not lessons learnt reported yet.	Complementary ☐ Coordinate on working on establishing an urban observatory with an urban planning data base. ☐ Coordinate on working on a city-wide drainage and climate change adaptation strategy for the Greater Abidjan area

[81] https://www.thegef.org/project/cities-iap-abidjan-integrated-sustainable-urban-planning-and-management

Ministry of Environment and Sustainable Development, Autonomous District of Abidjan. 2015 - ongoing		Non-Duplication ☐ The project will focus on improving urban planning and management in other departments
Strengthened Environmental management System for Coastal Development to meet Rio Convention Objective Ministry of Environment MINESUDD. 2013 – ongoing GEF	☐ Environmental Management Information System (EMIS) for decision making on coastal zone development. ☐ Piloting the use of improved environmental information systems for better decision making related to coastal zone management	Complementary ☐ The project will incorporate the GEF project lessons learned and database for the analysis and decision making on coastal resilience Non-Duplication ☐ The GEF project only focuses at policy and governance level
Protection of mangroves through the creation of firewood plantation[82] UNDP. 2008-2009	☐ Deforestation linked to firewood supply for urban areas is becoming an increasingly significant problem in Côte d'Ivoire. ☐ Successful experience in creating a firewood park demonstrates that this model can be a solution for sustainable firewood management in urban areas, while also generating income for poverty alleviation. In coastal zones, these firewood parks can also contribute to preserve the mangrove ecosystem and increase the awareness of the communities involved.	Complementary ☐ The project will contribute to the protection and restoration of mangroves ecosystems. ☐ Gender mainstreaming as part of the GEF project will enhance effectiveness of gender inclusive activities as part of this project Non-Duplication ☐ In Anan village (Bingerville). No geographical overlap. ☐ To address environmental protection, this project will focus on spatial planning
Adaptating to climate change and increasing the resilience of the population in south-west Côte d'Ivoire 2012-2016 GIZ	☐ Increase resilience to climate-related risks and stabilise livelihoods.	Complementarity ☐ The project also aims at protecting and adapting income sources. The project will learn from their practice especially on agriculture cultivation. Non-duplication ☐ No geographical overlap. GIZ projects works in the south-west of the country. ☐ The GIZ project focuses on food security and food supply. ☐ The GIZ project does not focus on coastal erosion impacts.

[82] *https://sgp.undp.org/index.php?option=com_docman&view=download&alias=47-mangrove-project&category_slug=fact-sheets&Itemid=257*

Part II.H LEARNING AND KNOWLEDGE MANAGEMENT

Component 5 is dedicated to achieving long-term sustainability of the project. This will be achieved through knowledge management and communication strategies and actions. Whilst this component provides the cornerstone for capturing and disseminating lessons learned, other project components directly contribute to this at the local, national and international scales.

At the community level, a participatory approach (involving communities and local authorities in planning and implementation activities) will lead to increased local knowledge on climate change adaptation, especially related to local coastal protection and income generating options. Project demonstration sites will contribute, from the start and in an on-going way, to sharing lessons and training. Community level trainings will be held on identified needs and to operate and maintain interventions. Another component of these trainings will be increasing knowledge on gender-responsive adaptation which will support women inclusion and integration as key actors in ensuring climate resilience. In order to achieve this, a women quota for participation will be applied for each training, at the same time outcomes from community consultations regarding women challenges, vulnerabilities and opportunities will be incorporated in the training agenda. The project will also use a participatory monitoring process, which will enable the beneficiary communities to work directly with the project's M & E and Public Information officer, to highlight issues in delivery and to strengthen adaptation benefits, including in replication and sustaining the project's gains.

At the national level, the government will be training on how to implement building with nature concrete adaptation measures and to share lessons and though this, be able to draw lessons interventions, including replication and scale-up of good practices. Information will be consolidated in reports and tools methodologies, guidelines and public information products.

Through existig platforms, including at the Abidjan Convention, it is expected that the project and its inputs to regional and national frameworks will be actively shared with other governments, as well as the lessons learnt.

Table 15. Outputs, learning objectives and indicators and knowledge products

Expected concrete output/intervention	Learning objectives (lo) & indicators (i)	Knowledge products
1.1. Climate change resilient coastal development promoted through climate change mainstreamed sub-national and district-level Spatial Development Frameworks (SDFs) and institutional capacities strengthened to develop, implement, and update these SDFs	(lo): strengthen capacity of district and national government staff to develop strategic management and spatial / land use planning instruments (i): number of government staff trained trainings and number of plans	1 SDF Collected data and risk maps
1.2. Two (2) Districts-level Spatial Development Frameworks, targeting Ada East and Keta, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase coastal resilience proposed		2 SDFs Collected data and risk maps
1.3. Strengthened capacity of Land Use Spatial Planning Authority (LUSPA) and District Municipal Assemblies (MMDAs) to develop, use and update spatial development frameworks, including identification and integration of climate change-related coastal risks and vulnerabilities and measures to increase coastal resilience		
1.4. One (1) Sub-national-level Spatial Development Framework *("Schéma Régional d'Aménagement du Territoire (SRAT)")*, targeting the Region des Grands Ponts, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase coastal resilience proposed	lo): strengthen capacity of district and national government staff to develop strategic management and spatial / land use planning instruments (i): number of government staff trained trainings and number of plans	1 SDF Collected data and risk maps
1.5. Two (2) Districts-level Spatial Development Frameworks (Local development plans) in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase coastal resilience proposed		2 SDFs Collected data and risk maps
1.6. Strengthened capacity of the Ministry of plan (Ministère du Plan) and municipalities, to develop, use and update spatial development frameworks, including identification and integration of climate change-related coastal risks and vulnerabilities and measures to increase coastal resilience		
2.1. Community-level plans developed in Ghana, including planning, operation, maintenance, monitoring and replication of concrete adaptation measures. Same target area as outputs 3.1.1 and 3.1.2 and 4.1.1 and 4.1.2.	(lo): increase awareness, ownership of proposed interventions and improve the capacity to operation and maintain these (i): number of community members trained and number of plans	12 community plans Documentation of action planning processes and training modules
2.2. Community-level plans developed in Côte d'Ivoire, including planning, operation, maintenance, monitoring and replication components (same target area as outputs 3.3 and 3.4 and 4.3 and 4.4)		12 community plans Documentation of action planning processes and training modules
3.1. Mangrove restoration along the Volta estuary in Keta district	(lo): understand which interventions are most effective and low cost with replication and scale-up potential in other areas and countries (i): number of interventions focused on coastal protection / nourishment / management and number of interventions focused on ecosystem	Portfolio of large scale effective low cost interventions appropriate for different 'common' coastal situations / scenarios that can be replicated and /or scaled-up
3.2. Coastal lagoons restoration in Ada East, Ada West and Keta districts		
3.3. Mangrove restoration along the coast in Grand Bassam and Jacqueville		
3.4. Sand nourishment along the coast of Grand Bassam		
3.5. Sand nourishment of lagoons in Jacqueville		

	restoration and / or saltation management	
4.1. Pen culture systems installed and operational in Ada East, Ada West, and Keta districts	(lo): understand which interventions are most effective and low cost with replication and scale-up potential in other areas and countries (i): number of community-level interventions that enhance coastal protection and livelihood options locally.	Portfolio of community level effective low-cost interventions appropriate for different 'common' coastal situations / scenarios that can be replicated and /or scaled-up
4.2. Salt resilient crops and water infiltration introduction systems installed and operational in Keta district		
4.3. Pen culture systems installed and operational in Grand Bassam and Jacqueville		
5.1. Coastal dynamics (i.e. erosion and inundation/flood) impacts and risk prediction model and assessment method	(lo): Understand coastal dynamics and impacts of interventions comprehensively by linking data sources, knowledge and capacities from experts, decision makers, companies and communities (i): number of knowledge products, plans and models developed to fill existing gaps and trainings conducted	Reports, plans and models developed to fill existing gaps and trainings modules developed and replication guidelines West Africa knowledge management and sharing mechanism at Abidjan Convention
5.2. Monitoring sensor system to assess and monitor the effectiveness and impacts of the proposed concrete adaptation interventions under component 3 and 4 (also to guide monitoring activities under comp 2)		
5.3. Strengthened capacity of national and district-level governments to use above model, assessment method and monitoring systems and to replicate effective and efficient building-with-nature adaptation options		
5.4. West Africa / international knowledge management and sharing mechanism with a focus on feasible building-with-nature adaptation options to protect the coast and diversify and/or strengthened livelihoods		

Part II.I CONSULTATIVE PROCESS

For the project preparation phase, consultations have been conducted with key stakeholders and beneficiary communities, including representatives from the government, UN agencies, NGO's and women, youth and vulnerable groups. An overview of consultations conducted is provided in annex 4. The outcomes of the consultations have been incorporated in Annex 5, 6 and the proposal itself. Details such as completed consultation questionnaires and attendance sheets are available on request. Four type of consultations shaped this proposal. Consultations to:

- ☐ Align with National and sub-national priorities: throughout the project preparation phase, UN-Habitat worked with the AF focal points, ministries mandated to work on aspect touched by the project (i.e. water, agriculture, spatial planning, etc.) and target municipalities. The proposed project activities have been prioritized / selected with these government representatives, as well as the target areas (see Annex 4)
- ☐ To avoid duplication with other projects (government, UN agencies, NGOs, etc.) and use lessons learned (see Part II.G)
- ☐ Identify specific needs and possible concerns of women, youth and vulnerable groups. In line with AF ESP and GP policies, consultations with beneficiary communities and specific groups (especially women, youth) of each sub-project took place to identify specific needs and possible concerns regarding the proposed project activities (see Annex 4)
- ☐ Identify potential environmental and social risks and impacts. Related to above and in line with AF ESP and GP policies, consultations took place to identify potential risks and impacts of proposed project activities. This also includes public hearings in line with national requirements for conducting EIA (see Annex 5)

Table 16. List of stakeholders consulted. For more details, including outcomes, see Annex 4.

Stakeholder	Ghana	CdI	Principle choice for consultation					Method
			To align with government priorities	To avoid duplication with other projects	To comply with standards, rules and regulations	Identify specific needs and possible concerns vulnerable groups	Identify potential environmental and social risks and impacts.	
Ministry of Environment, Science, Technology and Innovation (also on gender) Including Wildlife Division from the Forestry Commission.	x		x	x	x			- Private meeting - Workshops
Environmental Protection Agency (EPA)	x				x		x	- Private meeting - Workshops
Ministry of Local Government and Rural Development.	x		x	x				- Private meeting
Municipal District Assemblies in Tema, Ningo Prampram, Ada West, Ada East, and Keta	x		x	x		x		- Private meeting - Workshops
Land Use Spatial Planning Authority	x		x		x			- Private meeting - Workshops
Ministry of Food and Agriculture	x		x	x	x			- Private meeting - Workshops

Fisheries Commission	x		x	x	x			- Private meeting
Traditional councils	x	x				x	x	- Private meetings - workshops
UNDP	x			x		x	x	- Private meeting - Workshops
UNCDF	x			x		x		- Private meeting - Workshops
UNICEF (gender)	x	x		x			x	- Private meeting
UN Women (gender)	x	x		x			x	- Private meeting
UNEP/Abidjan Convention		x		x		x		- Private meeting
FAO		x		x				- Private meeting -
Development Institute/Ghana Delta Alliance Wing	x			x		x		- Private meeting - Workshops
Hem Poano NGO	x			x		x		- Private meeting
Mangrove Grower's Association	x					x	x	- Workshops
Farmers Association	X					X	x	- Workshops
USAID/ CRC/URI	x			x		x		- Private meeting
PACT	x			x		x		- Private meeting
Tetra Tech	x			x		x		- Private meeting
Spatial Solutions	x			x		x		- Private meeting
Dutch Embassy	x			x				- Private meeting
University of Ghana	x				x			- Private meeting
Targeted communities	x	x		x		x	x	- Workshops - Public meetings
Ministry of Environment and Sustainable Development (MINEDD) (also on gender)		x	x	x	x			- Private meeting - Workshops
Agence National de l'Environnement (ANDE)		x		x			x	- Private meeting
Ministry of Interior (DGDDL)		x	x		x			- Private meeting - Workshops
Ministry of Construction, Housing and Urban Planning (MCLU)		x	x	x	x			- Private meeting - Workshops
Municipalities of Cocody, Jacqueville, Grand Bassam and Port Bouet (Technical services)		x	x	x		x		- Private meeting - Workshops
École d'architecture D'Abidjan		x			x			- Private meeting - Workshops
Université Felix Houphouet Boigny, Abidjan / CURAT (remote sensing and GIS)		x			x			- Private meeting
African Development Bank (AfDB)		x		x		x		- Private meeting
World Bank		x		x			x	- Private meeting

The conceptualisation of this project is the result of initial discussions and consultations with relevant stakeholders in 2016. It builds on existing collaborations with the Government of Ghana as well as requests for support from both countries in the same year. This first contact included discussions with different Ministries, municipalities, international organisations, and AF focal points. It aimed at defining the scope of the pre-concept note by ensuring alignment with national priorities (i.e. national strategies and plans).

For the concept note stage of this project, consultations with key stakeholders, both in Cote d' Ivoire and Ghana, were held in November and December 2017. In November, consultations took place with representatives from ministries, district governments, NGO's, Universities, and other relevant stakeholders through private meetings. These were conducted to identify: main climate change challenges and needs, proposal priorities and target areas, existing projects in target areas to avoid duplication.

Between November and December 2017, consultations with communities and vulnerable groups in target areas were undertaken through workshops and structured questionnaires. These took place in cooperation with the Development Institute / Ghana Delta alliance Wing in Ghana, and with the École d'Architecture in Côte d'Ivoire. The consultations techniques used were a combination of structured questionnaires and focus group discussions with especial attention to women and other vulnerable groups. These consultations aimed at further collecting specific data/information about the communities, such as:

- Target population, poverty, livelihoods, gender-disaggregation (women and youth), vulnerable groups (elderly and disabled), etc. and their specific challenges and needs. Results are in Table 6~~Table 6~~ under Section II.C, as well under the interventions feasibility sheets from the ESIA.
- Climate change related hazards, risks, impacts and vulnerabilities. Results in Annex 2.
- Barriers to adapt to the identified impacts.
- Community assets.

As part of the gender responsive strategy of the project, during consultations special attention was put into gender balance participation and women and youth focus group discussion in order to address gender equality and understand specific needs in the resilience building process. Details are further presented in Annexes 4 and 6. For the proposal stage during 2018 private meetings were held with leading ministries and districts in both countries, and at the World Urban Forum where the project was presented as a joined initiative from the governments and UN-Habitat. These discussions focused on concretizing the project approach as well as the implementation and coordination mechanisms. At community level, target group discussions were also held to agree on the list of priority interventions.

Figure 1413. Meeting with Jacqueville community, Côte d'Ivoire

Figure 1312. Meeting with some women and the elderly at Ada West. Ghana

The outcomes of consultations shaped the selection of proposed interventions at that stage. Some of the proposed interventions were excluded due to cost inefficient (high costs), non-feasibility due to e.g environmental risks (e.g erosion generation in other areas) and non-preference of beneficiary groups. In some discussions, new interventions were suggested by the communities (e.g. pen culture). During this effort special attention was put to ensure these activities will equally benefit and empower women and youth. During 2019, further private meetings and discussions were conducted with communities, ministries, other UN agencies etc. in order to detail the interventions, their operability, management and sustainability. In addition, workshops with all stakeholders were held for two days to validate all project components for the proposal submission. These consultations included key community representatives: chiefs, women and youth organizations, elderly, fishermen, farmers etc.

In 2020, during the full proposal development phase, accredited consultants conducted the feasibility assessments and environmental and social risks screening and impact assessment in both countries. These consultants followed national requirements to do these assessments, as well as AF requirements (consultations with all beneficiary groups to identify potential risks and impacts, including specific possible concerns of women and youth). Special attention was given to the inclusion of vulnerable groups through identified community-based representatives such as Women and Youth organisations working on fishing and related issues. For example, in Ghana, there were participants from women and youth groups such as GAGGA Youth, DUNENYO and NUGORLI.

In line with annex 4, below table provides an overview of vulnerable and gender responsive consultations conducted to identify specific needs and possible concerns, also in line with the AF safeguard system (possible risks under the ESP and GP). The outcomes of the consultations have been incorporated in the proposal and in annex 5 and 6

Table 17

Group	Consulted	Method of consultation
Fishermen	Fishermen Prampram, Ghana	Focus group discussions
Women	Fish mongers Ada East, Ghana	Mixed group discussion
Women	Oyster traders Ada East, Ghana	Focus group discussions
Women	Petty traders, food sellers, Keta, Ghana	Focus group discussions
Youth	Youth leader grand Bassam, CdI	Discussion
Women	Women's agent, Bingervill, CdI	Discussion
Farmers	Farmers, Bingerville, CdI	Discussion
Women	Young women, Biberville, CdI	Discussion
Women	Women's president, Jackeville, CdI	Discussion
Youth	Secretary of youth, Jackeville, CdI	Discussion
Fishermen	Fishermen's leader, Jackeville, CdI	Discussion
Women & youth	UNDP gender and youth specialists, Ghana	Discussion
Women, youth, elderly, fishermen	Representatives in Ada west, Ada East and Keta, Ghana	Discussion
Women, youth, elderly, fishermen	Representatives in Cocody, Grand Bassam, Grand Jack,	Discussion
Fish smokers	Fish smoker's association, Akplabanya, Ghana	Discussion
Women and youth	Women and youth groups, Grand Bassam and Jackeville, CdI	Focus group discussions

A full list of consultations and outcomes is presented in Annex 4. Complete national feasibility assessment, ESIA-ESMP and consultation reports are available on request.

Part II.J JUSTIFICATION OF FUNDING REQUEST

The proposed project components, outcomes and outputs fully align with national and local government priorities and gaps identified, with identified community and vulnerable groups needs and with the Adaptation Fund outcomes as stated in the Adaptation Fund results framework. This alignment has resulted in the design of a comprehensive approach in which the different components strengthen each other and in which outputs and activities are expected to fill identified gaps of Côte d'Ivoire's, Ghana's and West Africa's current climate change response. The project aims at maximizing the funding amount for the concrete adaptation component (component 3 and 4) directly benefitting local communities and the two countries. Funding allocation to the other (softer) components is required to support the effective execution and sustainability of components 3 and 4 and to share knowledge and lessons learned. The table below provides a justification for funding requested, focusing on the full cost of adaptation reasoning, by showing the impact of AF funding compared to no funding (baseline) related to expected project outcomes.

Table 18. Overview of impact of AF funding compared to no funding (baseline) related to expected project outcomes

Outcomes	Baseline (without AF)	Additional (with AF)	Comment and alternative adaptation scenario's
Outcome 1.1. Climate change resilient coastal development promoted through climate change mainstreamed sub-national and district-level Spatial Development Frameworks (SDFs) and institutional capacities strengthened to develop, implement, and update these SDFs	Detailed / specific climate change threat and hazard risk and impact information / evidence is not available (and integrated in strategic coastal management and spatial / land use plans for the coastal areas in Côte d'Ivoire and Ghana	The expected outcome of the proposed project activities under outputs 1.1.1 – 1.1.6 is that government institutions will be able to understand and identify climate change risks and impacts in coastal areas and manage development taking these risks and impacts in consideration, e.g. by avoiding development in high risks areas and in that way avoiding costs of damages and destruction.	Without relevant climate change risks and impacts information on coastal areas integrated into plans, no strategic decisions about the future of target areas can be made. Alternatively, the government continues planning development without understanding / consideration of climate change risks and impacts with the risk that development will take place in risk areas.
Outcome 2.1. Strengthened community awareness and capacities to anticipate, adapt and respond to climate-related coastal hazard and threats through community planning	Communities are not aware of climate change risks and impacts and response options and they don't have the capacity ownership over the processes to develop, operate and maintain (thus plan) possible interventions.	The expected outcome of the proposed project activities under outputs 2.1.1 and 2.1.2 is that community awareness and capacities to adapt to climate-related coastal hazard and threats will be strengthened through community planning The activities related to this outcome will allow communities to develop, operate and maintain (thus plan) the proposed interventions under component 3 and 4	The district government and communities lack the capacity to organize communities and plan effectively for adaptation / resilience. Alternatively, a only top-down planning approach could be used but this would not build community awareness and capacities and would risk implementing non-appropriate interventions
Outcome 3.1. Increased climate change resilience of coastal areas through increased ecosystem / natural environment resilience.	There is little district – national - international cooperation (and financing) to increase coastal resilience through concrete interventions. Some larger interventions have focused on hard infrastructure that is very costly and, in some cases, had negative impacts in other areas	The expected outcome of the proposed project activities under outputs 3.1.1 – 3.1.5 is that the target coastal areas will be more resilient to climate change through increased ecosystem / natural environment resilience. Mangrove restoration, lagoon restoration and sand nourishment will support reducing negative impacts of coastal sea level rise and storms on the coast, serving as a protection buffer to communities and assets while also supporting sustainable livelihood options.	Alternative adaptation scenarios are resettlement, construction of large, more expensive physical infrastructure and community-level interventions. These community interventions (outcome 4.1.) will fit into the wider systems planned under this outcome.
Outcome 4.1. Increased climate change resilience of coastal communities through diversified and strengthened livelihoods.	There is limited government attentions on specific community-level needs in the target areas and the communities have limited knowledge and capacity to respond to climate change in a concrete way	The expected outcome of the proposed project activities under outputs 4.1.1. – 4.1.3 is that coastal communities will be more resilient to climate change through diversified and strengthened livelihoods Building up on traditional livelihoods and communities' skills, the proposed project activities will support sustainable livelihoods that will be resilient to climate change impacts and in that way make communities more resilient, also through improved income options	Large scale interventions have the risk of not being community driven and appropriate, which would lead to adaptation benefits for fewer people with the same project cost and a greater chance of negative social and environmental impacts. Therefore, activities under outcome 4.1. will feed into this outcome
Outcome 5.1. Strengthened institutional capacity and tools to identify and manage coastal climate change-related risks / impacts and vulnerabilities in Ghana and Côte d'Ivoire (and West Africa), including through diffusion of knowledge on innovative (building with nature) coastal climate change adaptation practices in West Africa	Communities and district, national and governments in the region and the private sector have limited knowledge of coastal dynamics in relation to climate change and coastal resilience planning and possible concrete interventions	The expected outcome of the proposed project activities under outputs 5.1.1 -5.1.4 is that target institutional / organizational capacity and tools to identify and manage coastal climate change-related risks / impacts in Ghana and Côte d'Ivoire (and West Africa) and knowledge on innovative (building with nature) coastal climate change adaptation practices diffused / shared in West Africa will be strengthened. The activities related to this outcome will allow communities, district, national and regional governments and the private sector to increase knowledge of possible concrete resilience building interventions and capacities to implement these, also adjust institutional and legal frameworks where needed	Without activities related to this outcome, there is a risk that interventions won't be replicated and sustained in Ghana and CdI and in West Africa Alternatively, knowledge will not be shared between countries which will limit the potential for replication of good practices

Part II.K SUSTAINABILITY

Sustainability is paramount for the long-term impacts and benefits of the project, further than its time frame. For this purpose, this project will work on increasing institutional and communities' capacities and ownership, facilitating economic opportunities and financial mechanisms, and strengthening technical expertise. The detailed arrangements for maintenance and sustainability arrangements for all sub-projects is presented in Annex 8.

Institutional sustainability
The project will specifically focus on supporting and strengthening the capacities of national and local governments, but also communities, in Côte d'Ivoire, Ghana and serve as a reference and knowledge platform for other west African countries, to replicate, up-scale and sustain 'tested' concrete interventions and develop strategic spatial and land use plans, including risk mapping in other areas affected by coastal hazards by using the 'portfolio' of effective low-cost interventions, including guidelines how to do this. This portfolio of knowledge and best practices will be structured and disseminated by the Abidjan Convention, which will share knowledge in the region as per their mandate.

Social sustainability
By fully engaging communities, women, youth and other vulnerable groups in project activities, including, assessments (during the project development phase), the development of plans / strategies and monitoring, the project aims at achieving long-lasting awareness and capacities of these communities. Besides that, community households will be trained to construct and self-maintain the proposed interventions and to enhance their livelihood options in a sustainable and resilient way.

Economic sustainability
Investing in increasing the resilience of coastal areas, vulnerable assets and ecosystems is a sustainable economic approach. It will not only avoid future costs related to climate change and disaster impacts but it will also enhance livelihood options. Besides that, the strategic spatial and land use plans will help to also avoid future costs related to unsustainable urbanization and to climate change hazards by identifying the high risk areas and sustain or open-up investment options in the 'suitable' areas.

Environmental Sustainability
The protection and or enhancement of ecosystems will be supported through the implementation of the spatial plans. At the community level, awareness raising campaigns and trainings related to ecosystem protection and revenue-generating activities will support the sustainability of ecosystem-related interventions.

Financial sustainability
This project is designed to identify and replicate low-cost building with nature coastal protection and livelihood enhancement interventions. Through the spatial and land use plans (with identified high and low risk areas) governments and the private sector will be able to develop business cases for focused protection and development of priority areas. The interventions are designed to be sustained by the communities and or through (beyond the project) performance-based contracts, which apply e.g. to the sand nourishment interventions. The combination of environmental services (coastal erosion protection) and the community plans, provides a platform for the finance of private sector beneficiaries of the environmental services to the required ecosystemic infrastructure / "build with nature" solutions.

Technical sustainability
The 'portfolio' of interventions will be attractive for national and local governments and communities because solutions will be low-cost and promote the building with nature alternative for coastal protection and livelihood enhancement. Besides that, interventions concerning increasing the resilience of certain assets, will be developed using resilience and building back better principles. This will enhance the durability and sustainability significantly. Besides that, the proposed interventions will be maintained in partnership with local governments, public utilities and communities. This will ensure that after the project, interventions are will be properly maintained and remain operational.
In general, the planning instruments are designed to play the role of integrating and establishing relations between the different projects, to ensure that the proposed activities are part of a larger long-term vision deducted from agreed and negotiated participatory planning processes, and that additional interventions outside the initial budget of the project can be scaled and replicated based on additional partnerships, resources and local ownership to ensure project sustainability.

For the specific components, sustainability is justified as follows:
Component 1: Climate change resilience through spatial development frameworks:
With further details provided in Annex 9, the sustainability of the territorial and urban plans during their operationalization and implementation is ensured thanks to the leadership of the institutions mandated at the country level with the development of the plans, with the commitment of additional resources for approval and implementation. Additionally, financial instruments such as land value capture, developer exactions, land and property taxation, national transfers and own-source municipal revenue will be utilized to mobilize the resources required for implementation, as has been previously done for other plans developed in both countries. Furthermore, the technical expertise of UN-Habitat will facilitate the stakeholder engagement and resource mobilization of additional resources throughout the operationalization and implementation of the plan.

Component 2: Resilience building planning at community level:
With further details provided in Annex 9, the community plans have allocated budget to ensure the sustainability during the first budget cycle. After that, the local government and communities will have enhanced tools and technical skills to update the plans, with the community including the plan development as part of the "traditional" community processes already taking place and the local government receiving these inputs and supporting communities to integrate them as part of the statutory plans of their respective Ministries and mandates.
The community plans also represent an additional layer of sustainability for individual projects, since additionally to the specific sustainability mechanisms of each project, the plans will include action plans to mobilize, coordinate, fundraise and acquire additional social, environmental and financial resources.

Component 3: Transformative ecosystem interventions:
With further details provided in Annex 9, ecosystem interventions such as mangrove restoration, lagoon restoration, sand nourishment and lagoon stabilization interventions rely on the proven experience of identified NGO and private sector partners to jointly execute with the communities and government. From the social sustainability perspective, the participatory processes related to the plans ensure the coordination, ownership and awareness creation of the project. From the financial perspective, several innovative but tested mechanisms are proposed to ensure that long-term sustainability is achieved.

Component 4: Catalytic community projects:
With further details provided in Annex 9, the sustainability of the pen culture systems, salt resilient crops and water infiltration is justified through the involvement of NGO partners with relevant and previous experience in the design and execution of these solutions. With similar projects executed in the region, and a strong emphasis on community engagement and institutional community arrangements, the NGOs will operate and maintain the systems during the duration of the project. Activities budgeted for trainings and community engagement ensure that the systems will continue to be operated by members of the community as a full-time revenue generating activity, providing more stable revenue and job opportunities inside vulnerable communities. The long term financial sustainability of pen culture and saline agriculture will be based on the revenue obtained by selling the enhanced production, as well as the revenue coming from reduced fees to other communities interested in support to develop additional similar solutions.

Component 5: Knowledge sharing and monitoring:
With further details provided in Annex 9, the sustainability of this component is based on the involvement of national and local institutions such as the Abidjan Convention and Universities with existing mandates and activities already working in the knowledge management and monitoring of climate change impacts and project outputs. The project funding will allow the development and capacity development of staff that will be able to continue the activities once the project finishes as part of the mandate of the institutions in which they work.

Table 19

Detailed outputs / activities	Sustainability (exit strategy + replication + upscaling mechanisms)	Responsible
Component 1		
1.1.1 One (1) Sub-national-level Spatial Development Framework, targeting the Volta Delta coastal area, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase coastal resilience proposed.	LUSPAs leadership ensures this is a government led output whose sustainability is linked to the long-term engagement of the institution (with allocated staff and equipment). It is a technical team and therefore, sustainability risks from transition to other political scenarios is minimised. Strengthened knowledge and capacities (output 1.1.3), as well as personnel and data will remain within LUSPA, which will facilitate the replication of the planning process for any other regional plan. Component 5 will provide data and institutional capacity strengthening for replicability within the country and the region. The Government request for UN-Habitat's support brings an extra layer of sustainability to the plan since additional technical expertise and the experience of UN-Habitat in the development of territorial plans will be utilized to mobilize stakeholders and additional resources for project implementation, with UN-Habitat as a long-term partner of the Government. This applies for all plans to be developed in both countries. To mitigate risks inconclusive planning, the process will be fully aligned with the procedures prescribed by the National Development Planning Commission's Act (Act 479), and with the National Development Planning (Systems) Act, 1994 (Act 480). Given the absence of a tradition of strategic regional planning, the process will face the challenges of policy integration in practice. Thus, recent reforms have created two distinctly separate planning systems: an established Development Planning System and a newly instituted Spatial Planning System. The National Development Planning Commission will be involved in the preparation, and sector ministries will support the formulation of sector policies when needed. Regional Coordinating Councils will also support, monitor, and suggest financial and legal tools for plan implementation.	LUSPA Abidjan Convention University of Cape Coast

1.1.2 Two (2) Districts-level Spatial Development Frameworks, targeting Ada East and Keta, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase coastal resilience proposed.	MMDAs leadership ensures this is a government led output whose sustainability is linked to the long-term engagement of the institution. (with allocated staff and equipment). It is a technical team and therefore, sustainability risks from transition to other political scenarios is minimised. The MMDAs count with the strong support and technical expertise from LUSPA which further facilitates the process and ensures technical and political support. Strengthened knowledge and capacities (output 1.1.3), as well as personnel and data will remain within LUSPA, which will facilitate the replication of the planning process for any other regional plan. Since the implementing entity is the government authority responsible for these SDFs the sustainability of the output is ensured. Strengthened knowledge and capacities (output 1.1.3), as well as personnel and data will remain within MMDAs. This will facilitate the replication of the process for any other district plan. In 1993, the law on decentralization, Local Government Act (Act 462) was passed followed by the introduction of the National Development Planning System Act (Act 480) in 1994, to mark the inception of decentralized development planning. Based on this, Metropolitan, Municipal and District Assemblies (MMDA) will be responsible for the development of plans, in collaboration with UN-HABITAT. To mitigate risks inconclusive planning, the use of legally binding mechanisms to institutionalize and enforce measures in cross-cutting matters will be adopted. In addition, other tools such as zoning and zoning by-laws, supported by urban land databases and urban baseline studies, environmental impact assessment and compensation measures, public capital investment, economic tools (such as tax incentives and exactions) will be adopted.	MMDAs and LUSPA
1.1.3 Strengthened capacity of Land Use Spatial Planning Authority (LUSPA) and Municipal Districts Assemblies (MMDAs) to develop, implement, and update spatial development frameworks, including identification and integration of climate change-related coastal risks and vulnerabilities and measures to increase coastal resilience.	The timeline for the development of the plans is 2030, which means that a review / update would be required towards 2030. The project will aim at strengthening the capacity and funding allocation from the Government of Ghana to ensure that technical capacity, human and financial resources are available for the review. LUSPA and MMDAs will lead the development of the plans and will apply a planning process methodology with the support of UN-Habitat aimed at increasing the availability of data, improve the understanding on stakeholder engagement, minimum requirements and approval processes. The lessons learnt will be made available and shared with LUSPA and MMDAs to ensure that future plans have a clearer methodology, process and are more cost-efficient to elaborate and update. *This output is part of the sustainability plan for output 1.1.1 and 1.1.2.*	UN-Habitat
1.1.4 One (1) Sub-national-level Spatial Development Framework *("Schéma Régional d'Aménagement du Territoire (SRAT)"),* targeting the Region des Grands Ponts, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase coastal resilience proposed.	The Ministry of Plan General Direction (DGAT) leadership ensures this is a government led output whose sustainability is linked to the long-term engagement of the institution. It is a technical team and therefore, sustainability risks from transition to other political scenarios is minimised. Strengthened knowledge and capacities (output 1.1.6), as well as personnel and data will remain within the Ministry of Plan, which will facilitate the replication of the planning process for any other regional plan. Further to the resources made available from the government, the project aims at having as a next step the development of a proposal for the Green Climate Fund to secure resources for further implementation of projects in Côte d'Ivoire and replication and upscaling in additional countries in the region. Component 5 will provide data and institutional capacity strengthening for replicability within the country and the region. The Government request for UN-Habitat's support brings an extra layer of sustainability to the plan since additional technical expertise and the experience of UN-Habitat in the development of territorial plans will be utilized to mobilize stakeholders and additional resources for project implementation, with UN-Habitat as a long-term partner of the Government. This applies for all plans to be developed in both countries. The plan will be sustainable and in line with the National Development Plan. To mitigate risks inconclusive planning, the implementation structure will need to incorporate the legal mandates of the relevant 'plan making' authorities as well as a coordination system that assigns equal responsibility to implement an integrated Master Plan. This will involve governance bodies, ministries and other government agencies responsible for project implementation. In addition, other tools such as zoning and zoning by-laws, supported by urban land databases and urban baseline studies, environmental impact assessment and compensation measures, public capital investment, economic tools (such as tax incentives and exactions) will be adopted.	Ministry of Planning and Development (DGAT) UN-Habitat Abidjan Convention
1.1.5 One (1) District-level Spatial Development Frameworks (Local development plan), targeting Jacqueville, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase coastal resilience proposed	MoPD leadership ensures this is a government led output whose sustainability is linked to the long-term engagement of the institution. (with allocated staff and equipment). It is a technical team and therefore, sustainability risks from transition to other political scenarios is minimised. The municipality counts with the strong support and technical expertise from MoPD which further facilitates the process and ensures technical and political support. Strengthened knowledge and capacities (output 1.1.3), as well as personnel and data will remain within MoPD, which will facilitate the replication of the planning process for any other regional plan. Since the implementing entity is the government authority responsible for the plan, the sustainability of the output is ensured. Strengthened knowledge and capacities (output 1.1.3), as well as personnel and data will remain within the municipality. This will facilitate the replication of the process for any other district plan.	Ministry of Planning and Development Municipality (Technical Department)
1.1.6 Strengthened capacity of the Ministry of the Environment and Sustainable Development, Ministry of Planning and Development) and municipalities, to develop, use and update spatial	The timeline for the development of the plans is 2030, which means that a review / update would be required towards 2030. The project will aim at strengthening the capacity and funding allocation from the Government of Côte d'Ivoire to ensure that technical capacity, human and financial resources are available for the review. The Ministry of the Environment and Sustainable Development, Ministry of Planning and Development,and municipalities will lead the development of the plans and will apply a planning process methodology with the support of UN-Habitat aimed at increasing the availability of data,	UN-Habitat

development frameworks, including identification and integration of climate change-related coastal risks and vulnerabilities and measures to increase coastal resilience	improve the understanding on stakeholder engagement, minimum requirements and approval processes. The lessons learnt will be made available and shared with the Ministry of Plan to ensure that future plans have a clearer methodology, process and are more cost-efficient to elaborate and update. *This output is part of the sustainability plan for output 1.1.3 and 1.1.4.*	
Component 2		
2.1.1 Community-level plans developed in Ghana, including planning, operation, maintenance, monitoring and replication of concrete adaptation measures. Same target area as outputs 3.1.1 and 3.1.2 and 4.1.1 and 4.1.2	After the first operational budget cycle, and because of the participatory process and capacity development included in the project, the local government will have gained additional technical and community engagement skills to support the communities in the update of the plans, for which they have an institutional mandate as part of the local plans. Each community, with already very strong social structure and community organization, will be able to own and further develop the plans using the knowledge and skills transferred by the project. The community plans represent an extra-layer of sustainability arrangements for the projects in component 3 and 4. Even though the projects will put in place the institutional, social, financial and environmental processes to ensure their individual sustainability, the plan will act as an integrative process to bring on board additional stakeholders, donors and investors, to enable replication and upscaling mechanisms. This output will deliver the implementation, maintenance, and sustainability plan for outputs 3.1.1 (3.1) and 3.1.2 (3.2) and (4.1.1) (4.1) and 4.1.2. (4.2). In 1993, the law on decentralization, Local Government Act (Act 462) was passed followed by the introduction of the National Development Planning System Act (Act 480) in 1994, to mark the inception of decentralized development planning. Based on this, Metropolitan, Municipal and District Assemblies (MMDA) will be responsible for the development of plans, in collaboration with UN-HABITAT. To mitigate risks inconclusive planning, the use of legally binding mechanisms to institutionalize and enforce measures in cross-cutting matters will be adopted. In addition, other tools such as zoning and zoning by-laws, supported by urban land databases and urban baseline studies, environmental impact assessment and compensation measures, public capital investment, economic tools (such as tax incentives and exactions) will be adopted.	MMDA, Local government and communities with the support of an established NGO that has been working in the region with similar projects.
2.1.2 Community-level plans developed in Côte d'Ivoire, including planning, operation, maintenance, monitoring and replication components (same target area as outputs 3.3 and 3.4 and 4.3 and 4.4	The Law of Decentralizing Local Governments 2003 has widened the responsibility of 'plan making' to guide future land uses and development control. Decentralization has broadened this responsibility so that the MCLAU, Regions and Communes, in total 25 entities are empowered to make development master plans. To mitigate risks inconclusive planning, the use of legally binding mechanisms to institutionalize and enforce measures in cross-cutting matters will be adopted. In addition, other tools such as zoning and zoning by-laws, supported by urban land databases and urban baseline studies, environmental impact assessment and compensation measures, public capital investment, economic tools (such as tax incentives and exactions) will be adopted. In addition, similarly to 2.1.1., after the first operational budget cycle, and because of the participatory process and capacity development included in the project, the local government will have gained additional technical and community engagement skills to support the communities in the update of the plans, for which they have an institutional mandate as part of the local plans. Each community, with already very strong social structure and community organization, will be able to own and further develop the plans using the knowledge and skills transferred by the project. The community plans represent an extra-layer of sustainability arrangements for the projects in component 3 and 4. Even though the projects will put in place the institutional, social, financial and environmental processes to ensure their individual sustainability, the plan will act as an integrative process to bring on board additional stakeholders, donors and investors, to enable replication and upscaling mechanisms. This output will deliver the implementation, maintenance, and sustainability plan for outputs under components 3 and 4.	NGO Côte d'Ivoire.
Component 3: for sustainability of component 3, please check subproject sheets in Annex 8, with sustainability detailed per subproject		
Component 4: for sustainability of component 3, please check subproject sheets in Annex 8, with sustainability detailed per subproject		
Component 5		
5.1.1.Coastal dynamics (i.e. erosion and inundation/flood) impacts and risk prediction model and assessment method	- Software and guidelines to use this model will be available after the project ends. This will be part of the agreements with UCC and AbC. - Capacities of national and district-level governments to use the model will strengthened under output 5.3.	University of Cape Coast Abidjan Convention
5.1.2.Monitoring sensor system to assess and monitor the effectiveness and impacts of the proposed concrete adaptation interventions under component 3 and 4	- Guidelines for monitor project activities will also be available after the project ends. This will be part of the agreements with UCC and AbC. - Capacities of national and district-level governments to monitor project activities will be strengthened under output 5.3. - Capacities of target communities to monitor project activities will be strengthened under component 2 and community-level sustainability and monitoring plans will be developed	University of Cape Coast Abidjan Convention Target ministries, districts and communities
5.1.3.Strengthened capacity of national and district-level governments to use above model, assessment method and monitoring systems and to replicate effective and efficient building-with-nature adaptation options	- This output has been included to Strengthen capacity of national and district-level governments to sustain the model and monitoring system under outputs 5.1. and 5.3.	Abidjan Convention in coordination with target ministries, districts

5.1.4.West Africa / international knowledge management and sharing mechanism with a focus on feasible building-with-nature adaptation options to protect the coast and diversify and/or strengthened livelihoods	- This output has been included to assemble and share all project knowledge / lessons including through learning events and supporting the AbC resource center - Project information will continue to be available after the project through the knowledge center, which will be part of the agreement with the AbC	Abidjan Convention

Further details about sustainability of Component 3 and 4 are presented in the subproject sheets, in Annex 8

Part II.L ENVIRONMENTAL AND SOCIAL IMPACTS AND RISKS

The proposed project fully aligns with the Adaptation Fund's Environmental and Social Policy (ESP) and its 15 principles. To align with these policies and related guidelines, this section provides a brief summary of the risks assessment outcomes, which are shown in detail in Annex 5 (ESP). The environmental and social risk screening, assessment and ESMP are presented in Annex 5 at two levels. The first level is general, analysing all three components of the project. In general, proposed spatial and land use planning, community planning, trainings and workshops and knowledge management activities under Components 1, 2 and 5 have been categorized as low risk. Despite this, steps will be taken to ensure that no environmental or social impacts can occur. The second level zooms into the activities belonging to components 3 and 4 (subprojects implementation) because it needs a technical and detailed view and presents related risks and mitigation measures.

The project fully complies with all applicable national laws and regulations (see Part II, Section F), focuses on marginalised and vulnerable groups, positively discriminates in favour of women, incurs no infringement on labour rights, plans no resettlement whatsoever, and does not affect indigenous peoples (none present). With regards to the subproject implementation in Component 1, activities have been designed to minimise potential risks by selecting numerous, small scale and very localised interventions, proposed and managed by the communities themselves (where possible) who have a stake in avoiding environmental and social impacts. This means that the potential for direct impacts is small and localised, that there can be few indirect impacts, and that transboundary impacts are highly unlikely. Given this, cumulative impacts are also unlikely.

Outlined below is a summary of the findings of the preliminary screening process to identify and evaluate potential environmental and social impacts and risks of proposed interventions and based on that, of the entire project. The 15 safeguard areas outlined in the Adaptation Fund's ESP have been considered during the screening. With this information, the entire project has been categorized. As shown in Part II.I and Annex 4, consultations have been conducted to identify potential environmental and social risks and impacts and to identify specific groups needs and possible concerns. A draft gender baseline, containing disaggregated data and approach, containing specific approaches for women and youth, has been developed – see Annex 6.

Activities under Components 3 and 4 are 'concrete' interventions, and as such, some interventions have the potential, without an environmental and social safeguarding system, including mitigation measures and management arrangements, to create negative environmental and social impacts. As such, some interventions under these components fit into the medium (B) risk category and some into the low (C) risk category. Under component 4 (i.e., catalytic concrete interventions at community level), risks are relatively low because of the scope of the proposed interventions, that are numerous, small scale and very localized, and proposed and managed by communities, who have a stake in avoiding environmental and social impacts. As for component 3 (i.e., transformative concrete coastal resilience building interventions at inter-district level), the impacts and risks of sub-project fall in the category B. Annex 5 provides an overview of risks screening and impact assessment outcomes conducted in both Ghana and Côte d'Ivoire. In both countries, risks screening sheets have been completed for each proposed project activity. Besides that, accredited consultants prepared country specific ESIA-ESMPs and consultations reports in compliance with the AF ESP and GP and national requirements for conducting ESIAs. The outcomes have been consolidated in the proposal. Please find weblinks to the full country-specific reports: *Ghana ESIA-ESMP report and Côte d'Ivoire ESIA ESMP report*

Because of the nature of the activities under components 3 and 4, **the entire project is regarded as a medium risk (Category B) project**. Therefore, ESMPs have been developed, including risks / impacts mitigation measures for any risk identified. The country specific ESMPs can be found in the country reports and a summary/overall ESMP in Annex 5. Because of the risks management measures in place, no further assessments are required as per below table.

The project has been designed to generate positive economic, social, and environmental impacts, using inputs from especially women and marginalized and vulnerable groups in target communities and by incorporating best practices from other projects. The adaptation measures proposed have been selected together by the communities and local authorities, making sure they are culturally appropriate and local.

Below table is in alignment with table 1 in Annex 5. Initial risks were identified and for those, impacts assessed, and mitigation measures proposed. Therefore, no further assessment is required for compliance, only risk management of the initially identified risks.

Table 20. Risk Screening Results against all Adaptation Fund ES Principles

Checklist of environmental and social principles	No further assessment required for compliance	Further risk management required for compliance
1. Compliance with the Law	x	
2. Access and Equity		x
3. Marginalized and Vulnerable Groups		x
4. Human Rights	x	
5. Gender Equity and Women's Empowerment		x
6. Core Labour Rights		x
7. Indigenous Peoples	x	
8. Involuntary Resettlement	x	
9. Protection of Natural Habitats		x
10. Conservation of Biological Diversity		x
11. Climate Change		x
12. Pollution Prevention and Resource Efficiency		x
13. Public Health	x	
14. Physical and Cultural Heritage	x	
15. Lands and Soil Conservation	x	

As it was described previously in Part II, Section C, the project has many benefits both social and environmental and meets the national standards as it was mentioned in Section F above. Different stages of the risk screening and the ESMP itself were presented for public disclosure and results are available online for public consultation. A public grievance mechanism has been put in place for the entire duration of the project.

PART III: IMPEMENTATION ARRANGEMENTS

Part III.A ARRANGEMENTS FOR PROJECT MANAGEMENT

The following arrangements for project management (oversight, coordination and execution) have been agreed upon with AF DAs, the project steering committees and Execution Partners in Ghana and Côte d'Ivoire.

The organigram above (**Error! Reference source not found.**) shows how the project will be supervised, coordinated and executed at the regional, national and local level. As UN-Habitat is the Multilateral Implementing Entity (MIE) of the project, UN-Habitat will be responsible for the overall implementation of the project, including contracting of execution partners and coordination with stakeholders that have a 'stake' or say in the project, mostly through the Project Steering Committees.

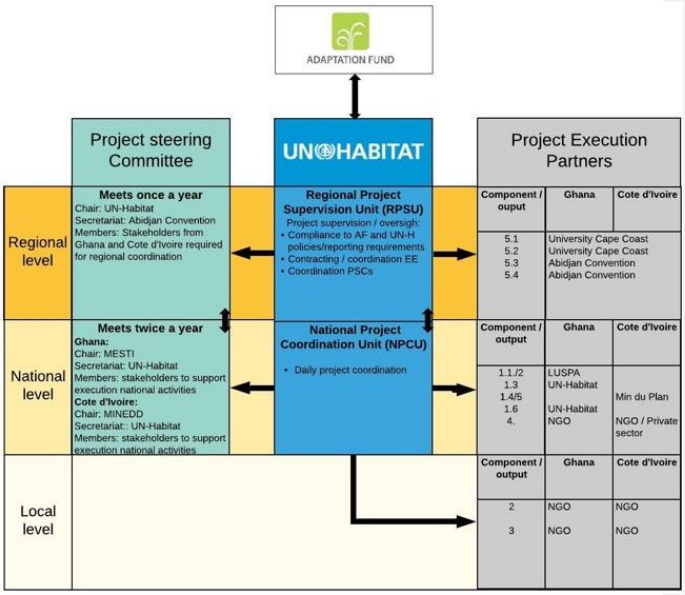


Figure 1514. Management arrangements organigram

Table 21. Key project organigram stakeholders and roles and responsibilities

Stakeholder	Role and responsibility
UN-Habitat	Project oversight / supervision and coordination - Compliance with AF and UN-H policies and reporting / M&E requirements, incl. safeguarding system - Contracting and coordination execution partners - Coordination of project as Chair of Regional Project Steering Committee and Secretariat of National Project Steering Comm. to execute components/ activities
Project Steering Committees	Providing political and technical inputs to ensure smooth implementation of the project from start to completion, including providing advice on how to deliver project outputs and the achievement of project outcomes in a timely matter in line with national and sub-national strategies and technical standards: - Required coordination with relevant ministries and authorities - Approve annual work plans and review key project periodical reports; - Review any deviations and consider amendments to work plans and contractual arrangements.
National Project Coordination Unit in Ghana and Cote d'Ivoire	Responsible for the overall management, facilitation and daily implementation of activities in accordance with UN-Habitat procedures and those contained in the approved project document.
Project Execution Entities	Execute specific project components / activities under the direct supervision of the Regional Project Supervision Unit (RPSU) and the National Project Coordination Unit in Ghana and Cote d'Ivoire

Regional level: at the regional level, project implementation will be managed by the **Regional Project Supervision Unit (RPSU)**. This 'Unit', established by UN-Habitat in consultation with Project Steering Committees and formed by: (1) Regional Project Coordinator / Safeguarding System AF compliance specialist, M&E Communication and Gender specialist, will be responsible for project supervision / oversight, including coordination with and between **National Project Coordination Units (NPCUs)**, the **Regional-level Project Steering Committee** (**PSC**) and the **Project Execution Entities** (**PEE**). The Regional Project Supervision Unit will be responsible for ensuring project compliance with the AF and UN-H policies and reporting requirements, for contracting the Project Executing Entities, it will chair the Regional-level Project Steering Committee and act as the Secretariat of the National Project Steering Committee. This Regional-level Project Steering Committee will be responsible for 'providing the political and technical direction to the 'whole' project from start to completion and for ensuring that the regional component (i.e. component 4) of the project is realized and aligned to governmental agendas.

National level: at the national level, project implementation will be supported through **National Project Coordination Units** (**NPCUs)**. These 'Units' will be responsible for daily project coordination in Ghana and Côte d'Ivoire, including coordination on execution of the project activities with the Project Execution Entities. The National Project Coordination Units will be formed by: (1) Project Coordinator / Technical Project Staff / Administrative and Financial Assistant.

The 'Units' will also be a member of the **National-level Project Steering Committees (PSCs)** in Ghana and Côte d'Ivoire. These National-level Project Steering Committees will be responsible for providing political and technical direction to the country specific project activities from start to completion, and alignment with government agendas.

During the consultations, workshops and co-development of the project document in Ghana and Cote d'Ivoire, the formation of a **Project Technical Committee (PTC)** was also requested at the national level in Cote d'Ivoire. Members were identified and listed in the table below. The function of the PTC is to provide technical guidance and ensure alignment of the project with a broader number of technical stakeholders including government and sectorial institutions.

Local level: at the local level, project implementation will be supported through the **National Project Coordination Units** (**NPCUs).** The **National-level Project Steering Committees (PSCs)** will also have (government) representatives from the sub-national level, including from the target municipalities.

Table 22. Stakeholders in the project steering committees

Project Steering Committee (PSC)			
Stakeholders	Regional	National	
		Ghana	Côte d'Ivoire
UN-Habitat	Chair	Member	Member
Abidjan Convention	Co-chair	Member	Member
University of Cape Coast	Member	Member	
Ghana MESTI (EPA, LUSPA, AF Focal point)	Member	Chair	
Ghana NDPC	Member	Co-chair	
Ghana MLGRD (RCC)	Member	Member	
Ghana MLGRD (target MMDAs)		Member	
Ghana MWS (WRC)		Member	
Ghana MWH (HDS)		Member	
Ghana MSDI (CDA)		Member	
Ghana MLNR (FC)		Member	
Ghana MOFAD (IFMD)		Member	
District of Ada East		Member	
District of Ada West		Member	
District of Keta		Member	
Côte d'Ivoire MINEDD	Member		Chair
Côte d'Ivoire MI (Cabinet)	Member		Co-Chair
Côte d'Ivoire *MPD (Cabinet)*	Member		Member
Côte d'Ivoire Ministère de la ville (Cabinet)			Member
Côte d'Ivoire MCLU (Cabinet)			Member
Côte d'Ivoire MNADER (Cabinet)			Member
Côte d'Ivoire MTL (Cabinet)			Member

Côte d'Ivoire MEF			Member
Côte d'Ivoire MMG			Member
Côte d'Ivoire Ministère des Ressources Animales et Halieutiques (Cabinet)			Member
Côte d'Ivoire Secteur Privé (CGECI)			Member
Côte d'Ivoire ONG (REFACC, SOS FORET, PAGE VERTE)			Attendee
Total	**9**	**15**	**14**

Table 23. Stakeholders in the project technical committee

Project Technical Committee (PTC)			
Stakeholders		National	
		Ghana	Côte d'Ivoire
Côte d'Ivoire ANGIL/PNGEC/WACA (01)		n.a.	Chair
Côte d'Ivoire MINEDD/DLCC-PNCC (01)		n.a.	Member
Côte d'Ivoire Point Focal FA (01)		n.a.	Member
Côte d'Ivoire Cabinet du Premier Ministre / Plateforme Nationale de Réduction des Risques et de gestion des Catastrophes (01)		n.a.	Member
Côte d'Ivoire MPD/DGAT (01)		n.a.	Member
Côte d'Ivoire MI/DGDDL (01)		n.a.	Member
Côte d'Ivoire MIRAH/Direction de l'Aquaculture et de la Pêche (DAP) (01		n.a.	Member
Commune Grand-Bassam (01)		n.a.	Member
Commune Jacqueville (01)		n.a.	Member
Côte d'Ivoire Center of Excellence : CURAT, WASCAL (02)		n.a.	Member
Côte d'Ivoire MCLU DGUF (01)		n.a.	Member
Côte d'Ivoire Convention d'Abidjan (01)		n.a.	Member
Côte d'Ivoire Expert NGO (01)		n.a.	Member
FIRCA			Member
UN-Habitat			Member

The participatory processes, stakeholder engagement and consultations conducted in Ghana have considered sufficient the creation of Regional and National level Project Steering Committees (PSC). The Project Technical Committee has been considered as an additional institutional layer that Ghana aims at addressing as part of the National level Project Steering Committee.

In Cote d'Ivoire, given the more consultative and broader approach to stakeholder engagement, the creation of a **Project Technical Committee (PTC)** has been requested. The function of the PTC is to provide a technical platform to include additional substantive stakeholders to be consulted on a more regular basis and provide an additional forum other than the national Project Steering Committee, with a more decision-making function. The PTC will be a consultative body whose recommendations will be non-binding and includes as members a broader range of stakeholders: national and local government, government specialised agencies, technical centres, international organizations and NGOs.
In both Ghana and Côte d'Ivoire, The National-level Project Steering Committees have been established, and chairs, co-chairs and members have already been identified and agreed upon. These Committees have already been functioning to support the development of this project proposal, including approving proposed Project Execution Entities, activities, budgets, etc.

Key stakeholders and roles and responsibilities

Regional/international level

Table 24. Overview main stakeholders and roles and responsibilities at regional/international level

Stakeholder	Role and responsibility (policy / M&E, implementation, etc)	
	Focus	Project / Supervision modality
Abidjan Convention (ABC) (Executing Entity)	Regional coordination between governments and on conventions, including on Marine and Coastal ecosystems and climate change resilience.	- Co-Chair PSC at regional level - Execution outputs 5.3. and 5.4 - Coordination execution component 5 at national level - UN to UN Agreement
UCC	Academic expertise on regional climate change and coastal issues	- Member PSC at regional level - Execution outputs 5.1. and 5.2 - Coordination execution component 5 with AbC at national level - Supervised and contracted by ABC

National and local level – Ghana

Table 25. Overview main stakeholders and roles and responsibilities in Ghana

Government			
Stakeholder		Role and responsibility (policy / M&E, implementation, etc)	
Main	Sub + Commissions	Government	Project / Supervision modality
Ministry of Environment, Science, Technology and Innovation (MESTI) - Executing Entity	AF DA Environmental Protection Agency (EPA)	Sustainable development (policies and regulatory framework, especially environmental) AF focal point	- Member PSC at regional level - Chair PSC at national level - AF DA – AF focal point - EPA – Policy advise and coordination, including ensuring project activities' compliance to national environmental standards - ToR for EIMP

	Land Use and Spatial Planning Authority (LUPSA)	Land Use and Spatial Planning	- Member PSC at national level - Execution component 1, including plans oversight and approval - Coordination with RCC and MMDA to execute component 1 - Agreement of Cooperation (AoC)
National Development Planning Commission (NDPC)		Development planning and strategy (finance and medium-term development plans)	- Member PSC at regional and national level - Align / coordinate with (+ monitoring) national development planning
Ministry of Local Government and Rural Development (MLGRD)	Regional Coordination Council (RCC)	Good governance and balanced development of Metropolitan / Municipal / District Assemblies (i.e. decentralisation) (policies and regulatory framework)	- Member PSC at regional and national level - MLGRD through RCC-MMDAs: Align Mid-term development planning with development of spatial plans (LUSPA)
	Metropolitan, Municipal and District Assemblies (MMDAs) and communities		
Ministry of Water and Sanitation (MWS)	Water Resource Commission (WRC)	Regulate and manage the sustainable utilization of water resources	- Member PSC at national level - WRC – Policy advise and coordination, esp. related to component 4
Ministry of Works and Housing (MWH)	Hydrological Department Services (HDS)	Programming and co-ordination of coastal protection works, construction and maintenance of storm drains countrywide and the monitoring and evaluation of surface water bodies in respect of floods.	- Member PSC at national level - HDS – Policy advise, coordination, esp. related to component 4
Ministry of Special Development Initiatives (MSDI)	Coastal Development Authority (CDA)	Spearheading development in coastal regions	- Member PSC at national level - FC – Policy advise, coordination, esp related to component 1 and 4
Ministry of Lands and Natural Resources (MLNR)	Forestry Commission (FC) (incl. mangroves)	Sustainable management and utilization of Ghana's lands, forests, wildlife and mineral resources for socio-economic growth and development.	- Member PSC at national level - FC – Policy advise, coordination
Ministry of Fisheries and aquaculture development (MOFAD)	Inland Fisheries Management Division (IFMD) Fisheries Scientific Survey Division (FSSD) Fisheries Commission?	Promotion of accelerated Fisheries Sector Development as a viable economic segment	- Member PSC at national level - IFMD – Policy advise and coordination
District Assembly of Ada East, Ada West and Keta (Executing Entity)	Technical Department	Supervision, coordination and monitoring of interventions	- Support and supervise the execution of component 3 and 4 - Agreement of Cooperation (AoC) through Ministry of Environment
Non-government			
The Development Institute (Execution Entity)		Community mobilisation; coastal climate change resilience; gender and youth	- Member PSC at national level - Execution component 2, 3 and 4 - Agreement of Cooperation (AoC)
Private company (tbc) (Execution Entity) Pre-identified (Keran, Deltares,…)		Physical works, technical design of component 3 The company to be selected needs to have previous experience in development context in the execution of lagoon stabilization.	- Execution component 3 - Performance-based contract

National and local level – Côte d'Ivoire

Table 26. Overview main stakeholders and roles and responsibilities in Côte d'Ivoire

Stakeholder		Role and responsibility (policy / M&E, implementation, etc)	
Main	Sub + Commissions	Government	Project / Supervision modality
Government			
Ministry of Environment and sustainable Development (MINEDD) – *Ministère de l'Environnement et du Développement Durable*	AF DA Agence Nationale de l'Environnement (ANDE) Agence Nationale de Gestion intégrée du Littoral Ivoirien Direction de la Lutte contre le Changement Climatique (DLCC) Programme National du Changement climatique (PNCC) Programme National de Gestion de l'Environnement Côtier (PNGEC)	Sustainable development (policies and regulatory framework, especially environmental) AF focal point	- Member PSC at regional and national level - AF DA – AF focal point - ANDE – Policy advise and coordination, including ensuring project activities' compliance to national environmental standards) - Coordinate execution component 1, including plans oversight
Ministry of Interior – *Ministère de l'Intérieur (MI)* *(Executing Entity)*	Direction Générale de la Décentralisation du Développement Local (DGDDL) – Collectivite Territorial	Good governance and balanced development of Metropolitan / Municipal / Department collectivities (policies and regulatory framework) Support and approval of plans	- Member PSC at regional and national level - Ministry of Interior through DGDDL and collectivite Territorial: Coordination and approval of plans - Establishment of AoC between IE and the EE of the local governments

	Direction Générale d'Administration et du Territoire		- - Agreement of Cooperation (AoC)
Ministry of Planning and Development – *Ministère du Plan et du Développement (MPD) (Executing Entity)*	Direction Générale d'Aménagement du Territoire (DGAT)	Planning development	- Member PSC at regional and national level - DGAT – Coordinate execution component 1, including plans oversight and approval (support the development of local plans *(Plan de Development local and development of Manuel de planification du développement et guide pratique de planification locale)* - *- Agreement of Cooperation (AoC)*
Ministry of the City- *Ministère de la Ville*		Assistance and advise to cities; Development and approval of urban planning tools, liaising with Ministry of Plan and Ministry of Construction Controle	- Member PSC at national level - Policy advise and coordination, including development and approval of urban planning tools
Ministry of Construction Housing and urban planning – *Ministère de la Construction, du Logement et de l'Urbanisme (MCLU)*	Direction Générale de l'Urbanisme et du Foncier (DGUF) Direction du logement et de la Copropriété	Planning development	- Member PSC at national level - DGUF - Policy advise and coordination, including development and approval of urban planning tools
Ministry of Agriculture and Rural Development – *Ministère de l'Agriculture et du Développement Rural (MAD)*		Sustainable management and utilization of Côte d'Ivoire's Agriculture lands for socio-economic growth and development.	- Member PSC at national level - Policy advise and coordination - Member PSC at national level - Policy advise and coordination
Ministry of Tourism and Recreation – *Ministère du Tourisme et Loisir (MTL)*			- Member PSC at national level - Policy advise and coordination
Ministry of water and forests- *Ministères des eaux et Forêts (MF)*		Sustainable management and utilization of Côte d'Ivoire's forests, wildlife and Water resources for socio-economic growth and development.	- Member PSC at national level - Policy advise and coordination
Min de l'Int ; Collectivité Territoriale (Mairies and Conseil Régional) - Jacqueville and Grand-Bassam (Executing Entity)	Direction des services techniques Department of Public Works	Planning Development Local government: Coordination, stakeholder engagement, participatory processes, community engagement, execution oversight and control	Coordinate execution component 1 Plans de Développement Local, Schémas Régionaux d'Aménagement du Territoire (Liaising with relevant ministries) Coordinate execution, validation and execution supportof component 3 & 4 Agreement of Cooperation (AoC) through the Ministry of Interior and DGDDL Agreement of Cooperation (AoC)
Non-government			
Center of Excellence		Coastal climate change issues	- Member PSC at national level - Partner Abidjan Convention to execute component 5 at national level
Private company (tbc) (Execution Entity) Pre-identified: Keran, Deltaris,		Physical works, technical design. The company to be selected needs to have previous experience in development context in the execution of sand nourishment.	Execution component 3 Performance-based contract
NGO (tbc) (Executing Entity) Pre-identified: FIRCA, Impactum, Salt Doctors)		Community mobilisation; coastal climate change resilience; gender and youth	Member PSC at national level Execution component 2, 3 and 4 Agreement of Cooperation (AoC)

The supervision of the EE will be done through the Regional Unit of the project as well as the two National Units of the project in Ghana and Cote d'Ivoire, with dedicated coordination, technical, administrative and M+E staff. From the kick-start phase of the project the regional and local units will count with the support of UN-Habitat Headquarters and Regional Office of Africa, to support with contractual arrangements, contracts, procurements, disbursements, etc.

The contractual arrangements with the different EE are presented in table 17. UN-Habitat will establish relations with EE mainly through Agreements of Cooperation, UN to UN Agreements and Performance-based contracts.

Legal and financial arrangements

UN-Habitat and the Ministries of Environment (with the AF DAs) in Ghana and Côte d'Ivoire will sign a joint **Memorandum of Understanding** to which this Project Document will be attached, to ensure that all partners are fully committed to the project.

UN-Habitat will contract Project Execution Entities in Ghana and Côte d'Ivoire through **Memorandum of Understanding (MoU) and/ Agreements of Cooperation (AoC)**, which are legally binding financial tools, and **UN to UN agreement** to the Abidjan Convention. The Agreement of Cooperation will be drafted by the Regional Project Supervision Unit in collaboration with UN-Habitat Regional Office for Africa (ROAf) and cleared by UN-Habitat's HQ.

For the UN to UN agreements, overheads will be passed through from the 7 percent PSC from the project cycle management fees, so there will be no double charges.

To contract a UN agency, UN to UN agreements are used. This is also the case if a UN implementing entity contracts a UN agency as executing entity. A fixed mechanism of these UN to UN agreements is that a certain percentage (over the executed outputs) of the overhead (MIE fee) is passed through to the contracted entity. This means no double overheads are calculated but that overheads are deducted from the managing agency.

UN-Habitat's **Implementing Partner Management Process (IPMP)** will be used to align with policies, procedures and templates to use in the selection and management of Implementing Partners contracted by UN-Habitat through Agreements of Cooperation (AoC) to execute projects. The IP Management process defines the 18 steps from planning to evaluation through which UN-Habitat engages with Project Execution Entities.

Private sector procurement will follow the rules and regulations of the United Nations. The contractual relation with the private sector company will be based on Performance-based contracts.

Direct Executing Entities will be allowed, upon agreement with IE, to establish collaborations and contractual relations with public sector, private sector and NGOs for the specific fulfilment of components of the project and within the assigned budget.

The Regional Project Supervision Unit will develop an operational manual that clearly outlines the roles and responsibilities of the key project stakeholders and contain all the necessary tools, forms and templates required to administer the project. The operation manual will be shared with the National Project Coordination Units for inputs. While UN-Habitat takes responsibility of audits in line with AF requirements (each year), all contractors will be required to have 'external' audits of their budgets. The contractors will also be required to support the independent final evaluation.

Roles and responsibilities for environmental and social risks management / AF ESP and GP compliance

The Regional Project Supervision Unit will be responsibility for environmental and social risks management, including implementation of the Project ESMP. An AF and UN-H policies and reporting compliance expert will be part of the RPSU. This expert will also supervise Project Execution Entities on the implementation of the Project ESMP. Guidelines showing how to comply to the AF ESP and GP will be shared with all execution entities and they will be guided on process, including monitoring. A Safeguarding system compliance expert will also be part of the RPSU. Monitoring staff part of the RPSU will require having expertise in social risk management and be familiar with the AF safeguarding system. The RPSU will be backstopped by UN-Habitat HQ, with experts on climate change, human rights, environmental and social risks managements and gender policies.

In both Ghana and Côte d'Ivoire, government stakeholders responsible for compliance to national environmental and social policies and standards will be part of the Regional- and National-level Steering Committees, as well as government gender focal points.

All project-related ToR's and contracts will include clauses stating contractors will need to comply to the AF ESP, especially principle 1 (law), 4 (human rights), 5 (gender) and 6 and 13 (labour and safety) and the AF GP.

Adaptive management: when changes in project activities or additional activities are required, these will need to go through a new risks screening and impact assessment process in compliance with AF, UN-Habitat and national policies and standards. When this is required, this will be led by the RPSU and the Regional-level Project Steering Committee would need to approve the changes.

Launch of the project

At the launch of the project, UN-Habitat's, together with the Abidjan Convention will organize **an inception workshop** inviting members of the Regional-level Project Steering Committees, Execution Partners and other key stakeholders. The project approach and the proposed outputs and outcomes of the project will be presented and discussed with the purpose to solicit feedback and inputs in a participatory manner. Comments and feedback will be incorporated in project frameworks and workplans. The Inception Workshop aims to:

(i) Enhance participants' understanding of the project objectives and activities and take ownership of the project
(ii) Discuss and confirm the organizational structure of the project, including roles and responsibilities
(iii) Confirm / agree upon project monitoring framework and workplan
(iv) Confirm / agree upon project risks management framework
(v) Discuss and agree upon project knowledge management framework and plan
(vi) Confirm / agree upon the project Environmental and social Risks Management Plan
(vii) Agree on the annual work plan for year one.

The inception workshop will be organized within three months after signing the project agreement between the Adaptation Fund and UN-Habitat.

Part III.B MEASURES FOR FINANCIAL AND PROJECT RISK MANAGEMENT

Under guidance of the regional project manager, supported by the National Project coordinators, Monitoring Officers will monitor the status of financial and project management risks, including those measures required to avoid, minimize or mitigate these risks, throughout the project (please see also Section Part III.D).

The table below gives an overview of overall potential project management and financial risks, an assessment of the significance of the pertaining risks in terms of likelihood and impact and outlines measures that have been embedded in the project design in order to manage and/or mitigate these risks.

Table 27. overview of financial and management risks and measures to mitigate these

Potential risks	Likelihood (1-5)	Impact (1-5)	Mitigation measures	Indicator to verify
Institutional				
1 Delay of project start-up because critical staff is not in place and / or lengthy contracting process, incl. negotiations with execution entities	3 Med	3 Med	1.1 UN-Habitat appointed critical staff at UN-H Regional Office for Africa (ROAf) and Urban Practices Branch (UPB) to start the process required to start the project, incl. putting project staff in place and preparing the inception workshop immediately after signed project agreement between UN-Habitat and the AF; 1.2 Most execution entities have been identified and proposed project activities and budgets have already been agreed upon. 1.3. UN-Habitat commits to organise the inception workshop within three months of the signed project agreement between UN-Habitat the AF	The inception workshop was organised within three months of the signed project agreement between UN-Habitat; Execution entities to execute activities in the 1st project year are contracted within six months after the inception workshop
2 Loss of government support (at ministerial and municipal level) for the project and activities because of elections and related functions of the project steering committee, which may result in lack of prioritization of AF project activities or different pace of execution of activities in Ghana and Côte d'Ivoire	1 Low	3 Med	2.1 National Project Steering Committees (PSCs) have already been formed during the project preparation phase and these have approved proposed project activities and budgets, etc. This shows a participatory and inclusive project design process took place with ownership of the project as a result. If due to elections, new members of the PSCs will need to be selected, this will be requested by UN-Habitat and AF DA as soon as possible and records of decisions made during earlier PSC will be shared. 2.2 Delays in one country don't have to result in delays in the other country because of functioning national PSCs 2.3 UN-Habitat will establish agreements with the MoE (with non-changing AF DA) (through MoUs) to ensure above	Confirming steering committee members and roles and responsibilities during inception workshop + report Government focal point to coordinate SC appointed at inception workshop MoU signed within 6 months six months after the inception workshop
3 A lack of coordination between and within national government Ministries and Departments and municipalities	1 Low	3 Med	3.1 Regional and National PSCs are to ensure coordination. Representatives from the target municipalities are members of both regional and national PSC. A technical committee is also established 3.2 Roles and responsibilities related to project implementation of PSC members, also for operation, maintenance and sustainability of activities, have already been identified and focal points within the ministries and municipalities will be appointed through an official letter. 3.3 Should UN-Habitat observe coordination problems, the agency will try to resolve issues directly with government focal point and / or concerned parties	See above
4 Capacity constraints of executing entities, local institutions, communities and the private sector may limit the effective implementation of interventions	1 Low	3 Med	4.1 The project has a strong capacity building and training component (component 2), designed to operate, maintain, sustain and replicate project activities, esp. at the community level 4.2 UN-Habitat will have dedicated project staff with expertise in spatial / urban planning, climate change, community organization and technical design, M&E and safeguards to ensure quality control from UN-Habitat side.	Capacity building indicators to be established Critical staff as mentioned being part of project staff
5 Communities may not adopt activities during or after the AF project, including infrastructure maintenance	2 Low	4 High	5.1 A strong participatory approach at the community level is used and will be used (component 2) during project implementation to ensure ownership and support of communities to the realised interventions in the targeted project areas. UN-Habitat works with NGOs partners already well established in the target area, to build on relations already established. 5.2 Capacity building and training of communities will be undertaken to improve their awareness and understanding of the benefits of the activities, including operation and maintenance of concrete interventions (component 2).	See above

6- Planning outcomes of components 1 and 2 may be ineffective	1 Low	3 Med	The planning processes and outcomes are leaded by the respective Ministries in each country with the mandate for elaboration of territorial and local plans, with a strong political support and an agenda to develop, approve and implement plans. The Ministries have access to detailed information on land ownership through the District Assemblies and technical services. The larger aim of the plan is approval and also to build consensus and stakeholder engagement, and to develop a vision and prioritize an agenda of investments in climate change adaptation and urban development. In this sense, the success of the plans will be achieved not only through the ends, but also through the means. During the participatory process, a vision, strategies, expected outcomes and concrete interventions will be developed that will multiply the impact of the projects and activities part of components 3 and 4. The plans aim at creating realistic consensus and this will be developed using the Participatory Incremental Urban Planning Methodology of UN-Habitat. In order to reduce the risks both Governments have asked UN-Habitat to support the capacity development process and support the design, operationalization and implementation of the plans, following a long track record of plans developed in collaboration with national and local governments.	Written commitment of Ministries Written commitment of Local governments Support of UN-Habitat and capacity development function
Financial management and Requisite Institutional Capacity				
6 Complexity of financial management and procurement. Certain administrative processes could delay the project execution or could lack integrity or needed capacity	2 Low	2 Low	6.1 Financial management arrangements have been defined during project preparation, including identification of most executing entities, which already agreed on the activities and budgets (see also 1.2. above); 6.2 UN-Habitat's control framework, under the financial rules and regulations of the UN secretariat, will ensure documentation of clearly defined roles and responsibilities for management, internal auditors, the governing body, other personnel and demonstrates proof of payment / disbursement; In line with AF and UN-Habitat policies, audits will take place annually and / or for each contract of USD 500k. 6.3 Activity specific procurement will be managed by the executing entities as agreed through standard Agreements of Cooperation (with relevant conditions, incl. evidence of recognized procurement policies and procedures and specific terms and conditions for timely disbursement of funds for project activities while at the same time ensure provisions on good financial management, hence minimizing the risk of fund mismanagement or corruption). The RPMU has a certifying role (for key procurements / expenditures).	Timely audit reports (inception and yearly + following UN-H regulations) Timely evidence of recognized procurement policies and procedures provided by Execution Entities
7 Inflation and instability of the national currency leading to budget issues and increased prices for infrastructure delivery	3 Med	1 Low	7.1 All budgets will be in US$ 7.2 Include clauses in all contracts, incl. with private sector, that they cannot increase the costs during the project duration.	All budgets in US$ Clauses in all contracts, incl. with private sector, that they cannot increase the costs during the project duration.
Physical				
8 Covid-19 protocols restrict movement in the target areas	3 Med	4 High	8.1 UN-Habitat will only let field work proceed if agreed with the UN security unit. 8.2 Execution entities will require having permanent field staff at project sites, reducing the need to travel 8.3 If target areas are not accessible, UN-Habitat and the proposed execution entities will identify alternative intervention timelines and or priorities in coordination with the SC	Permanent field staff at project locations
Environmental				
9 Poor weather conditions affect implementation of activities and sudden major changes in the environment.	2 Low	1 Low	9.1 UN-Habitat and the proposed execution entities have developed their work plan according to expected weather conditions and most activities should be able to be carried out despite severe weather conditions as they are inside closed areas. If unexpected weather patterns occur, the proposed activities and work plan will be reviewed to make practical adaptations.	Work plans avoiding critical concrete works being planned in winter
10. potential risk of sudden major changes in the environment.	1 Low	3 Med	10.1. Project activities will be planned in the 'calm' season so that major changes will not impact 'works' 10.2. The project prioritized building with nature solutions which are adaptable to new environments. Potential risks will be identified, also through risks planning, and the design of lagoon restoration and pen culture will anticipate changes in the environment, including how to recover the interventions from potential storms or floods and to have species that thrive in breakish water (Brackish tilapia – Sarotheroden melanotheron)	Annual plans Operation and maintenance plans showing potential risks and how interventions will be protected and recovered from storms and floods

As for any potential conflict of interest with the involvement of private partners in the development of the proposal, UN-Habitat has a contract with earlier mentioned Arcadis to provide UN-Habitat pro-bono support for a x amount. The contract states that where Arcadis is involved in a preparation of a project or something related, it cannot be contracted to execute any activities under that project.

Part III.C MEASURES FOR ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT

Section II.L presents outcomes of a systematic screening and impact assessment process detailed in Annex 5 and that has been done based on information from consultation with national and local government stakeholders, local and international experts, a wide range of other concerned stakeholders as well as the target communities (emphasizing the inclusion of marginalized and vulnerable groups). As shown in Part II Section I and in the related Annex 4, consultation with communities focused on: 1) identification of activities / interventions that address the climate change vulnerabilities of specific groups; 2) identification of exact needs, issues and risks following the 15 Adaptation Fund's environmental and social principles; and 3) identification of risk mitigation measures where required. Annex 4 contains the detailed outcomes of these consultations.

As described in section II.L, based on a screening against the stipulated principles in the AF ESP, the project has been categorized as a B Category risk project. An Environmental and Social Risk Management Plan has been developed (see Annex 5) to ensure that risks are avoided, and that, where this is not the case, they are detected in a timely manner and appropriately mitigated. The ESMP lists all potential risks identified and the preventative / mitigation measures proposed to minimize potentially adverse environmental and social impacts. The plan also shows how these potential risks and mitigation measures will be further monitored, including delegating responsibilities.

The essence of the ESMP entails:

1. Risks management arrangements

Responsibilities: direct management of the ESMP will be the responsibility of the National Project Managers. They will manage and monitor the progress of all project activities, including compliance with the risk mitigation measures and other instructions provided by the ESMP, and compliance with the gender policy. As part of the Project Supervision Team, the Project Manager will have overall oversight / final compliance responsibility.

Management and implementation of sub-projects and mitigation measures: all sub-project activities have been screened against the 15 environmental and social principles during the project preparation phase, and the resulting ESMP has been presented for public disclosure, and inputs from the participants, including representatives of the identified marginalized and vulnerable groups, have been integrated. The ESMP will be presented to all stakeholders again during the project's inception to ensure that there is clear understanding of its implications and the process, and information about grievance mechanisms will be reemphasized. Individual management plans will be developed for each sub-project, covering environmental studies, where required, for the compliance with national technical standards in line with Section F, Part II.

Adaptive management: dealing with changes during project implementation and approval requirements: if during inception or during project implementation changes in activities or additional activities are required, a 'screening safeguarding procedure' will be used, together with a sub-project risks screening questionnaire. This process includes consultations with beneficiaries and marginalized and vulnerable groups. The grievance mechanism (see below) can also be used to express concerns regarding possible risks and impacts. The ESMP has been revised so that adaptive management is possible. As the bulk of activities are occurring at the city level, the City Project Teams (which meet quarterly or whenever judged necessary) will be able to undertake adaptive management decisions as required.

The ESMP is designed with the understanding that any changes to project activities are subject to the established process with the Adaptation Fund Secretariat and will comply with the requirement of the IE informing the secretariat and the designated authority of changes in project activities or associated indicators or targets, including introductions, modifications and deletions, as soon as possible (decision B.29/32), by:

1. (i) obtaining prior approval from the Board;
2. (ii) communicating such changes to the secretariat; and
3. (iii) submitting a letter from the designated authority endorsing such changes to the secretariat, in order to obtain such approval.

Budget: there are no specific budget requirements for project compliance to the ESP and GP. When new screening is required, this will be done by project staff.

2. General environmental and social risks management reduction measures:

In addition to the risk management measures identified below, the following elements will be put in place to ensure compliance with the ESP:

- All MoUs and Agreements of Cooperation with executing entities will include detailed reference to the ESMP and GP, the 15 ESP Principles and especially compliance to law (Principle 1), human rights (Principle 4), gender approach (Principle 5) and labour and public health standards (Principles 6 and 13).
- The UN-Habitat Human Rights Officer and the Project Appraisal Group will check project compliance to the AF ESP during the project (in addition to the Senior Human Settlements Officer) (Principle 4)
- Continuous coordination with focal points within ministries and municipalities, responsible for compliance to national and local standards (especially related to EIAs and GP), will take place.

- Capacity-building and awareness-raising: the management teams, executing entities and target communities, will receive training / capacity development to better understand and be able to manage the 15 Principles, the ESMP and their responsibilities. This will be completed during the inception phase.

Table 28. ESP and GP compliance requirements and how the proposal complies to these requirements

ESP and GP compliance requirements	Project compliance to the AF ESP and GP	Reference / evidence
Have all potential environmental and social risks been identified for *all* project/programme activities prior to funding approval?	All potential environmental and social risks (incl. for gender and considering their significance) have been identified) for all project/programme activities at the project preparation phase. In both Ghana and Côte d'Ivoire, accredited consultants prepared country-specific ESIAs, ESMPs and consultations reports in compliance with the AF ESP and GP and national requirements for conducting ESIAs; Outcomes have been consolidated in the proposal	Part II.I Part II.L Annex 5 (ESP) Annex 6 (GB - Table 58)
Has the environmental and social assessment been completed before the project/programme proposal submission to the Adaptation Fund, and its findings included in the proposal document?	In compliance with the AF ESP and GP and national requirements for conducting ESIAs, above reports have been reviewed and approved by the Ghana and Côte d'Ivoire ministries of environment. Outcomes have been consolidated in the proposal.	Insert link to publications
Has an ESMP been developed and does this include safeguard measures to be implemented during a project/programme?	A project ESMP has been developed, including safeguarding measures. The following has been included in the ESMP: - Allocated roles and responsibilities environmental and social risk management / implement of the ESMP - Opportunities for adaptive management - Arrangements to supervise executing entities for implementation of ESMP - Budget provision to manage environmental and social risks / implement of the ESMP - Measures to avoid, minimize, or mitigate potential risks - Risks monitoring system / indicators - Grievance mechanism	Part III.A (roles and responsibilities for env. and social risk management) Annex 5 (ESP)
Will a grievance mechanism be put in place and how will it be made widely known to identified and potentially affected parties	A project grievance mechanism will be put in place, as described in the ESMP. It will be made widely known to identified and potentially affected parties through community mobilisers, posters and online content	Annex 5 (ESP)

Part III.D ARRANGEMENTS FOR MONITORING, REPORTING AND EVALUATION

M & E Framework and plan

Monitoring and Evaluation (M & E) arrangements for this project will be in compliance with the AF M&E guidelines and ESP and GP and with UN-Habitat M & E policies and guidelines. This means, as a minimum, the following will be monitored and evaluated: project Milestones, Financial data, Procurement data, Risks assessment, ESP Compliance, GP Compliance, Project indicators, Lessons learned, project Results. The M & E of progress in achieving project results will be based on targets and indicators (also for gender) established in the Project Results Framework (see Part III.E).

The annual project performance reports (PPRs) will include a section on the status of implementation of any environmental and social management plan, including those measures required to avoid, minimize, or mitigate environmental and social risks. The reports shall also include, if necessary, a description of any corrective actions that are deemed necessary. The terminal evaluation report will include an evaluation of the project's performance with respect to environmental and social risks.

UN-Habitat will ensure timely and high-quality M & E by keeping oversight of the process by providing guidance to the Project Execution Entities and national government partners through full briefing of M & E requirements. Where possible, the M & E process will be participatory, involving key stakeholders at national, municipal and communities. Project activities will be monitored by the RPSU and NPCUs with dedicated monitoring staff, which will require having expertise of M & E compliance to the AF ESP and GP. The M & E framework and plan will also need to be endorsed by the Regional-level Project Steering Committee. Audits of the project's financial management will follow AF regulations and rules and applicable audit policies. The M&E plan will be implemented as proposed in the table below.

Table 29. M & E plan

Type of M&E Activities	Responsible Parties	Time Frame	Reporting
Inception Workshop and Report	UN-Habitat & Regional project coordinator Coordinated with: Abidjan Convention Regional-level Steering Committee	Workshop: within first three months of signing between AF and UN-Habitat Report: within one month after inception workshop	Inception Report, including 1st year workplan, monitoring framework and plan; project risks management framework and plan; environmental and social risks management framework and plan; knowledge management strategy
Periodic status/ progress reports	UN-Habitat & Regional project coordinator Coordinated with: NPCUs and Project EE and IOIS	Annually	Annual Report, mid-term, final
Compliance with ESP and GP		Annual, as well as upon receipt of complaints, grievances or queries	Annual Report, mid-term, final
Audits		As per AF (annually)	Audit Reports
Terminal project performance report		No later than one months after project completion	Terminal project performance report

Final Evaluation	UN-Habitat & Regional project coordinator Coordinated with: External consultants and NPCUs, Project EE	No later than three months after project completion	Final Evaluation Report
Community consultations / workshops / trainings, etc.	Project EE Coordinated with: NPCUs	Within one week after each event	Documentation
Visits to field sites	Abidjan Convention Coordinated with: UN-Habitat & Regional project coordinator Regional-level Steering Committee	At least every year	Field visit Report
Video with 'before' and 'after' the project	UN-Habitat & Regional project coordinator Coordinated with: Abidjan Convention Regional-level Steering Committee	Video one: before start of concrete interventions Video two: after completion concrete interventions	Video compilation of project results

For the M & E budget and a breakdown of how MIE fees will be utilized in the supervision of the M & E function, please see the detailed budget (Part III.G). For related data, targets and indicators, please see the project proposal results framework (Part III.E).

M&E Activities

a) Inception workshop and Project Steering Committee meetings

During the first Regional-level Project Steering Committee meeting, which will be organized in conjunction with the project Inception Workshop. The Committees will monitor / review project progress and provide technical guidance. During the first Regional-level Project Steering Committee meeting, the following will be reviewed: the project organizational structure, includes roles and responsibilities, the project monitoring framework and workplan, the project risks management framework, the project knowledge management framework and plan, the project Environmental and social Risks Management Plan and annual work plan for year one. The Regional-level Project Steering Committee will meet every year and the National Project Steering Committees will meet every six months, and ad-hoc meetings will be held as needed.

b) Periodic project monitoring and terminal project performance reporting

Annual project performance monitoring will be conducted using the AF PPRs template. This will include monitoring of project: Milestones; Financial data; Procurement data; Risks assessment; ESP Compliance; GP Compliance; Project indicators; Lessons learned; Project Results

c) ESMP implementation monitoring

The implementation of the project Environment and Social Management Plan as described in Annex 5 will be monitored. The ESMP includes monitoring indicators and responsibilities for identified potential risks, impacts and mitigation measures. A dedicated budget for monitoring the compliance to the AF ESP and GP has been included in Part III.G

d) Financial Audits

A professional, certified and independent organization will review the financial management of the project and adherence to required standards and regulations.

e) Final Evaluation

No later than three months after project completion, a final evaluation will be conducted following AF and UN-Habitat policies and guidelines. It will be conducted by an independent team of international and national experts in consultation with executing entities and national stakeholders as a participatory process.

f) Community Level Participatory Monitoring

Part of the detailed project monitoring framework and plan will be identified through activities to involve Project Execution Entities and beneficiaries at the community level in monitoring activities. This would include community-level monitoring of Gender and Youth responsiveness and impact of the project.

g) Periodic Project Site Visits

Members of the Regional-level Project Steering Committee and representatives of UN-Habitat will visit project sited and hold meetings with the local stakeholders to monitor the implementation of project activities.

h) Video with 'before' and 'after' the project

Also, as part of the knowledge management strategy and plan, a video recording project results will be produced using 'birds' eye' views and recording of project activities and beneficiaries

Reporting

a) Inception Workshop and Report

Within one month after the inception workshop, an Inception Report will be submitted to the AF and project steering committees' members. Reports will include: (i) agreement on organizational structure of the project, including roles and

responsibilities; (ii) monitoring framework and workplan; (iii) project risks management framework; (iv) knowledge management framework and plan; (v) Environmental and social Risks Management Plan; (vi) year one work plan.

b) Annual project performance reports, including final report

The Annual project performance reports, which will be submitted to the AF, will include:

(1) Milestones
(2) Financial data
(3) Procurement data
(4) Risks assessment
(5) ESP Compliance
(6) GP Compliance
(7) Project indicators
(8) Lessons learned
(9) Project Results

c) Community Level Meeting /Workshop / Training Reports and site visit

Reports on all community-level meetings, workshops, and training will be prepared by Project Execution Entities within one week of the event. Photo documented site visit reports, also to monitor women participation, will also be prepared by Project Execution Entities.

d) Final Evaluation Report

The Final Evaluation report will be in line with AF and UN-Habitat evaluation policies and guidelines and norms and standards for evaluation in the UN system.

Part III.E PROJECT PROPOSAL RESULTS FRAMEWORK

Table 30. Project results framework with indicators, their baseline, targets, risks & assumptions and verification means.

Expected Result	Indicators	Baseline data	Targets	Means of verification (where and how)	Assumptions (external factors or risks)	Frequency	Responsibility
Component 1: Promote climate change resilience through spatial development frameworks							
Outcome 1.1. Climate change resilient coastal development promoted through climate change mainstreamed sub-regional and district-level Spatial Development Frameworks (SDFs) and institutional capacities strengthened to develop, implement, and update these SDFs *In line with AF outcome 2 and 7	Climate change-related coastal risks, vulnerabilities and resilient development priorities identified and integrated in SDFs in Ghana and Côte d'Ivoire - No of risks maps with identified hazard prone (coastal erosion / inundation / flood and salinization risks) areas in SDFs (one map per SDF) - No of maps with identified areas suitable (at low risks) for development in SDFs (one map per SDF) - No of maps with identified cc impacts / vulnerabilities (esp. on communities, ecosystems and livelihoods and women and youth) in SDFs (on map/ table per SDF) - Proposed adaptation / resilience building activities identified on a map an in a priority list Capacity of national and district-level government staff, to develop, implement and update above SDFs, increased No. of staff able to update plans with indicators % women	 0 0 0 0 0	 5 5 5 5 25 40 %	Analyse SDFs and maps and tables in them Assess capacity of staff requesting to collect required data for updating the plans	Agree on what exactly should be in the maps and tables Specific concerns and needs of women and youth should be identified in the SDFs	Baseline, mid-term and end	UN-H in cooperation with EE and government entities
Output 1.1.1 One (1) Sub-national-level SDF, targeting the Volta Delta coastal area, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase coastal resilience proposed *In line with AF output 7	No. of SDFs developed in Ghana in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase resilience proposed (incl. for gender/youth) Population covered by SDFs - Total - % Women - % Youth	0 0 0 0	3 277,963 52% 43%	SDFs printed / published online Analyse / identification of climate change-related coastal risks and vulnerabilities under outcome 1 indicators Verify population covered by the SDFs with population data in target areas	Agree on requirements for printing / publishing online Specific concerns and needs of women and youth should be identified in the SDFs	Baseline, mid-term and end	UN-H in cooperation with EE and government entities
Output 1.1.2. Two (2) Districts-level SDFs, targeting Ada east and Keta, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase coastal resilience proposed *In line with AF output 7							
Output 1.1.3. Strengthened capacity of LUSPA and MDAs to develop, use and update SDFs, including identification and integration of climate change-related coastal risks and vulnerabilities and measures to increase coastal resilience *In line with AF output 2.1.	No. of national and district-level government staff with increased capacity to develop, use and update SDFs, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase resilience proposed (incl. for gender/youth) - Total National level - % Women - Total District level - % Women No. of targeted institutions with increased capacity to develop, use and update SDFs, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase resilience proposed (incl. for gender/youth) - Ministries	 0 0 0 0 	 5 40 % 10 40 % 1	Assess capacity of staff through questionnaire Workshop reports with count of people Photos of workshops List / count of targeted institutions on training reports	Agree on appropriate questions Women and youth should be identifiable in reports and photos Institutions should be named	Baseline, mid-term and end	UN-H in cooperation with EE and government entities

	- District authorities	0 0	2				
Output 1.1.4. One (1) Sub-national Schéma Régional d'Aménagement du Territoire (SRAT), targeting the Region des Grands Ponts, with climate change-related coastal risks and vulnerabilities identified in it *In line with AF output 7	No. of Plans developed in Côte d'Ivoire, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase resilience proposed (incl. for gender/youth) Population covered by - Total - % Women - % Youth	0 0 0 0	2 356,495 48% 31%	printed / published online Analyse / identification of climate change-related coastal risks and vulnerabilities under outcome 1 indicators Verify population covered with population data in target areas	Agree on requirements for printing / publishing online Specific concerns and needs of women and youth should be identified in the	Baseline, mid-term and end	UN-H in cooperation with EE and government entities
Output 1.1.5. Two (2) Local Development plans, targeting, with climate change-related coastal risks and vulnerabilities identified in it *In line with AF output 7							
Output 1.1.6. Strengthened capacity of Ministry of Planning and Development, to develop, use and update spatial development frameworks, including identification and integration of climate change-related coastal risks and vulnerabilities and measures to increase coastal resilience *In line with AF output 2.1.	No. of national and district-level government staff with increased capacity to develop, use and update SDFs, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase resilience proposed (incl. for gender/youth) - Total National level - % Women - Total District level - % Women No. of targeted institutions with increased capacity to develop, use and update SDFs, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase resilience proposed (incl. for gender/youth) - Ministries - District authorities	 0 0 0 0 0 0	 5 40 % 5 40 % 1 1	Assess capacity of staff through questionnaire Workshop reports with count of people + photos of workshops List / count of targeted institutions on training reports	Agree on appropriate questions Women and youth should be identifiable in reports and photos Institutions should be named	Baseline, mid-term and end	UN-H in cooperation with EE and government entities
Component 2: Resilience building planning at community level							
Outcome 2.1. Strengthened community awareness and capacities to anticipate, adapt and respond to climate-related coastal hazard and threats through community planning *In line with AF outcome 3	Percentage of targeted direct population aware of predicted adverse impacts of climate change on the coast / their community - Total - % Women - % Youth Percentage of targeted direct population participating in adaptation response activities - Total - % Women - % Youth	 0 0 0 0 0 0	 Mid:30%; End:50% W: End>50 % Y: End>15 % Mid:30%; End:50% W: End>50 % Y: End>15 %	Calculate % of direct target population aware of impacts and involved in project activities (plans and concrete project activities) Workshop reports with count of people + photos of workshops and activities	Women and youth groups would need to be involved in activities	Baseline, mid-term and end	UN-H in cooperation with EE and government

Output 2.1. Community-level plans developed in Ghana, including planning, operation, maintenance, monitoring and replication components same target area as outputs 3.1 and 3.2 and 4.1 and 4.2) (Ghana) *In line with AF Output 3.2.	No. of community plans developed in Ghana to support successful implementation of concrete adaptation interventions. Pans should include sections on planning, operation, maintenance, monitoring and replication No of community-level workshops conducted to develop above plans	0 0	12 24 (at least two per community)	Collect and calculate number of community level plans and identify required sections and roles/responsibilities Workshop reports with count of people + photos of workshops	Ensure the plans include planning, operation, maintenance, monitoring and replication details and roles/responsibilities for proposed concrete adaptation interventions under outputs 3.1-3.4 and 4.1-4.4	Baseline, mid-term and end	UN-H in cooperation with EE and government
Output 2.2. Community-level plans developed in Côte d'Ivoire, including planning, operation, maintenance, monitoring and replication components (same target area as outputs 3.3 and 3.4 and 4.3 and 4.4) (Côte d'Ivoire) *In line with AF Output 3.2.	No. of community plans developed in Côte d'Ivoire to support successful implementation of concrete adaptation interventions. Pans should include sections on planning, operation, maintenance, monitoring and replication No of community-level workshops conducted to develop above plans	0 0	12 24 (at least two per community)				
Component 3: Transformative concrete ecosystem / natural resource adaptation interventions at sub-regional and district level							
Outcome 3.1. Increased climate change resilience of coastal areas through increased ecosystem / natural resource resilience *In Line with AF outcome 5	Area and coastal communities and critical infrastructure protected from coastal erosion and inundation/ flooding through increased ecosystem / natural resource resilience - No of communities protected	0	12	number of community in which concrete interventions took place to protect these communities	Calculate the ha2 of land area and communities and critical infrastructure in it at risk of coastal erosion and inundation/ flooding that has been protected through project interventions	Baseline, mid-term and end	UN-H in cooperation with EE and government
Output 3.1. Mangrove restoration along the Volta estuary in Keta district (Ghana) *In line with AF output 5	Ha of mangroves planted in target area Targeted survival/success rate of mangrove restoration	0	1,500 40 %	Progress over time must be shown Mangrove protection measures must be monitored as well	Table, map, drone images and photos of mangroves, showing area covered and growth patterns	Baseline, mid-term and end	UN-H in cooperation with EE and government
Output 3.2. Coastal lagoons restoration in Ada East, Ada West and Keta districts (Ghana) *In line with AF output 5	No of lagoons restored in target area	0	10	Parameters of successful lagoon restoration must be agreed upon under component 2 (with communities and component 5, including depth, sand barriers, maintenance needs and responsibilities).	Table, map, drone images and photos of lagoons, showing progress made, including for maintenance	Baseline, mid-term and end	UN-H in cooperation with EE and government
Output 3.3. Mangrove restoration along the coast in Grand Bassam and Jacqueville (Côte d'Ivoire) *In line with AF output 5	Ha of mangroves restored in target area Targeted survival/success rate of mangrove restoration	0	110 40 %	Progress over time must be shown Mangrove protection measures must be monitored as well	Table, map, drone images and photos of mangroves, showing area covered and growth patterns	Baseline, mid-term and end	UN-H in cooperation with EE and government
Output 3.4. Sand nourishment along the coast of Grand Bassam (Côte d'Ivoire) *In line with AF output 5	Meter of sand nourished along the coast of Grand Bassam	0	7.000-11.000 km	Progress over time, including maintenance must be shown. Exact target and monitoring details will be agreed upon through activities in component 5 and 2	Table, map, drone images and photos of the coastal target area showing area nourished over time	Baseline, mid-term and end	UN-H in cooperation with EE and government
Output 3.5.	Meter of lagoons banks in target area	0	2000	Parameters of successful lagoon restoration must be agreed upon under component 2 (with communities	Table, map, drone images and photos of lagoons, showing	Baseline, mid-	UN-H in cooperation with EE

Sand nourishment of lagoons in Jacqueville (Côte d'Ivoire) *In line with AF output 5				and component 5, including depth, sand barriers, maintenance needs and responsibilities.	progress made, including for maintenance	term and end	and governmen t
Component 4: Catalytic concrete livelihood diversification and strengthening adaptation interventions at community level							
Outcome 4.1. Increased climate change resilience of coastal communities through diversified and strengthened livelihoods *In line with AF outcome 6	No coastal communities implemented interventions to diversify and strengthen livelihoods and increase ecosystem resilience - No communities with Pen culture systems - No communities with salt resilient crops and water infiltration systems Percentage of targeted population with sustained climate-resilient alternative livelihoods - Women - Youth	 0 0 0 0 0	 8 4 20 % 40% 20%	One Pen culture system is defined as One salt resilient and water infiltration system is defined as specific area with salt resilient crops grown and water infiltration location Percentage of target population is share of community directly (involved in activities) from pen culture or salt resilient crops	Calculate number of communities with systems Calculate percentage of target population directly involved in / befitting from activities – identified through Workshop/training reports and participation lists and photos	Baselin e, mid-term and end	UN-H in cooperatio n with EE and governmen t
Output 4.1. Pen culture systems installed and operational in Ada East, Ada West and Keta districts (Ghana) *In line with AF output 6	No of Pen culture systems installed and operational Increase of income involved households / community Targeted successfully operation pens (fish being produced)	0 Check baselin e	16 pens 15 % 40 %	Increase of kg fish produced and increase of income should be calculated and monitored at least every 6 months.	Calculate kg of fish produced and increase of income of households involved and community as a whole over time through surveys.	Every 6 months	UN-H in cooperatio n with EE and governmen t
Output 4.2 Salt resilient crops and water infiltration introduction systems installed and operational in Keta district (Ghana) *In line with AF output 6	Meter2 of salt resilient crops Increase in productivity compared to baseline (non-salt resilient crops) Water infiltration systems installed Increase in productivity compared to baseline (agricultural land without infiltration systems)	0 0 0	3,500m2 15 % 2	Meter2 grown of salt resilient crops need to be calculated and most successful crops identified for replication purposes. Communities need to agree with selection Indicators for successful water infiltration systems need to be identified during project	Calculate ha of grown salt resilient crops + types and identify most successful crops Show growth areas, crops and water infiltration systems through drone images and photos		
Output 4.3 Pen culture systems installed and operational in Grand Bassam and Jacqueville (Côte d'Ivoire) *In line with AF output 6	No of Pen culture systems installed and operational Increase of income involved households / community Targeted successfully operation pens (fish being produced)	0 0	22 15 % 40 %	Increase of kg fish produced and increase of income should be calculated and monitored at least every 6 months.	Calculate kg of fish produced and increase of income of households involved and community as a whole over time through surveys.	Every 6 months	UN-H in cooperatio n with EE and governmen t
Component 5: Knowledge sharing and monitoring							
Outcome 5.1. Strengthened institutional capacity and tools to identify and manage coastal climate change-related risks / impacts and vulnerabilities in Ghana and CdI (and West Africa), including through diffusion of knowledge on innovative (building with nature) coastal climate change adaptation practices in West Africa *In line with AF outcome 2 and 8	Capacity of national and district-level government staff increased to use tools to identify and manage coastal climate change-related risks / impacts and vulnerabilities and to replicate effective and efficient building-with-nature adaptation options. No. of staff able to: - Use the Coastal dynamics impacts and risk prediction model - Use the assessment method No of staff able to update plans with indicators Innovative (building with nature) coastal climate change adaptation practice options encouraged for replication at regional level - No of events at which project lessons regarding above have been shared	 0 0 0 0	 50 50 2 50	Assess capacity of relevant government staff Calculate number of events at which presentations with lessons learned have been given and no op people attending	Need to identify events at which lessons learned are shared and no people informed.	Baseline, mid-term and end	UN-H in cooperatio n with EE and governmen t

	- No of people informed with above adaptation options (through presentation, video or guidelines) - % women - % youth	0 0	40% 20%				
Output 5.1. Coastal dynamics (i.e. erosion and flood) impacts and risk prediction model and assessment method *In line with AF output 8	Coastal dynamics (i.e. erosion and flood) impacts and risk prediction model and assessment method developed and institutionalised Guidelines developed	0 0	1 1	Make sure all crucial parameters of the model and method are included / agreed upon; Guidelines need to be developed for its use Key stakeholders need to be able to use it (user friendly) and that it is institutionalized with key government actors	Assess key parameters of the model and method are included Published guideline (online) Check awareness and use by key actors	Baseline, mid-term and end	UN-H in cooperation with EE and government
Output 5.2. Monitoring sensor system to assess and monitor the effectiveness and impacts of the proposed concrete adaptation interventions under component 3 and 4 (also to guide monitoring activities under comp 2) *In line with AF output 8	Monitoring sensor system to assess and monitor the effectiveness and impacts of the proposed concrete adaptation interventions under component 3 and 4 developed and used Guidelines for monitoring developed in cooperation with target communities	0 0	1 1	Monitoring system should measure and report on effectiveness and impacts, also social and environmental of concrete adaptation measures. This could include drone images of change and other remote sensing measures Roles and responsibilities should be clear	Check monitoring system parameters, reporting system, guidelines, roles and responsibilities. Check images and other remote sensing systems.	Baseline, mid-term and end	UN-H in cooperation with EE and government
Output 5.3. Strengthened capacity of national and district-level governments to use above model, assessment method and monitoring systems and to replicate effective and efficient building-with-nature adaptation options *In line with AF output 2.1 and 8	No. of national and district-level government staff trained to use above model, assessment method and monitoring systems and to replicate effective and efficient building-with-nature adaptation options - National level - % Women - District level - % Women No. of targeted institutions with increased capacity to use above model, assessment method and monitoring systems and to replicate effective and efficient building-with-nature adaptation options - Ministries - District authorities	 0 0 0 0 0 0	 240 40% 240 40% 2 3	Regional steering committee meeting and other international events organised to exchange knowledge and train key project stakeholders Key stakeholders are those that have a stake in coastal management and / or climate change	Meeting and training reports with count of people trained. Photos of trainings List / count of targeted institutions on training reports	Baseline, mid-term and end	UN-H in cooperation with EE and government
Output 5.4. West Africa / international knowledge management and sharing mechanism with a focus on feasible building-with-nature adaptation options to protect the coast and diversify and/or strengthened livelihoods *In line with AF output 8	Key findings on effective and efficient building-with-nature adaptation options to protect the coast and diversify and/or strengthened livelihoods captured and shared - Best practices and guidelines published and shared online (at least two websites) - Project video showing results developed and shared online (at least two websites) - No of meetings at which presentation with best practices is presented at international meetings	 0 0 0	 1 1 2	Guidelines should provide info on how to replicate effective and efficient building-with-nature adaptation options; Project video should show process and results of activities	Analyse guidelines and video and check if and where published online	Baseline, mid-term and end	UN-H in cooperation with EE and government

Table 31. Indicative Core Indicator Targets

Impact-level results	Core indicator	Disaggregated data and targets		Comment
		Direct	Indirect	
Increased adaptive capacity of communities to respond to the impacts of climate change	Number of beneficiaries Component 1	Ghana: T: 390 ; W: 40 % Côte d'Ivoire: T: 310; W: 40 %	Ghana: T: 277,963 ; W: 52% ; Y: 43% Côte d'Ivoire: T: 356,495 ; W: 48%; Y: 31 %	Direct beneficiary numbers in overview table include all project activities, while those in the results frame works focus on specific activities such as O & M. Indirect beneficiaries, see also project ovrview table
	Number of beneficiaries Component 2	Ghana:T: 300 ; W: 40 % Y: 20 % ; Côte d'Ivoire: T: 300 ;W: 40 %; Y: 20 %	Ghana:T: 74,689 ;W: 52% ; Y: 53% Côte d'Ivoire:T: 17,556 ; W: 47%;Y: 31 %	
	Number of beneficiaries Component 3	Ghana: T: 36,562 ;W: 51 % Y: 53 % Côte d'Ivoire: T: 15,314 ; W: 48 %;Y: 30 %	Ghana:T: 40,011 ;W: 50% ;Y: 50% Côte d'Ivoire: T: 21,782 ;W: 48%;Y: 30 %	
	Number of beneficiaries Component 4	Ghana: T: 74,689 ;W: 52 % Y: 55 % Côte d'Ivoire: T: 12,388 ; W: 55 %; Y: 29 %	Ghana: T: 71,026 ; W: 51% Y: 58% Côte d'Ivoire: T: 16,560 ; W: 53%; Y: 32 %	
	Number of beneficiaries Component 5	T: 1160 W: 40 %		
	Natural Assets Protected or Rehabilitated - From component 3	Ghana - 1500 ha mangroves planted - 10 lagoons restored Côte d'Ivoire - 110 ha mangroves in Côte d'Ivoire - 7-11 km coast protected (nourishment) - 2 km lagoons protected		The 'concrete' adaptation activities under component 3 are designed to increase coastal climate change-resilience through rehabilitation of natural assets
	Increased income, or avoided decrease in income - From component 4	Ghana - 16 pens installed - 3,500 salt resilient crops planted - Increase income: 15 % Côte d'Ivoire - 22 pens installed - Increase income: 15 %		The 'concrete' adaptation activities under component 4 are designed to increase coastal climate change-resilience through livelihood diversification / increasing income

Methodology to apply: https://www.adaptation-fund.org/wp-content/uploads/2016/04/AF-Core-Indicator-Methodologies.pdf

Part III.F PROJECT ALIGNMENTS WITH THE AF RESULTS FRAMEWORK

Table 32. Project alignment with the Adaptation Fund results framework

Project Outcome	Project Outcome Indicator	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)

Component 1 Promote climate change resilient coastal development through sub-regional and district-level spatial development frameworks and to strengthen institutional capacities to develop, use and update these spatial frameworks	Climate change-related coastal risks, vulnerabilities and resilient development options / priorities identified and integrated in spatial development frameworks. Maps in spatial development framework showing the following risk areas: - Erosion - Inundation / flood - Salt intrusion Maps in spatial development framework showing the following resilient development options: - 'Safe' areas for development - Areas feasible to protect form risks List of prioritized adaptation measures identified in spatial development frameworks Capacity of national and district institutional staff, to develop, use and update above spatial development frameworks, increased No. of staff able to: - Use GIS - Show parameters to update plans	**Outcome 2:** Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	2.1. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased	1,653,600
		Outcome 7: Improved policies and regulations that promote and enforce resilience measures	7. Climate change priorities are integrated into national development strategy	
Component 2 Strengthen community awareness and capacities to adapt to climate-related coastal hazard and threats through community planning	Percentage of targeted direct population aware of predicted adverse impacts of climate change on the coast / their community - % Women - % Youth Percentage of targeted direct population participating in adaptation response activities - % Women - % Youth	**Outcome 3:** Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses 3.2. Percentage of targeted population applying appropriate adaptation responses	1,365,700
Component 3 Increased climate change resilience of coastal areas through increased ecosystem / natural resource resilience	Area and coastal communities and critical infrastructure protected from coastal erosion and inundation/ flooding through increased ecosystem / natural resource resilience - Coastal area protected in ha2 - No of communities protected - Critical infrastructure (roads) protected	**Outcome 5** Increased ecosystem resilience in response to climate change and variability-induced stress	5. Ecosystem services and natural resource assets maintained or improved under climate change and variability-induced stress	5,127,658
Component 4 Increased climate change resilience of coastal communities through diversified and strengthened livelihoods	No coastal communities implemented interventions to diversify and strengthen livelihoods and increase ecosystem resilience - No communities with Pen culture systems - No communities with salt resilient crops and water infiltration systems Percentage of targeted population with sustained climate-resilient alternative livelihoods - Women - Youth	**Outcome 6** Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	6.1 Percentage of households and communities having more secure (increased) access to livelihood assets 6.2. Percentage of targeted population with sustained climate-resilient livelihoods	2,829,653

Component 5 Development and diffusion of innovative (building with nature) coastal climate change adaptation practices in west Africa, including establishment of an effective monitoring system for the proposed concrete adaptation measures	Innovative (building with nature) coastal climate change adaptation practice options encouraged for replication at regional level - No of events at which project lessons regarding above have been shared - No of people informed with above adaptation options (through presentation, video or guidelines) - % women - % youth	**Outcome 8** Support the development and diffusion of innovative adaptation practices, tools and technologies	8. Innovative adaptation practices are rolled out, scaled up, encouraged and/or accelerated at regional, national and/or subnational level.	686,000
Project Output	**Project Output Indicator**	**Fund Output**	**Fund Output Indicator**	**Grant Amount (USD)**
Output 1.1. One (1) Sub-regional-level Spatial Development Framework, targeting the Volta Delta coastal area, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase coastal resilience proposed	No. of spatial development frameworks developed in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase resilience proposed (incl. for gender/youth) Population covered by above framework - % Women - % Youth	**Output 7** Improved integration of climate-resilience strategies into country development plans	7.2. No. of targeted development strategies with incorporated climate change priorities enforced	389,800
Output 1.2. Two (2) Districts-level Spatial Development Frameworks, targeting Ada east and Keta, in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase coastal resilience proposed				332,000
Output 1.3. Strengthened capacity of LUSPA and MDAs to develop, use and update spatial development frameworks, including identification and integration of climate change-related coastal risks and vulnerabilities and measures to increase coastal resilience	No. of national and district-level government staff trained to develop, use and update Spatial Development Frameworks in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase resilience proposed (incl. for gender/youth) - National level - % Women - District level - % Women No. of targeted institutions with increased capacity to develop, use and update spatial development frameworks in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase resilience proposed (incl. for gender/youth) - Ministries - District authorities	**Output 2.1** Strengthened capacity of national and sub- national centers and networks to respond rapidly to extreme weather events	2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender) 2.1.2 No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	143,800
Output 1.4. One (1) Sub-regional Schéma Régional d'Aménagement du Territoire (SRAT), targeting the Region des Grands Ponts, with climate change-related coastal risks and vulnerabilities identified in it	No. of spatial development frameworks developed in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase resilience proposed (incl. for gender/youth) Population covered by above framework - % Women - % Youth	**Output 7** Improved integration of climate-resilience strategies into country development plans	7.2. No. of targeted development strategies with incorporated climate change priorities enforced	445,800
Output 1.5. Two (2) Local Development plans with climate change-related coastal risks and vulnerabilities identified in it				199,000
Output 1.6. Strengthened capacity of Ministry of Planning and Development, to develop, use and update spatial development frameworks, including identification and integration of climate change-related coastal	No. of national and district-level government staff trained to develop, use and update Spatial Development Frameworks in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase resilience proposed (incl. for gender/youth) - National level - % Women	**Output 2.1** Strengthened capacity of national and sub- national centers and networks to respond rapidly to extreme weather events	2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender) 2.1.2 No. of targeted institutions with increased capacity to minimize exposure to	143,200

risks and vulnerabilities and measures to increase coastal resilience	- District level - % Women No. of targeted institutions with increased capacity to develop, use and update spatial development frameworks in which climate change-related coastal risks and vulnerabilities have been identified + measures to increase resilience proposed (incl. for gender/youth) - Ministries District authorities		climate variability risks (by type, sector and scale)	
Output 2.1. Community-level plans developed in Ghana, including planning, operation, maintenance, monitoring and replication components same target area as outputs 3.1 and 3.2 and 4.1 and 4.2) (Ghana)	No. of community plans developed, including planning, operation, maintenance, monitoring and replication components No of community-level workshops/trainings conducted to develop above plans	**Output 3.2** Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning	3.2.2 No. of tools and guidelines developed (thematic, sectoral, institutional) and shared with relevant stakeholders	670,600
Output 2.2. Community-level plans developed in Côte d'Ivoire, including planning, operation, maintenance, monitoring and replication components (same target area as outputs 3.3 and 3.4 and 4.3 and 4.4) (Côte d'Ivoire)				695,100
Output 3.1. Mangrove restoration along the Volta estuary in Keta district (Ghana)	Ha of mangroves restored in target area	**Output 5** Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability	5.1. No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)	1,222,053
Output 3.2. Coastal lagoons restoration in Ada East, Ada West and Keta districts (Ghana)	No of lagoons restored in target area Ha of lagoons restored in target area			1,125,126
Output 3.3. Mangrove restoration along the coast in Grand Bassam and Jacqueville (Côte d'Ivoire)	Ha of mangroves restored in target area			614,953
Output 3.4. Sand nourishment along the coast of Grand Bassam (Côte d'Ivoire)	Meter2 of sand nourished along the coast of Grand Bassam			1,265,527
Output 3.5. Sand nourishment of lagoons in Jacqueville (Côte d'Ivoire)	No of lagoons restored in target area Ha of lagoons restored in target area			900,000
Output 4.1. Pen culture systems installed and operational in Ada East, Ada West and Keta districts (Ghana)	No of Pen culture systems installed and operational Kg of fish production per month Increase of income involved households / community	**Output 6** Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.1.No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies 6.2.1. Type of income sources for households generated under climate change scenario	810,099
Output 4.2 Salt resilient crops and water infiltration introduction systems installed and operational in Keta district (Ghana)	Ha of salt resilient crops No of type of salt resilient crops grown Increase in productivity compared to baseline (non-salt resilient crops) Water infiltration systems installed			1,068,326
Output 4.3 Pen culture systems installed and operational in Grand Bassam and Jacqueville (Côte d'Ivoire)	No of Pen culture systems installed and operational Kg of fish production per month Increase of income involved households / community			951,229
Output 5.1. Coastal dynamics (i.e. erosion and flood) impacts and risk prediction model and assessment method	Coastal dynamics (i.e. erosion and flood) impacts and risk prediction model and assessment method developed and institutionalised Guidelines developed Key national actors aware of it and able to use it	**Output 8** Viable innovations are rolled out, scaled up, encouraged and/or accelerated.	8.1. No. of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated 8.2. No. of key findings on effective, efficient adaptation practices, products and technologies generated	125,000
Output 5.2. Monitoring sensor system to assess and monitor the effectiveness and impacts of the proposed	Monitoring sensor system to assess and monitor the effectiveness and impacts of the proposed concrete adaptation interventions under component 3 and 4 developed and used			95,000

concrete adaptation interventions under component 3 and 4 (also to guide monitoring activities under comp 2)	Guidelines for monitoring developed in cooperation with target communities Target communities using the guidelines			
Output 5.3. Strengthened capacity of national and district-level governments to use above model, assessment method and monitoring systems and to replicate effective and efficient building-with-nature adaptation options	No. of national and district-level government staff trained to use above model, assessment method and monitoring systems and to replicate effective and efficient building-with-nature adaptation options - National level - % Women - District level - % Women No. of targeted institutions with increased capacity to use above model, assessment method and monitoring systems and to replicate effective and efficient building-with-nature adaptation options - Ministries - District authorities	**Output 2.1** Strengthened capacity of national and sub- national centers and networks to respond rapidly to extreme weather events	2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender) 2.1.2 No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	140,000
		Output 8 Viable innovations are rolled out, scaled up, encouraged and/or accelerated.	8.1. No. of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated 8.2. No. of key findings on effective, efficient adaptation practices, products and technologies generated	
Output 5.4. West Africa / international knowledge management and sharing mechanism with a focus on feasible building-with-nature adaptation options to protect the coast and diversify and/or strengthened livelihoods	Key findings on effective and efficient building-with-nature adaptation options to protect the coast and diversify and/or strengthened livelihoods captured and shared - Best practices and guidelines published and shared online (at least two websites) - Project video showing results developed and shared online (at least two websites) - No of meetings at which presentation with best practices is presented at international meetings	**Output 8** Viable innovations are rolled out, scaled up, encouraged and/or accelerated.	8.1. No. of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated 8.2. No. of key findings on effective, efficient adaptation practices, products and technologies generated	326,000

Part III. G DETAILED BUDGET

Project Components	Expected Concrete Outputs	Expected Concrete Outcomes	TOTAL	Year 1	Year 2	Year 3	Year 4
				12 m	12 m	12 m	12 m
Component 1	**Output 1.1.** Spatial framework sub-region, Ghana	Outcome 1.1 Promote cc resilient coastal development through SDFs and to strengthen institutional capacities to develop, use and update these SDFs	389,800	292,250	97,550	-	-
	Output 1.2. Spatial frameworks dictricts, Ghana		332,000	67,950	264,050	-	-
	Output 1.3. Technical support LUSPA & MMDAs		143,800	89,100	54,700	-	-
	Output 1.4. Spatial framework sub-region, Cdl		445,800	319,500	126,300	-	-
	Output 1.5. Spatial frameworks dictricts, Cdl		199,000	49,100	149,900	-	-
	Output 1.6. Technical support MdP & Districts		143,200	90,700	52,500	-	-
	TOTAL		**1,653,600**	908,600	745,000	-	
Component 2	**Output 2.1.** Community plans, Ghana	Outcome 2.1 Strengthen community capacities and ownership	670,600	226,200	200,800	243,600	-
	Output 2.2. Community plans, Cdl		695,100	277,100	161,200	256,800	-
	TOTAL		**1,365,700**	503,300	362,000	500,400	-
Component 3 (concrete adaptation measures)	**Output 3.1.** Mangrove planting, Ghana	Outcome 3.1 Increased climate change resilience of coastal areas through increased ecosystem / natural environment resilience.	1,222,053	168,112	914,816	106,525	32,600
	Output 3.2. Coastal lagoons restoration, Ghana		1,125,126	106,000	993,326	17,200	8,600
	Output 3.3. mangrove restoration, Cdl		614,953	229,522	284,601	68,231	32,600
	Output 3.4. Coastal Sand Nourishment, Cdl		1,265,527	60,000	1,100,000	105,527	
	Outout 3.5. Lagoon Sand Nourishment, Cdl		900,000	30,000	800,000	70,000	-
	TOTAL		**5,127,658**	593,634	4,092,742	367,483	73,800
Component 4 (concrete adaptation measures)	**Output 4.1.** Penculture, Ghana	Outcome 4.1 Increased climate change resilience of coastal communities through diversified and strengthened	810,099	95,000	282,019	285,920	147,160
	Output 4.2. Salt resilinet crops and water infiltr		1,068,326	114,200	328,933	463,670	161,522
	Output 4.3. Penculture, Dcl		951,229	95,000	329,669	348,440	178,120
	TOTAL		**2,829,654**	304,200	940,621	1,098,030	486,802
Component 5	**Output 5.1.** Coastal dynamics impacts and risk model	Outcome 5.1 Strengthened institutional capacity and tools to identify and manage coastal climate change-related risks / impacts and vulnerabilities	125,000	125,000	-	-	-
	Output 5.2. Monitorig sensor system		95,000	50,000	15,000	15,000	15,000
	Output 5.3. Strengthened capacity of governments		140,000	-	70,000	70,000	-
	Output 5.4. knowledge sharing mechanism		326,000	76,000	62,000	62,000	126,000
	TOTAL		**686,000**	251,000	147,000	147,000	141,000
Sub-total Project Components Costs			**11,662,612**	2,560,734	6,287,363	2,112,913	701,602
Project Execution Costs	Regional project coordination (international)		480,000	120,000	144,000	144,000	72,000
	National Project execution		464,000	145,000	171,000	118,000	30,000
	Travel Related to Execution		41,600	10,400	10,400	10,400	10,400
	Operations		168,000	47,100	44,300	42,300	34,300
	Terminal evaluation		42,000	-	-	-	42,000
Sub-total Project Execution Costs (max 9.5 %)		9.30%	**1,195,600**	322,500	369,700	314,700	188,700
SUB-TOTAL Component + execution fee			**12,858,212**	2,883,234	6,657,063	2,427,613	890,302
Project Cycle Management Fee	UN-H ROAf Project Support Costs: AF and UN-H policies compliance Progress / evaluation Travel	1.50%	192,873	43,249	99,856	36,414	13,355
	UN-H HQ Project Support Costs: Overall project supervision, incl. compliance to UN-H policies and standards (gender, human rights, climate change, etc.)	7.00%	900,075	201,826	465,994	169,933	62,321
Sub-total Project Cycle Managament Fee (max 8.5 %)		8.50%	**1,092,948**	245,075	565,850	206,347	75,676
Amount of Financing Requested			**13,951,160**	**3,128,309**	**7,222,913**	**2,633,960**	**965,978**

Table 33 Overview budget

Budget notes and budget for M&E are presented in Annex 1.

Part III. H DISBURSEMENT SCHEDULE

Table 34. Disbursement schedule

	Year 1	Year 2	Year 3	Year 4
Schedule	1st disbursement –	2nd disbursement – One Year after project inception	3rd disbursement - Two years after project inception	4th disbursement – Three years after project inception
Milestones	Milestones ▪ Upon agreement signature	Milestones (by end of year): ▪ Upon First Annual Report ▪ Upon financial report indicating disbursement of at least 50% of funds of 1st year	Milestones (by end of year) ▪ Upon Second Annual Report ▪ Upon financial report indicating disbursement of at least 50% of funds of 2nd year	Milestones (by end of year) ▪ Upon Third Annual Report ▪ Upon financial report indicating disbursement of at least 50% of funds of 3rd year

Schedule date	Upon Signing	One Year after project inception	Two years after project inception	Three years after project inception	Grand Total
A. Project Funds (US$)	2,560,734	6,287,363	2,112,913	701,602	11,662,612
B. Programme Execution (US$)	322,500	369,700	314,700	188,700	1,195,600
C. Programme Cycle Mgt (US$)	245,075	565,850	206,347	75,676	1,092,948
Grand Total	3,128,309	7,222,913	2,633,960	965,978	13,951,160

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

Part IV. A RECORD OF ENDORSEMENT ON BEHALF OF GOVERNMENT

MINISTRY OF ENVIRONMENT, SCIENCE, TECHNOLOGY & INNOVATION

Our Ref: MESTI/006/02/V.2
Tel: 0302 - 666 049
Fax: 0302 – 688 913/ 688 663
E-mail: info@mesti.gov.gh
Website: www.mesti.gov.gh

Republic of Ghana

Post Office Box M232
Ministries, Accra
Ghana

December 10, 2020

ADAPTATION FUND

To: **The Adaptation Fund Board**
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Letter of Endorsement by Government

Endorsement of the project 'Improved Resilience of Coastal Communities in Cote d'Ivoire and Ghana and request to have UN-Habitat execute output 1.3.

In my capacity as designated authority for the Adaptation Fund in Ghana, I confirm that the above regional project proposal is in accordance with the government's national and regional priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Ghana.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by the United Nations Human Settlements Programme (UN-Habitat) and executed by LUSPA and an NGO. UN-Habitat will execute output 1.3. to support the capacity strengthening of LUSPA.

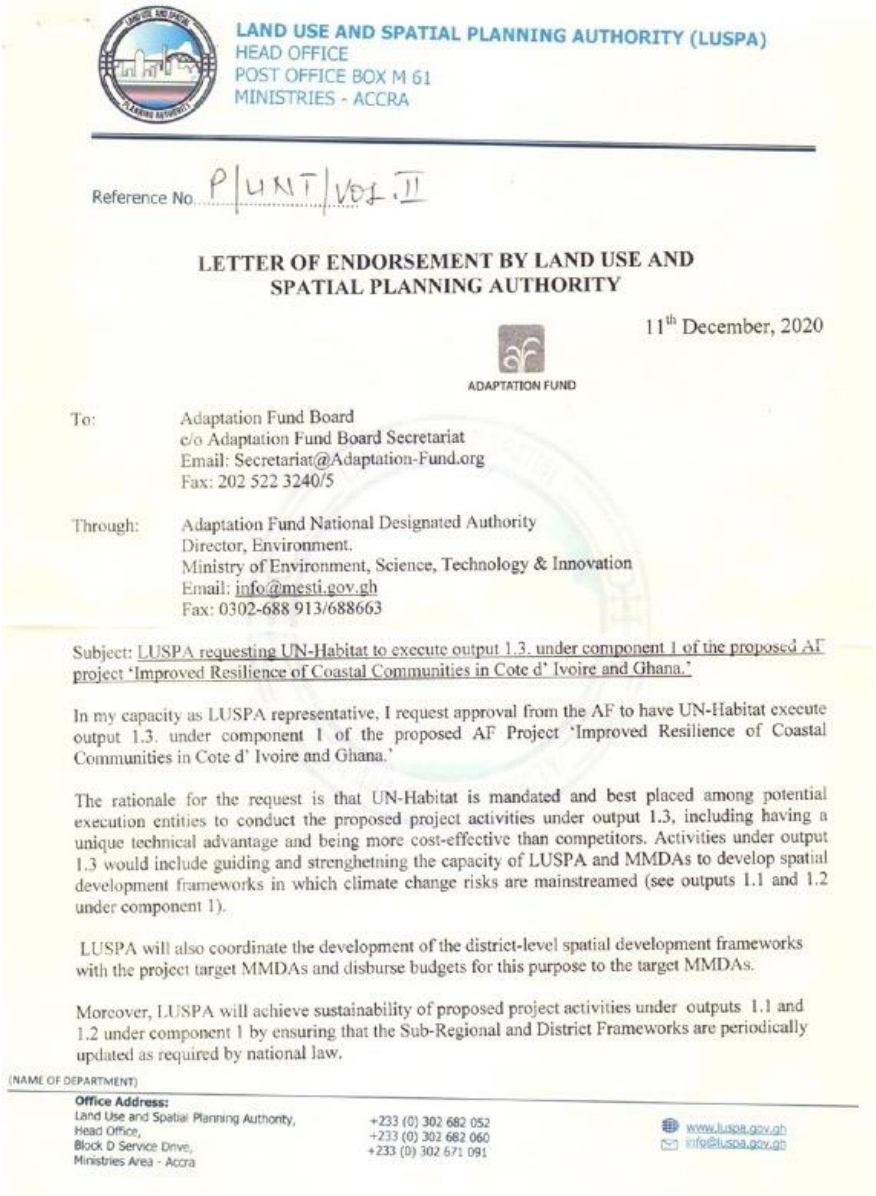
The Ministry of Environment, Science, Technology and Innovation will provide the necessary insight to ensure successful implementation.

Sincerely,

Peter Dery
Adaptation Fund National Designated Authority
Director, Environment.

Figure 16~~15~~ Endorsement from the Ministry of Environment, Science, Technology and Innovation. Ghana

Endorsement from the Land Use Spatial Planning Authority. Ghana.



LAND USE AND SPATIAL PLANNING AUTHORITY (LUSPA)
HEAD OFFICE
POST OFFICE BOX M 61
MINISTRIES - ACCRA

Reference No. P|LNT|VOL.II

LETTER OF ENDORSEMENT BY LAND USE AND SPATIAL PLANNING AUTHORITY

11th December, 2020

ADAPTATION FUND

To: Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Through: Adaptation Fund National Designated Authority
Director, Environment.
Ministry of Environment, Science, Technology & Innovation
Email: info@mesti.gov.gh
Fax: 0302-688 913/688663

Subject: LUSPA requesting UN-Habitat to execute output 1.3. under component 1 of the proposed AF project 'Improved Resilience of Coastal Communities in Cote d' Ivoire and Ghana.'

In my capacity as LUSPA representative, I request approval from the AF to have UN-Habitat execute output 1.3. under component 1 of the proposed AF Project 'Improved Resilience of Coastal Communities in Cote d' Ivoire and Ghana.'

The rationale for the request is that UN-Habitat is mandated and best placed among potential execution entities to conduct the proposed project activities under output 1.3, including having a unique technical advantage and being more cost-effective than competitors. Activities under output 1.3 would include guiding and strenghetning the capacity of LUSPA and MMDAs to develop spatial development frameworks in which climate change risks are mainstreamed (see outputs 1.1 and 1.2 under component 1).

LUSPA will also coordinate the development of the district-level spatial development frameworks with the project target MMDAs and disburse budgets for this purpose to the target MMDAs.

Moreover, LUSPA will achieve sustainability of proposed project activities under outputs 1.1 and 1.2 under component 1 by ensuring that the Sub-Regional and District Frameworks are periodically updated as required by national law.

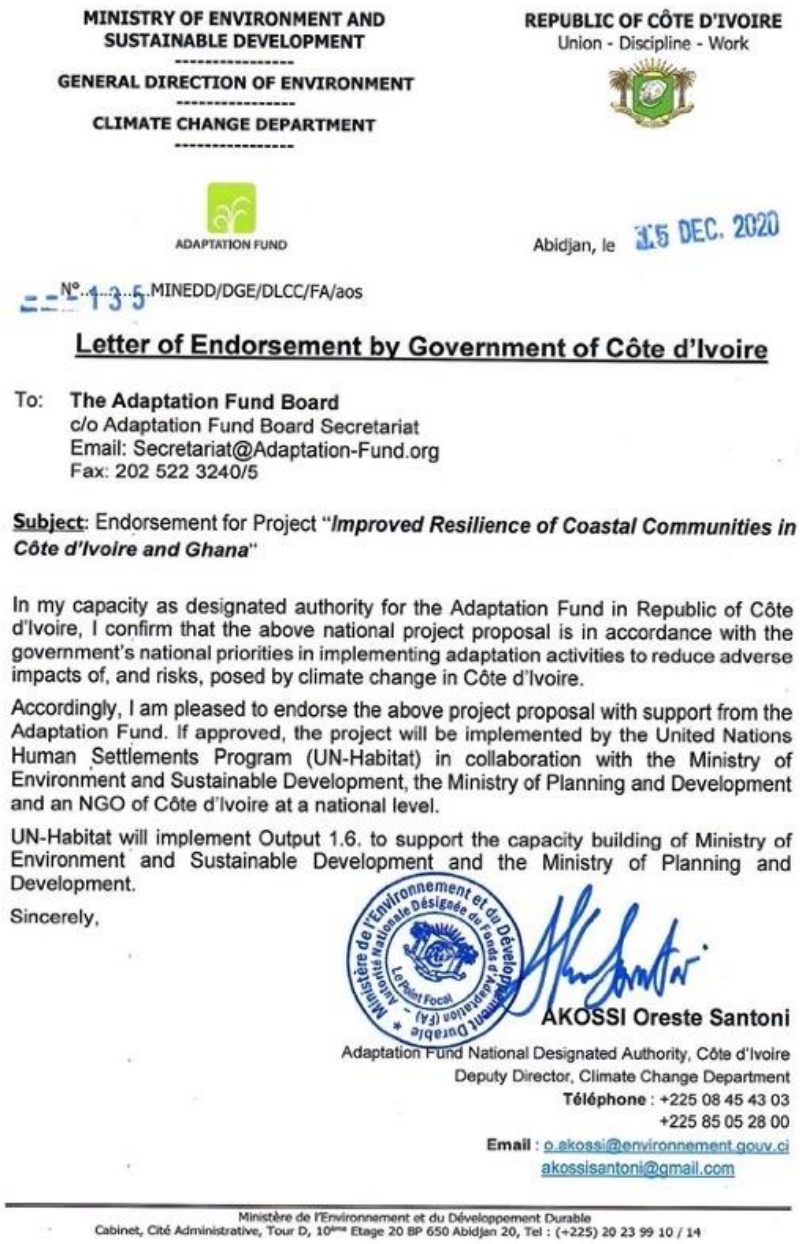
(NAME OF DEPARTMENT)
Office Address:
Land Use and Spatial Planning Authority,
Head Office,
Block D Service Drive,
Ministries Area - Accra

+233 (0) 302 682 052
+233 (0) 302 682 060
+233 (0) 302 671 091

www.luspa.gov.gh
info@luspa.gov.gh

Figure 1716. Endorsement from the Land Use Spatial Planning Authority. Ghana.

Endorsement from the Ministry of Environment and Sustainable Development. Côte d'Ivoire.



MINISTRY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

GENERAL DIRECTION OF ENVIRONMENT

CLIMATE CHANGE DEPARTMENT

REPUBLIC OF CÔTE D'IVOIRE
Union - Discipline - Work

ADAPTATION FUND

Abidjan, le 15 DEC. 2020

N° 135 MINEDD/DGE/DLCC/FA/aos

Letter of Endorsement by Government of Côte d'Ivoire

To: **The Adaptation Fund Board**
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for Project "***Improved Resilience of Coastal Communities in Côte d'Ivoire and Ghana***"

In my capacity as designated authority for the Adaptation Fund in Republic of Côte d'Ivoire, I confirm that the above national project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Côte d'Ivoire.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by the United Nations Human Settlements Program (UN-Habitat) in collaboration with the Ministry of Environment and Sustainable Development, the Ministry of Planning and Development and an NGO of Côte d'Ivoire at a national level.

UN-Habitat will implement Output 1.6. to support the capacity building of Ministry of Environment and Sustainable Development and the Ministry of Planning and Development.

Sincerely,

Ministère de l'Environnement et du Développement Durable * Autorité Nationale Désignée du Fonds d'Adaptation (FA) * Le Point Focal

AKOSSI Oreste Santoni
Adaptation Fund National Designated Authority, Côte d'Ivoire
Deputy Director, Climate Change Department
Téléphone : +225 08 45 43 03
+225 85 05 28 00
Email : o.akossi@environnement.gouv.ci
akossisantoni@gmail.com

Ministère de l'Environnement et du Développement Durable
Cabinet, Cité Administrative, Tour D, 10ème Etage 20 BP 650 Abidjan 20, Tel : (+225) 20 23 99 10 / 14

Figure 1817. Endorsement from the Ministry of Environment and Sustainable Development. Côte d'Ivoire

Endorsement from the Ministry of Plan and Development. Côte d'Ivoire.

MINISTRY OF PLAN
AND DEVELOPMENT

DIRECTORATE GENERAL OF PLANNING
OF THE TERRITORY, REGIONAL AND LOCAL
DEVELOPMENT

THE DIRECTOR GENERAL

N° / Ref 0002 / MPD / DGATDRL / tc

REPUBLIC OF COTE D'IVOIRE
Union - Discipline - Labor

Abidjan, January 04, 2021

Letter of Endorsement by the Ministry of Plan and Development
addressed to the Adaptation Fund Board, c / Adaptation Fund Board Secretariat
Email : Secretariat@Adaptation-Fund.org, Fax: 202 522 3240/5

****

Subject : The Ministry of Plan and Development of the Republic of Cote d'Ivoire requests UN-Habitat to implement output 1.6. as part of component 1 of the AF project entitled " ***Improving the resilience of coastal communities in Cote d'Ivoire and Ghana*** ".

In my capacity as representative of the Ministry of Plan, I request the approval of the AF for UN-Habitat to implement product 1.6 as part of component 1 of the AF project entitled " ***Improving the resilience of coastal communities in Côte d'Ivoire and Ghana*** ".

The rationale for the request is that UN-Habitat is mandated and best positioned among potential implementing entities to carry out the project activities proposed under Output 1.6, including having a unique technical advantage and being more cost effective than its competitors. Activities under Output 1.6 would include guiding and strengthening the capacity of the Ministry of Plan and Development, as well as subnational authorities to develop spatial development frameworks in which climate change risks are integrated (see results 1.4 and 1.5 of component 1).

In addition, the Ministry of Plan and Development undertakes to ensure the sustainability of the project activities proposed under outputs 1.4 and 1.5 under component 1 by mobilizing staff and budgets during and after the project, necessary to update the spatial frameworks as required by national legislation. The Ministry of Plan will also coordinate the preparation of territorial development frameworks at the subnational level with the local authorities targeted by the project and will provide them with the necessary means.

Cordially,

Le Directeur Général

ALLOU Saraka Koffi André
Director General of Planning of the Territory, Regional and Local Development

Figure 1918. Endorsement from the Ministry of Plan and Development. Côte d'Ivoire.

Part IV. B IMPLEMENTING ENTITY CERTIFICATION

Implementing Entity certification

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans, especially the NDCs of Ghana and Cote d'Ivoire and their national climate change strategies / policies, and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.
Raf Tuts Implementing Entity Coordinator
Date: 23 April 2021 | Tel. and email: Raf.tuts@un.org
Project Contact Person: Javier Torner; Mathias Spaliviero
Tel. And Email: Javier.torner@un.org mathias.spaliviero@un.org

BUDGET NOTES AND BUDGET FOR M&E

	Activities		Notes / Staff	TOTAL	Year 1	Year 2	Year 3	Year 4
Project components								
Output 1.1. Spatial Development Framework Volta sub-region, Ghana	Phase 1: Prepare	1) Stregthening institutional collaboration	Stakeholders engagement and participatory	**5,000**	5,000	-	-	-
			Launching session	**5,000**	5,000	-	-	-
			Communication strategy	**5,000**	5,000	-	-	-
			Establish committees and working groups	**2,500**	2,500	-	-	-
			Workplan for these groups	**2,500**	2,500	-	-	-
			Regular meetings	**20,000**	15,000	5,000	-	-
			Literature review	**3,000**	3,000	-	-	-
			Strategic summary	**3,000**	3,000	-	-	-
			Scope, boundaries, overall workplan	**4,000**	4,000	-	-	-
			Inception workhop	**2,500**	2,500	-	-	-
			Inception report	**12,000**	12,000	-	-	-
	Phase 2: Implement	2) Analysis and diagnosis	Literature review	**9,000**	9,000	-	-	-
			Field work for data collection	**16,000**	16,000	-	-	-
			Draft report on analysis and dignosis	**24,000**	24,000	-	-	-
			Validation workshop	**3,000**	3,000	-	-	-
			Final report	**6,000**	6,000	-	-	-
			Consultative workshop	**3,000**	3,000	-	-	-
			Definition of vision and goals	**6,000**	6,000	-	-	-
			Spatial Development Scenarios	**9,000**	9,000	-	-	-
			Validation workshop	**3,000**	3,000	-	-	-
			Final report	**9,000**	9,000	-	-	-
			Strategic environmental assessment	**79,000**	79,000	-	-	-
		3) Plan proposal and implementation plan	Consultative workshop	**10,000**	10,000	-	-	-
			Development strategies	**50,000**	50,000	-	-	-
			Validation workshop	**10,000**	-	10,000	-	-
			Key strategic projects	**25,000**	-	25,000	-	-
			Action plan	**27,200**	-	27,200	-	-
			validation workshop	**5,000**	-	5,000	-	-
	Phase 3: Operate Phase 4: Maintain	4) Adoption of the plan	Stakeholder consultation for the adoption of t	**3,000**	-	3,000	-	-
			Dissemination of plan	**16,600**	-	16,600	-	-
			Operation, management, monitoring and eva	**11,500**	5,750	5,750	-	-
Sub-total				**389,800**	**292,250**	**97,550**	**-**	**-**
Output 1.2. Spatial Development Frameworks districts, Ghana	Phase 1: Prepare	1) Stregthening institutional collaboration	Stakeholders engagement and participatory	**4,800**	4,800	-	-	-
			Launching session	**4,800**	4,800	-	-	-
			Communication strategy	**4,800**	4,800	-	-	-
			Establish committees and working groups	**2,400**	2,400	-	-	-
			Workplan for these groups	**4,800**	4,800	-	-	-
			Regular meetings	**19,200**	4,800	14,400	-	-
			Literature review	**3,000**	3,000	-	-	-
			Strategic summary	**3,000**	3,000	-	-	-
			Scope, boundaries, overall workplan	**3,800**	3,800	-	-	-
			Inception workhop	**2,400**	2,400	-	-	-
			Inception report	**11,600**	11,600	-	-	-
			LUSPA coordination of MMDAs	**30,000**	15,000	15,000	-	-
	Phase 2: Implement	2) Analysis and diagnosis	Literature review	**9,000**	-	9,000	-	-
			Field work for data collection	**15,000**	-	15,000	-	-
			Draft report on analysis and dignosis	**23,200**	-	23,200	-	-
			Validation workshop	**3,000**	-	3,000	-	-
			Final report	**6,000**	-	6,000	-	-
			Consultative workshop	**3,000**	-	3,000	-	-
			Definition of vision and goals	**6,000**	-	6,000	-	-
			Spatial Development Scenarios	**9,000**	-	9,000	-	-
			Validation workshop	**3,000**	-	3,000	-	-
			Final report	**9,000**	-	9,000	-	-
		3) Plan proposal and implementation plan	Consultative workshop	**9,600**	-	9,600	-	-
			Development strategies	**48,000**	-	48,000	-	-
			Validation workshop	**9,600**	-	9,600	-	-
			Key strategic projects	**24,000**	-	24,000	-	-
			Action plan	**26,000**	-	26,000	-	-
			validation workshop	**4,800**	-	4,800	-	-
	Phase 3: Operate Phase 4: Maintain	4) Adoption of the plan	Stakeholder consultation for the adoption of t	**3,000**	-	3,000	-	-
			Dissemination of plan	**15,200**	-	15,200	-	-
			Operation, management, monitoring and eva	**11,000**	2,750	8,250	-	-
Sub-total				**332,000**	**67,950**	**264,050**	**-**	**-**
Output 1.3. Technical support		Guide LUSPA and MMDAs to conduct activities above	Spatial planner (international)	**60,000**	40,000	20,000	-	-
			Spatial planner (national))	**30,000**	20,000	10,000	-	-
			Climate change assessment and mainstrean	**45,000**	22,500	22,500	-	-
			Travel	**8,800**	6,600	2,200	-	-
Sub-total				**143,800**	**89,100**	**54,700**	**-**	**-**

Output 1.4. Spatial Development Framework sub-region, Cdl	Phase 1: Prepare	1) Stregthening institutional collaboration	Stakeholders engagement and participatory	**5,000**	5,000	-	-	-
			Launching session	**5,000**	5,000	-	-	-
			Communication strategy	**5,000**	5,000	-	-	-
			Establish committees and working groups	**2,500**	2,500	-	-	-
			Workplan for these groups	**2,500**	2,500	-	-	-
			Regular meetings	**20,000**	15,000	5,000	-	-
			Literature review	**3,000**	3,000	-	-	-
			Strategic summary	**3,000**	3,000	-	-	-
			Scope, boundaries, overall workplan	**4,000**	4,000	-	-	-
			Inception workhop	**2,500**	2,500	-	-	-
			Inception report	**12,000**	12,000	-	-	-
	Phase 2: Implement	2) Analysis and diagnosis	Literature review	**9,000**	9,000	-	-	-
			Field work for data collection	**16,000**	16,000	-	-	-
			Draft report on analysis and dignosis	**24,000**	24,000	-	-	-
			Validation workshop	**3,000**	3,000	-	-	-
			Final report	**6,000**	6,000	-	-	-
			Consultative workshop	**3,000**	3,000	-	-	-
			Definition of vision and goals	**6,000**	6,000	-	-	-
			Spatial Development Scenarios	**9,000**	9,000	-	-	-
			Validation workshop	**3,000**	3,000	-	-	-
			Final report	**9,000**	9,000	-	-	-
			Strategic environmental assessment (impacts assessment)	**89,000**	89,000	-	-	-
		3) Plan proposal and implementation plan	Consultative workshop	**10,000**	10,000	-	-	-
			Development strategies	**50,000**	50,000	-	-	-
			Validation workshop	**10,000**	-	10,000	-	-
			Key strategic projects	**25,000**	-	25,000	-	-
			Action plan	**27,200**	-	27,200	-	-
			validation workshop	**5,000**	-	5,000	-	-
	Phase 3: Operate Phase 4: Maintain	4) Adoption of the plan	Stakeholder consultation for the adoption of t	**3,000**	-	3,000	-	-
			Dissemination of plan	**16,600**	-	16,600	-	-
			Operation, management, monitoring and evaluation	**57,500**	23,000	34,500	-	-
Sub-total				**445,800**	**319,500**	**126,300**	**-**	**-**
Output 1.5. Local Development Plan, Cdl	Phase 1: Prepare	1) Stregthening institutional collaboration	Stakeholders engagement and participatory	**2,400**	2,400	-	-	-
			Launching session	**2,400**	2,400	-	-	-
			Communication strategy	**2,400**	2,400	-	-	-
			Establish committees and working groups	**1,200**	1,200	-	-	-
			Workplan for these groups	**2,400**	2,400	-	-	-
			Regular meetings	**9,600**	2,400	7,200	-	-
			Literature review	**1,500**	1,500	-	-	-
			Strategic summary	**1,500**	1,500	-	-	-
			Scope, boundaries, overall workplan	**1,900**	1,900	-	-	-
			Inception workhop	**1,200**	1,200	-	-	-
			Inception report	**5,800**	5,800	-	-	-
			MdP coordination with Municipality	**15,000**	7,500	7,500	-	-
	Phase 2: Implement	2) Analysis and diagnosis	Literature review	**4,500**	-	4,500	-	-
			Field work for data collection	**7,500**	-	7,500	-	-
			Draft report on analysis and dignosis	**11,600**	-	11,600	-	-
			Validation workshop	**1,500**	-	1,500	-	-
			Final report	**3,000**	-	3,000	-	-
			Consultative workshop	**1,500**	-	1,500	-	-
			Definition of vision and goals	**3,000**	-	3,000	-	-
			Spatial Development Scenarios	**4,500**	-	4,500	-	-
			Validation workshop	**1,500**	-	1,500	-	-
			Final report	**4,500**	-	4,500	-	-
		3) Plan proposal and implementation plan	Consultative workshop	**4,800**	-	4,800	-	-
			Development strategies	**24,000**	-	24,000	-	-
			Validation workshop	**4,800**	-	4,800	-	-
			Key strategic projects	**12,000**	-	12,000	-	-
			Action plan	**13,000**	-	13,000	-	-
			validation workshop	**2,400**	-	2,400	-	-
	Phase 3: Operate Phase 4: Maintain	4) Adoption of the plan	Stakeholder consultation for the adoption of t	**1,500**	-	1,500	-	-
			Dissemination of plan	**7,600**	-	7,600	-	-
			Operation, management, monitoring and eva	**38,500**	16,500	22,000	-	-
Sub-total				**199,000**	**49,100**	**149,900**	**-**	**-**
Output 1.6. Technical support		Guide MdP and Municipality to conduct activities above	Spatial planner (international)	**60,000**	40,000	20,000	-	-
			Spatial planner (national)	**30,000**	20,000	10,000	-	-
			Climate change assessment and mainstreaming specialist	**45,000**	22,500	22,500	-	-
			Travel	**8,200**	8,200	-	-	-
Sub-total				**143,200**	**90,700**	**52,500**	**-**	**-**

TOTAL Component 1				**1,653,600**	**908,600**	**745,000**	**-**	**-**
Output 2.1. Community plans, Ghana	Community mobilisation / awareness		Radio, brochures, posters etc.	**27,500**	27,500	-	-	-
	CREMA mechanism set up	Engagement with Wildlife Division, Traditional Councils	Workshop	**8,700**	8,700	-	-	-
		Awareness to ensure a buy-in by the communities and their leaders	Workshop	**48,400**	48,400	-	-	-
		Validation of maps; biophysical, land use and socio-cultural	Workshop	**22,000**	22,000	-	-	-
		Community representation and election of CRMCs	Workshop	**22,000**	22,000	-	-	-
		Election and inauguration of CREMA Executive Committees	Workshop	**14,500**	-	14,500	-	-
		Validation and adoption of CREMA constitution	Workshop	**14,500**	-	14,500	-	-
		Draft of the CREMA By-laws and promulgation by the District Assembly	Meeting	**7,500**	-	7,500	-	-
		Gazette CREMA by-law	Procedure	**7,500**	-	7,500	-	-
	Concrete interventions planning		Workshop	**48,400**	48,400	-	-	-
	Concrete interventions start-up/operation		Workshop	**48,400**	-	48,400	-	-
	Concrete interventions maintenance and management		Workshop	**48,400**	-	-	48,400	-
	Concrete intervention replication options and monitoring		Workshop	**48,400**	-	-	48,400	-
	Verification operation, maintenance, monitoring and replication		Workshop	**48,400**	-	-	48,400	-
	Community plans manager		For above activities and development of plans (implementation, maintenance, resource management and monitoring)	**66,000**	13,200	26,400	26,400	-
	Community mobilise/trainers		For above activities	**180,000**	36,000	72,000	72,000	-
	Experts on each type of intervention		(Budget under staff costs of components 3 and 4)	**-**	-	-	-	-
	Development of CREMA constitution		Staff time	**10,000**	-	10,000	-	-
Sub-total				**670,600**	**226,200**	**200,800**	**243,600**	**-**
Output 2.1. Community plans, Cl	Community mobilisation / awareness		Radio, brochures, posters etc.	**30,000**	30,000	-	-	-
	Community management mechanisms			**145,100**	145,100			
	Concrete interventions planning		Workshop	**52,800**	52,800	-	-	-
	Concrete interventions start-up/operation		Workshop	**52,800**	-	52,800	-	-
	Concrete interventions maintenance and management		Workshop	**52,800**	-	-	52,800	-
	Concrete intervention replication options and monitoring		Workshop	**52,800**	-	-	52,800	-
	Verification operation, maintenance, monitoring and replication		Workshop	**52,800**	-	-	52,800	-
	Community plans manager		For above activities and development of plans (implementation, maintenance,	**66,000**	13,200	26,400	26,400	-
	Community mobilise/trainers		For above activities	**180,000**	36,000	72,000	72,000	-
	Experts on each type of intervention		(Budget under staff costs of components 3 and 4)	**-**	-	-	-	-
	Development of CREMA constitution		Staff time	**10,000**	-	10,000	-	-
Sub-total				**695,100**	**277,100**	**161,200**	**256,800**	**-**
TOTAL Component 2				**1,365,700**	**503,300**	**362,000**	**500,400**	**-**
Output 3.1 Mangrove planting in Ghana	Phase 1: Prepare	Detailed engineering study and design	Staff (consultants)	**20,000**	20,000	-	-	-
		Buying materials	Mattock, wellington boots, cutlasses	**1,242**	1,242	-	-	-
		Mangrove nursery	Site leasing	**1,800**	300	1,500	-	-
			Construction of small wooden construction for storage (including materials, personnel, and transport)	**5,170**	5,170	-	-	-
			Fencing	**6,800**	6,800	-	-	-
			Nursery bed and bag preparation, collection of soil to site, manure and transport to site,	**50,000**	50,000	-	-	-
		Wildlings/seeds	Materials and personnel	**574,275**	-	574,275	-	-
	Phase 2: Implement	Mangrove planting	Food, salary	**189,540**	-	189,540	-	-
			Supervisor	**12,501**	-	12,501	-	-
		Nursery personnel	Staff cost	**9,600**	1,600	8,000	-	-
		Nursery management	Watering, replacement, watering can (including equipement)	**9,000**	-	9,000	-	-
		Transport	Car and fuel	**58,000**	-	58,000	-	-
			Driver	**4,000**	-	4,000	-	-
	Phase 3: Operate	Coordination support	Supervision and coordination	**40,000**	10,000	15,000	10,000	5,000
			Office set up (including equiprement and services). The office is common for the 4 intervention so each has its proportional part.	**65,000**	65,000	-	-	-

			Experts	**120,000**	8,000	40,000	48,000	24,000
	Phase 4: Maintain	Maintenance	*CREMA (Covered by revenue generated by the intervention)*					
			Extra seeds in case of potential failure (5%)	**41,325**	-	-	41,325	-
		Field monitoring	Including accomm, car/fuel, and staff costs	**13,800**	-	3,000	7,200	3,600
	Phase 5: Replicate	*CREMA mechanism*	*Covered by revenue generated by the intervention*					
		Capacity building	*Covered by Component 2*					
Sub-total				**1,222,053**	**168,112**	**914,816**	**106,525**	**32,600**
Output 3.2. Coastal lagoons restoration in Ghana	Phase 1: Prepare	Detailed engineering study and design	Staff (consultants)	**20,000**	20,000	-	-	-
		Lagoons assessments	Water pollution (E.Coli, organic pollution,plastic and heavy metals) and fish carrying capacity	**11,000**	5,500	5,500	-	-
			Soil profile and pollution assessment	**11,000**	5,500	5,500	-	-
	Phase 2: Implement	Lagoons cleaning	Waste removal (including equipement and personnel)	**158,130**	-	158,130	-	-
		Waste management	Sites rental	**10,200**	-	10,200	-	-
			Disposal and treatment (including equipement and personnel)	**18,500**	-	18,500	-	-
		Dredging	Equipement and personnel	**737,940**	-	737,940	-	-
		Replanting mangroves and sea grass	Personnel, seedlings, materials and transport cost (nursery costs are included under Output 3.1 since it is the same nursery)	**2,772**	-	2,772	-	-
		Transport	Equipement and personnel	**17,484**	-	17,484	-	-
	Phase 3: Operate	Coordination support	Supervision and coordination	**40,000**	10,000	15,000	10,000	5,000
			Office set up (including equiprement and services). The office is common for the 4 intervention so each has its proportional part.	**65,000**	65,000			
	Phase 4: Maintain	*CREMA mechanism*	*Covered by revenue generated by the intervention*					
		Field monitoring	Including accomm, car/fuel, and per diem	**15,600**	-	4,800	7,200	3,600
			Monitoring kit (pollution and fish stock)	**17,500**	-	17,500	-	-
	Phase 5: Replicate	*CREMA mechanism*	*Covered by revenue generated by the intervention*					
		Capacity building	*Covered by Component 2*					
Sub-total				**1,125,126**	**106,000**	**993,326**	**17,200**	**8,600**
Output 3.3 Mangrove planting in CI	Phase 1: Prepare	Detailed engineering study and design	Staff (consultants)	**20,000**	20,000	-	-	-
		Buying materials	Mattock, wellington boots, cutlasses	**382**	382	-	-	-
		Mangrove nursery	Site leasing	**3,600**	600	3,000	-	-
			Construction of small wooden construction for storage (including materials, personnel, and transport)	**10,340**	10,340	-	-	-
			Fencing	**13,600**	13,600	-	-	-
			Nursery bed and bag preparation, collection of soil to site, manure and transport to site,	**100,000**	100,000	-	-	-
		Wildlings/seeds	Materials and personnel	**42,114**	-	42,114	-	-
	Phase 2: Implement	Mangrove planting	Food, salary	**58,320**	-	58,320	-	-
			Supervisor	**4,167**	-	4,167	-	-
		Nursery personnel	Staff cost	**9,600**	1,600	8,000	-	-
		Nursery management	Watering, replacement, watering can (including equipement)	**18,000**	-	18,000	-	-
		Transport	Car and fuel	**87,000**	-	87,000	-	-
			Driver	**6,000**	-	6,000	-	-
	Phase 3: Operate	Coordination support	Supervision and coordination	**40,000**	10,000	15,000	10,000	5,000
			Office set up (including equiprement and services). The office is common for the 4 intervention so each has its proportional part.	**65,000**	65,000	-	-	-
			Experts	**120,000**	8,000	40,000	48,000	24,000
	Phase 4: Maintain	Maintenance	*CREMA mechanism, covered by revenue generated by the intervention*					
			Extra seeds in case of potential failure (5%)	**3,031**	-	-	3,031	-
		Field monitoring	Including accomm, car/fuel, and staff costs	**13,800**	-	3,000	7,200	3,600
	Phase 5: Replicate	*CREMA mechanism*	*Covered by revenue generated by the intervention*					
		Capacity building	*Covered by Component 2*					
Sub-total				**614,953**	**229,522**	**284,601**	**68,231**	**32,600**
Output 3.4	Phase 1: Prepare	Detailed engineering study and design	Staff	**60,000**	60,000	-	-	-
	Phase 2: Implement			**1,000,000**	-	1,000,000	-	-
	Phase 3: Operate			**100,000**	-	100,000	-	-

Output 3.4 Coastal Sand Nourishment in CI	Phase 4: Maintain			105,527	-	-	105,527	-
	Phase 5: Replicate	*Capacity building under component 2*		-	-	-	-	-
Sub-total				**1,265,527**	**60,000**	**1,100,000**	**105,527**	**-**
Output 3.5 Lagoon Sand Nourishment in CI	Phase 1: Prepare (10%)	Detailed engineering study and design	Staff	30,000	30,000	-	-	-
	Phase 2: Implement (60%)			700,000	-	700,000	-	-
	Phase 3: Operate			100,000	-	100,000	-	-
	Phase 4: Maintain (10-15%)			70,000	-	-	70,000	-
	Phase 5: Replicate	*Capacity building under component 2*		-	-	-	-	-
Sub-total				**900,000**	**30,000**	**800,000**	**70,000**	**-**
TOTAL Component 3				**5,127,658**	**593,634**	**4,092,742**	**367,483**	**73,800**
Output 4.1. Penculture in Ghana	Phase 1: Prepare	Detailed engineering study and design	Staff (consultants)	20,000	20,000	-	-	-
		Material	Net, ropes, woods, buckets, scoop nets, canoe	17,840	-	17,840	-	-
		Storage structure	Construction	95,000	-	95,000	-	-
			Solar lamps	5,000	-	5,000	-	-
			Feed, equipement and personnel	17,019	-	17,019	-	-
	Phase 2:Implement	Pen installation	Personnel	1,600	-	-	1,600	-
	Phase 3:Operate	Penculture	Personnel (feedders and security)	144,000	-	36,000	72,000	36,000
		Transport for fish food		21,120	-	5,280	10,560	5,280
		Fish	Tilapia fingerlins and fish food	309,120	-	77,280	154,560	77,280
		Coordination support	Expert	60,000	-	15,000	30,000	15,000
			Supervision and coordination	40,000	10,000	10,000	10,000	10,000
			Office set up (including equiprement and services). The office is common for the 4 intervention so each has its proportional part.	65,000	65,000			
	Phase 4: Maintain	Maintenance	*CREMA and awareness under component 2*					
		Field monitoring	Including accomm, car/fuel, and per diem	14,400	-	3,600	7,200	3,600
	Phase 5: Replicate	*Capacity building under component 2*						
Sub-total				**810,099**	**95,000**	**282,019**	**285,920**	**147,160**
Output 4.2 Salty crops and water infiltration	Phase 1: Prepare	Detailed engineering study and design	Staff (consultants)	20,000	20,000	-	-	-
		Identification of plots (stakeholders meeting and field work)	For demonstration and water harvesting senstitization	19,200	19,200	-	-	-
	Phase 2: Implement Phase 3:Operate	Water infiltration construction	Prepare surface	1,470	-	-	1,470	-
			Provide and place bondless in trench	48,100	-	-	48,100	-
			Excavating trench, providing and placing cor	211,678	-	-	211,678	-
			Supervision	-	-	-	-	-
		Realization of training center for salty crops	Farm wells construction (installation of tube wells)	2,000	-	2,000	-	-
			Drip irrigation equipement (including installation) and toolkit for soil sampling and salinity measurements	17,200	-	17,200	-	-
			Pre-sowing land clearing and preparation, co	27,750	-	9,250	9,250	9,250
			Pumps for training center	3,500	-	3,500		
			Farm logistics, costs of running irrigation fac	15,000	-	5,000	5,000	5,000
			Farm house construction	10,000	-	10,000	-	-
			Develop layout and assistance	54,675	-	54,675	-	-
		Training costs	Preparation training material	6,336	-	6,336	-	-
			Farmer group training	136,224	-	45,408	45,408	45,408
			Assistence during crop season, off-site	31,680	-	10,560	10,560	10,560
			training materials (handouts/protocols)	7,200	-	2,400	2,400	2,400
			Develop approach (rain)water harvesting	14,000	-	7,000	7,000	-
			Supervision, monitoring and reporting (Devel	120,000	-	48,000	48,000	24,000
			Project monitoring and reporting	31,500	-	12,600	12,600	6,300
			development sustainable economic models	18,000	-	6,000	6,000	6,000
			consultancy fee, 2 lead, 2 assistants (The De	48,600	-	16,200	16,200	16,200
			ensure seed availability of new crop varieties	3,168	-	1,056	1,056	1,056
			organize farmer field day, The Development	15,000	-	5,000	5,000	5,000
			evaluation of results and refinement "best practise" for next season	25,344	-	8,448	8,448	8,448
			field visits, including accomodation, car, fuel,	8,100	-	2,700	2,700	2,700

		Travel cost	flights, international	**16,800**	-	5,600	5,600	5,600
		Coordination support	Expert	**25,000**	-	25,000	-	-
			Supervision and coordination (20 %)	**40,000**	10,000	10,000	10,000	10,000
			Office set up (including equipement and services). The office is common for the 4 intervention so each has its proportional part.	**65,000**	65,000			
	Phase 4: Maintain	Water infiltration and salty crops	Including accomm, car/fuel, and per diem	**14,400**	-	3,600	7,200	3,600
		Water infiltration	Landscape maintenance equipments	**11,400**	-	11,400	-	-
	Phase 5: Replicate	*Capacity building under component 2*				-		
Sub-total				**1,068,325**	**114,200**	**328,933**	**463,670**	**161,522**
Output 4.3. Penculture in CI	Phase 1: Prepare	Detailed engineering study and design	Staff (consultants)	**20,000**	20,000	-	-	-
		Material	Net, ropes, woods, buckets, scoop nets, canoe	**24,530**	-	24,530	-	-
			Construction	**104,500**	-	104,500	-	-
			Solar lamps	**5,500**	-	5,500	-	-
			Feed, equipement and personnel	**17,019**	-	17,019	-	-
	Phase 2:Implement	Pen installation	Personnel	**2,200**	-	-	2,200	-
	Phase 3:Operate	Penculture	Personnel (feedders and security)	**144,000**	-	36,000	72,000	36,000
		Transport for fish food		**29,040**	-	7,260	14,520	7,260
		Fish	Tilapia fingerlins and fish food	**425,040**	-	106,260	212,520	106,260
		Coordination support	Expert	**60,000**	-	15,000	30,000	15,000
			Supervision and coordination (20 %)	**40,000**	10,000	10,000	10,000	10,000
			Office set up (including equipement and services). The office is common for the 4 intervention so each has its proportional	**65,000**	65,000			
	Phase 4: Maintain	Maintenance	*Awareness under component 2*					
		Field monitoring	Including accomm, car/fuel, and per diem	**14,400**	-	3,600	7,200	3,600
	Phase 5: Replicate	*Capacity building under component 2*						
Sub-total				**951,229**	**95,000**	**329,669**	**348,440**	**178,120**
TOTAL Component 4				**2,829,653**	**304,200**	**940,621**	**1,098,030**	**486,802**
Output 5.1. Coastal dynamics impacts and risk prediction model and assessment method		Assessment data needs	Staff	30,000	30,000	-	-	-
		Data collection	Staff	30,000	30,000	-	-	-
		Model and assessment method development	Staff	30,000	30,000	-	-	-
		Guidelines development	Staff	30,000	30,000	-	-	-
			Publishing	5,000	5,000	-	-	-
Sub-total				125,000	125,000	-	-	-
Output 5.2. Monitoring sensor system		Assessment of monitoring needs	Staff	5,000	5,000	-	-	-
		Monitoring plan / mechanism	Staff	5,000	5,000	-	-	-
		Moniitoing guidelines	Staff	5,000	5,000	-	-	-
			Publishing	5,000	5,000	-	-	-
		Sensor system	Drone	10,000	10,000	-	-	-
			Sensors	20,000	20,000	-	-	-
			Sraff for installation and monitoring	45,000	-	15,000	15,000	15,000
Sub-total				95,000	50,000	15,000	15,000	15,000
Output 5.3. Strengthened capacity of national and district-level governments		National governmnet staff training	Training events: 30 people per training. Targeting 2-4 institutions per country	40,000	-	20,000	20,000	-
			Trainer					
		District government staff training	Training events: 30 people per training. Targeting 2 districts per country	40,000	-	20,000	20,000	-
			Trainer	60,000	-	30,000	30,000	-
Sub-total				140,000	-	70,000	70,000	-
Output 5.4. West Africa / international knowledge management and sharing mechanism		Regional SC meetings (to guide implementation and share lessons)	20 people per meeting. Year 1: 2 meetings of which inception workshop 40 people (counted as 2 meetings).	132,000	66,000	22,000	22,000	22,000
		National SC meetings (to guide implementation and share lessons)	20 people per meeting. Meeting in Ghana and Cdi	40,000	10,000	10,000	10,000	10,000
		Best practices and guidelines published and shared online	Development and publishing of guidelines	30,000	-	-	-	30,000
		Project video	Baseline, process and results	120,000	-	30,000	30,000	60,000
		Presenting results with presentation	Person presenting	4,000	-	-	-	4,000
Sub-total				**326,000**	**76,000**	**62,000**	**62,000**	**126,000**
TOTAL Component 5				**686,000**	**251,000**	**147,000**	**147,000**	**141,000**
TOTAL Components				11,662,611	2,560,734	6,287,363	2,112,913	701,602
Project execution costs								
		Cote d'Ivoire	Project Manager - Regional Project Coordina	**480,000**	120,000	144,000	144,000	72,000
			Admin / financial procurement (national)	**100,000**	25,000	30,000	30,000	15,000
			Safeguarding system (AF) compliance (natio	**30,000**	7,500	7,500	7,500	7,500
			M & E and communication (national)	**30,000**	7,500	7,500	7,500	7,500
		Ghana	National Project coordination (national)	**224,000**	80,000	96,000	48,000	-

Project execution			Admin / financial procurement (national)	80,000	25,000	30,000	25,000	-
		Travel	Travel	41,600	10,400	10,400	10,400	10,400
		Operations	Vehicle Operations & Maintenance	48,000	12,000	14,000	12,000	10,000
			Office Rent	84,000	24,000	24,000	24,000	12,000
			Communication / publication / printing	22,000	4,000	4,000	4,000	10,000
			Office Supplies, Stationery, Computers	14,000	7,100	2,300	2,300	2,300
		Final evaluation	Independent (lump sum)	42,000	-	-	-	42,000
TOTAL Execution costs		9.30%		1,195,600	322,500	369,700	314,700	188,700
TOTAL Project costs				12,858,212	2,883,234	6,657,063	2,427,613	890,302
Project cycle management fee costs								
Project cycle management		1.33%	UN-H ROAf overall project supervision and M &E, incl. AF and UN-H policies (esp ESP and GP) and regulations compliance (Senior Human Settlements officer 5% + PMO 5% + PMA 25 % + M & E)	170,480	97,280	29,280	29,280	14,640
		0.17%	UN-H ROAf Travel	22,393	5,021	11,594	4,228	1,551
		7%	UN-H HQ Overall project supervision, incl compliance to UN-H policies (gender, human rights, climate change, etc.)	900,075	201,826	465,994	169,933	62,321
TOTAL management fee		8.50%		1,092,948	304,128	506,868	203,441	78,512
TOTAL amount of financing requested				13,959,160	3,187,361	7,163,931	2,631,053	968,814

ANNEX 1: M&E Budget

Table 35. M & E budget

Type of M & E Activity	Activity	Entity	Row	Total	1	2	3	4
Measurements of means of verification (baseline assessment and M & E plans) as part of inception	Inception Workshop	AbC		**3,300**	3,300			
	Reports preparation and EE compliance to AF ESP and GP	UN-H ROAf		-	See Overall project monitoring and evaluation (from cycle management fee)			
Direct Project Monitoring and Quality Assurance including annual progress and financial reporting, project revisions, technical assistance and ESP and GP compliance (from execution fee M & E and safeguards)	M & E UN-H offices	UN-H National offices		**67,500**	22,500	15,000	15,000	15,000
Overall project monitoring and evaluation (from cycle management fee)		UN-H ROAf		**22,393**	5,021	11,594	4,228	1,551
Audits	In line with AF requirements	OIOS		-	-	-	-	-
Terminal external evaluation		Independent		**56,000**				56,000
Total				**149,193**	**30,821**	**26,594**	**19,228**	**72,551**

ANNEX 2: MCA selection of project areas for components 3 and 4

As **mentioned** under section II.A, the selection of areas of interventions for the subprojects, was based on a Multi-criteria analysis (MCA). Criteria of the analysis are: i) CC environmental-social-financial (economic) impacts; ii) Beneficiaries impact; iii) Vulnerable groups ratio; iv) Geographical impact; v) Alignment with government priorities.

I. Coastal areas analysis in Côte d'Ivoire for area selection

As previously mentioned in the Background section, the Ivorian coastline is extremely vulnerable to both coastal flooding and erosion.

The coastline is 566 km long and consists of a variety of coastal habitats including coastal lagoons, estuaries, mangroves, swamps and humid zones. The coastal area can be divided into three zones based on geomorphology. The first zone is from Cape of Palmas to Sassandra and is characterized by a rocky coast and an elevation above 10 meters. The second zone goes from Sassandra to Abidjan and is covered by coastal cliffs. Finally, the third zone from Abidjan to Cape of Three is composed of sandy beaches and lies slightly above sea level (0-10m). Due to their different characteristics, the Levels of vulnerability vary from one region to another, and it is therefore important to identify the areas at highest risk to prioritize as main targets for this project. The Third zone (also called the Greater Abidjan area) is composed of the districts of Abidjan, Agboville, Tiassale, and Grand-Lahou. and is the most densely populated because of its rapidly growing populations and migration of rural communities to urban areas in search of better

opportunities. The area concentrates more than 30% of the national population. Due to this, unplanned development and urban sprawl occurred leading the city to extend in areas where (natural) hazards were higher.

Based on the fact that the coastal communities and assets within the Great Abidjan region (or Third zone) are most at risk, the project decided to concentrate efforts in this area. To select which departments and communities within the region will be included in this project, a prioritization process using a multi-criteria methodology was conducted to ensure evidence-based selection. The parameters included in this multi-criteria methodology are environmental and socio-economic impacts, vulnerable groups, beneficiaries, geographical impact, and alignment with national priorities.

The prioritization process was conducted using a matrix where the different parameters were given a score for each of the areas to be prioritized. Ultimately, the prioritization was done by ranking the areas from the highest to the lowest values. As per the table below, the prioritized departments are Port-Bouet, Grand-Bassam, and Jacqueville. However, due to ongoing investments in Port Bouet the department was excluded to avoid duplication. Therefore, the final selected departments are **Grand-Bassam and Jacqueville.**

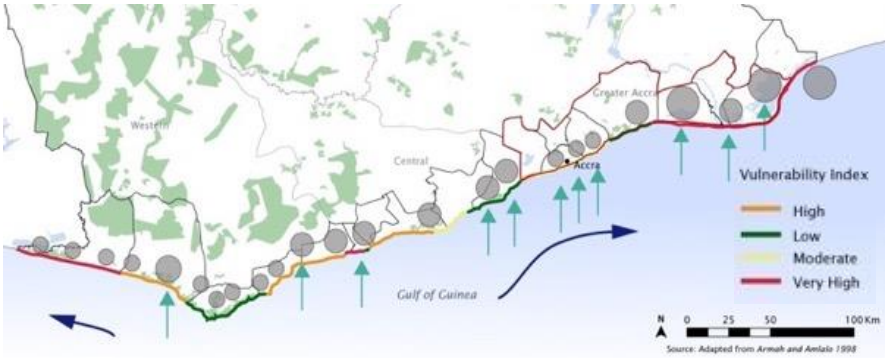
Table 36. Prioritization of target areas. Côte d'Ivoire.

Department/commune	Prioritization criteria							PRIORITY
	CC environmental-social-financial (economic) impacts	Beneficiaries impact	Vulnerable groups ratio	Geographical impact			Alignment with government priorities	
				m/year	%	Final		
Jacqueville								3
Bingerville								1
Grand-Bassam								2
Cocody								4
Port Bouet								1

The selection and prioritization highlighted in this table has been achieved through consultations with stakeholders and communities, as well as by data collection from relevant studies and statistics on the Ivorian coastal dynamics. Within the selected departments, various communities were prioritized according to their exposure and vulnerability. For example, the rising waters in Grand Bassam are causing significant land losses and reduction of the beaches in Quartier France, Gbamele and Azzuretti.The existing degradation of the coastline is a major threat also to local economies and tourism. Community livelihoods in Jacqueville are highly vulnerable, fishery production is decreasing as a result of the pollution of lagoons and loss of mangroves. A study of the World Bank estimates that the cost of the decrease in fisheries in the Ebrie lagoon was around 557 million FCFA in 1998.

II. Coastal areas analysis in Ghana for area selection

In order to identify the target areas for the project, results from a vulnerability study have been used. This study, Mapping Vulnerability and Risk of Ghana's Coastline to Sea Level Rise, is a collaboration between the University of Ghana and the University of Portsmouth in 2016.[83] It entails a detailed assessment at district level through the Coastal Vulnerability Index-based methodology, which provides a vulnerability ranking. This results from the analysis and correlation of key variables influencing coastal change. These variables include geomorphology characteristics such as coastal slope or wave heights, and socio-economic dynamics such as population at risk.



Map 4. Coastal Vulnerability Index to sea level rise and coastal flooding and erosion. Ghana

[83] *Boateng, Isaac.Jayson-Quashigah, Philip. 2016.Mapping Vulnerability and Risk of Ghana's Coastline to Sea Level Rise.*

The study shows how 36% of the coastline has very high levels of vulnerability. The Eastern part of the coast presents the highest erosion rates, 3.9 m/year, compared to the Central and Western areas that have values of 2.7 m/year and 1.6 m/year, respectively.[84] Another study estimates that under a scenario of 2 m sea level rise, around 5,000 km^2 of the eastern districts will be impacted by floods.[85] There are four coastal regions in the country, Western, Central, **Greater Accra, and Volta**. This proposal will focus on the latter two that are located on the eastern part of the coast, based on their higher vulnerability values, and the evaluation of socio-economic and environmental assets presented below.
In terms of socio-economic resources, Greater Accra and Volta regions while having 24% of the land, host 44% of the national population[86] and over 60% of major industries (manufacturing, refinery, mining, port and harbour, textile and smelting). Here, population growth is also among the highest in the country, rating at 3.1% in Greater Accra and 2.5% in Volta, according to latest census in 2010. In Volta region, rural growth is the most relevant having a rate of 2.8%.

Based on highest levels of vulnerability, key environmental assets at risk, and higher need for support in rural areas (where less investment and initiatives take place), the project will concentrate on the eastern part of these two regions. This means out of the 8 coastal districts, Ga South, Accra Metropolitan, and Tema Metropolitan, were excluded from the final selection process. The remaining districts are included in the project and are Ningo-Prampram, Ada East, Ada West, Keta, and Ketu. The selection of these districts was done according to a prioritization process using a multi-criteria methodology to ensure evidence-based selection. The parameters included in a multi-criteria methodology are environmental and socio-economic impacts, vulnerable groups, beneficiaries, geographical impact, and alignment with national priorities.

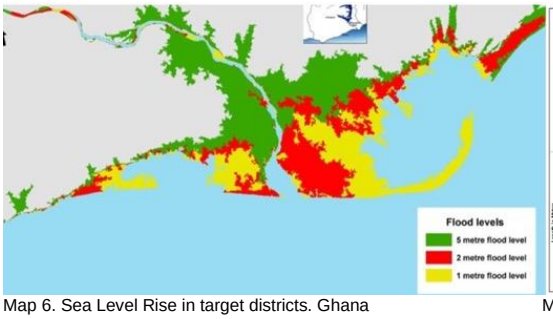
Each of these was weighted according to its relevance and was provided with measurable indicators that ensured an objective evaluation. The prioritization process was conducted using a matrix where the different parameters were given a score for each of the areas to be prioritized. Ultimately, the prioritization was done by ranking the areas from the highest to the lowest values. As per the table below the selected districts are **Keta, Ada East, and Ada West.**

Table 37. Prioritization of target areas. Ghana

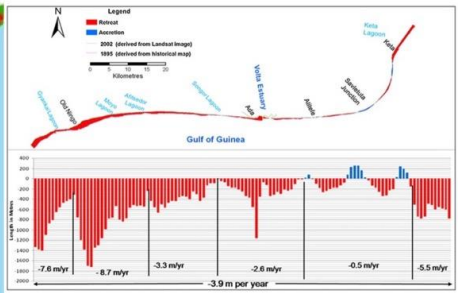
Districts	Prioritization criteria							**PRIORITY**
	Environmental-social-financial (economic) impacts	Beneficiaries impact	Vulnerable groups ratio	Geographical impact			Alignment with government priorities	
				m/year	%	Final		
Ningo-Prampam								5
Ada West								**3**
Ada East								**2**
Keta								**1**
Ketu								4

Evidence for this matrix has been collected from consultations with stakeholders and the communities, as well as from detailed studies that targeted coastal flooding and erosion. As per the maps below, the area of study is in serious threat of flooding, both landward (lagoon water) and seaward (sea water), and coastal recession due to the soft geology, low-lying topography, and the reduction of sediment supply. For example, it highlights how erosion rates are very severe, reaching 2-3m/year in the Volta estuary and 8m/year in Keta. Episodes of shore erosion over the last several decades caused about 70% loss of infrastructure along the coast of Keta.

[84] *Giardino.A., et al. 2017. A quantitative assessment on human interventions and climate change on the West African sediment budget.*
[85] *Adortse. P., 2019. Coastal flood hazard assessment for Ghana.*
[86] *Ministry of Environment, Science, Technology and Innovation, Town and Country Planning Department, National Development Planning Comission.2015.Ghana National Spatial Development Framework (2015-2035)*



Map 6. Sea Level Rise in target districts. Ghana



Map 7. Erosion and accretion in target districts. Ghana

Within the selected districts, the following communities were chosen:
Akplabanya, Goi and Wokumagbe in terms of population are considered among the first 20 communities with high population in the district. These communities are fringing communities located along the beach on the coastline making them very susceptible to impacts of sea level rise and other climate change related issues. Their livelihoods are facing serious threats also due to gradual shrinking of the beach. Disease outbreaks are very high in the communities due to bad sanitation which are exacerbated by flooding events in the area. The intervention will have an appreciable impact since these communities have highest population in the district. Kewunor and Azizanya are already facing high exposure to coastal erosion, sea level rise and flooding which are intensifying reduction in livelihood activities. Women and children face high exposure to disease and other social related issues.

Currently, because there are no on-going projects in these communities, the intervention by this project will aid in solving the flooding issues the area Agorkedzi/Atiteti, Agledomi, Dzita, Vodza are communities fringing the coastline and face coastal erosion and flooding at a high rate. The vulnerable group here are highly exposed to flooding. These communities have very high population which implies that there will be a lot of beneficiaries from the interventions. Woe, Tegbi, Whuti and Lagbati areas are communities also communities with very high population. Though flooding is not too much of an issue, there are erosion issues as well as crop failures due to salinization of soils in the area normally referred to as saltwater intrusion. One of the reasons why soil salinity is very high here is because the communities are located between the lagoon and sea making them highly exposed. Crop failures go in turn to affect economy of the people here and since the population is very high, it predisposes them to increased exposure to other social vices. The intervention will be impactful because there will a lot of beneficiaries.

ANNEX 3: Innovative building with nature concrete interventions.

I. Overview of adaptation options

i. Zero option

In every coastal protection project, there is the option to do nothing: the zero option. Whether this is really an option depends on the ecologic, sociologic and economic value of the coastal stretch. For both Ghana and Côte d'Ivoire this means that the sandy coastal barrier will retreat inland with a rate of approximately 1 to 4 m/year.

Communities living at the coastal stretch will have to retreat as well with the same rate. This can be done in an organized fashion, although this comes with strong governance and a high amount of flexibility of the local communities. This is called a managed retreat. This is only a potential option for small communities. Larger villages and cities cannot be retreated. Undisturbed erosion, rising sea levels, increasing wave heights and increasing rainfall will immediately affect this larger communities.

Besides humanity, the zero option also affects the coastal eco systems. The coastal barriers often protect vast estuary and lagoon systems which are characterized by mangrove forests. An abundant variety of flora and fauna is typical for mangroves. Today, at some points the barriers are very narrow and might breach in the (near) future because of increased water levels and wave heights. Then, the mangroves are directly exposed to the ocean, which will have a devastating effect on the forests and its eco system.

ii. Regular measures to counteract coastal erosion

Hard engineering solutions refer to those coastal management systems that are highly-visible human-made structures usually made by hard materials like rock, concrete and steel.

Three groups can be distinguished to counteract coastal erosion:

1. Measures to restore the beach
    - Artificial sand nourishment

- Perched beach

2.Structures to slow down the rate of the longshore and/or cross-shore transport
- Groynes
- Detached breakwater
- Artificial bar

3.Structures to prevent the waves to reach the erodible material
- Sea wall
- Detached breakwater

Measures to restore the beach

Artificial sand nourishment (soft solution)

Beach nourishment is a flexible method to counteract coastal erosion under favourable conditions. It can be a relatively low-cost operation, which should be repeated periodically. This measure is often is used in combination with structures such as groynes, although not every physical environment suits such a combination

The following types of nourishment can be distinguished:

- Dune/ barrier nourishment

The sand is placed high up the dry beach against or on top of the dune/ barrier. This is done to provide an additional safety against storm surges. The sand is only eroded during the more extreme wave conditions. The sand can be delivered both from offshore and onshore. In the former the sand needs to be pumped from the dredging vessel to the beach. Advantage of this method is that large volumes can be transported and distributed at once. Disadvantage is that the sand needs to be dredged from the ocean floor. This might be expensive and disrupting for ocean floor wildlife. With the onshore method the sand is delivered with dumper trucks and burrowed from an inland site. Depending on the required volume this may come with many transportation motions but might still be cheaper than the offshore method. Disadvantage is that it might be difficult to obtain sand with the correct characteristics (grain size, chemical composition, etc.) from an onshore site. For the nourishment to be effective the sand characteristics of the nourishment should be comparable to the sand characteristics of the target area.

- Beach/ foreshore nourishment

The sand is placed on the wet (the foreshore) and dry beach. The sand will initially be transported with a relatively high rate along the shore and in an offshore direction till a dynamic equilibrium profile has been formed. After that the erosion will continue with a similar rate as before the nourishment. This type of nourishment is most effective when the sand is delivered with a vessel and pumped to the beach. Foreshore rainbowing might be used for the deeper parts.

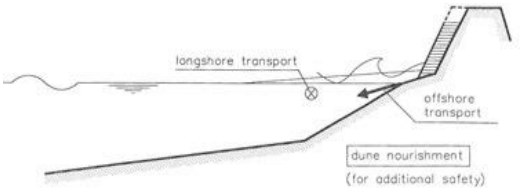


Figure 2019 Dune/ barrier nourishment

Perched beach

The perched beach (**Error! Reference source not found.**) combines a beach nourishment (elevated or perched above the original beach profile) with a low underwater dam. This alternative provides a sand buffer against wave action and is used if little sand or only fine sand is available.

Just like the nourishment, the enclosed sand will also be transported along the shore and offshore till a dynamic equilibrium profile has been formed. Therefore, the perched beach should be re-filled regularly. The underwater dam might also have a wave reducing effect. This results in the decrease of the sediment transport capacity, both in a longshore and offshore direction. At the downdrift area, the alongshore transport is increasing again, which results in local erosion there. This measure might shift the erosion problem and is therefore not favorable.

Figure 2120 Foreshore rainbowing

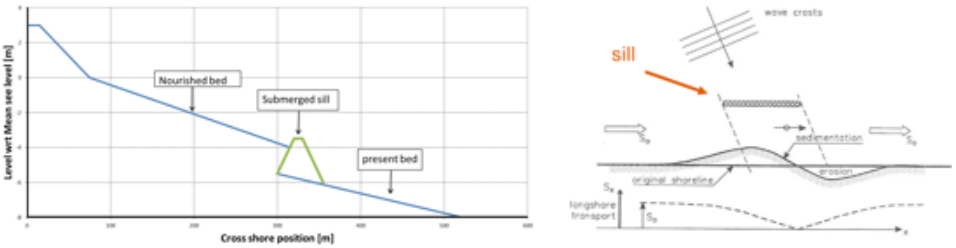


Figure 2221. Example of perched beach

Structures to slow down the rate of transport

- Groynes

The basic purpose of a groyne (**Error! Reference source not found.**) is to interrupt the littoral drift and to accumulate sand at its updrift side. The problem is always that erosion occurs at the downdrift side of the groyne. So, in fact the erosion problem is translated to the downdrift area. An example of such a solution (in combination with beach/ foreshore nourishment is found in Ada East district, in Ghana. Here, a 15km strip with a groyne every 700 m was built in 2013. The groynes helped retaining sediment on the upstream side, but have also further altered sediment flows and worsen erosion levels on the leeside. In addition, it was a very large investment (about $180 million) which only after 7 years since its implementation is already highly damaged.

Clearly this option is only possible to trap sediment locally, when downdrift erosion is not an immediate threat. Then at the updrift site the beach grows, until sand is bypassed along the groyne.

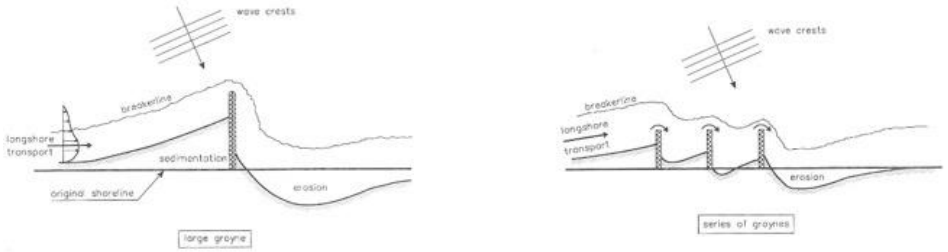


Figure 2322. Groynes

- Detached breakwater

A detached offshore breakwater (mostly parallel to the coastline: **Error! Reference source not found.**) reduces the wave height behind the breakwater. This results in a local decrease of the sediment transport capacity, both in longshore and offshore direction. At the downdrift area the alongshore transport is increasing, which results in erosion here. Detached breakwaters are especially effective where offshore transport occurs. Since longshore transport is a major driving mechanism along the coast of Ghana and Côte d'Ivoire this measure should not be deployed here.

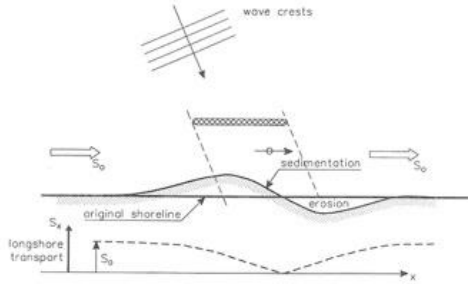


Figure 2423. Detached breakwater

- Artificial bar

An artificial bar works comparable with a detached breakwater but is constructed out of natural (green) materials such as sand or corrals. Although the material differs, the same arguments hold to not use this solution for Ghana and Côte d'Ivoire.

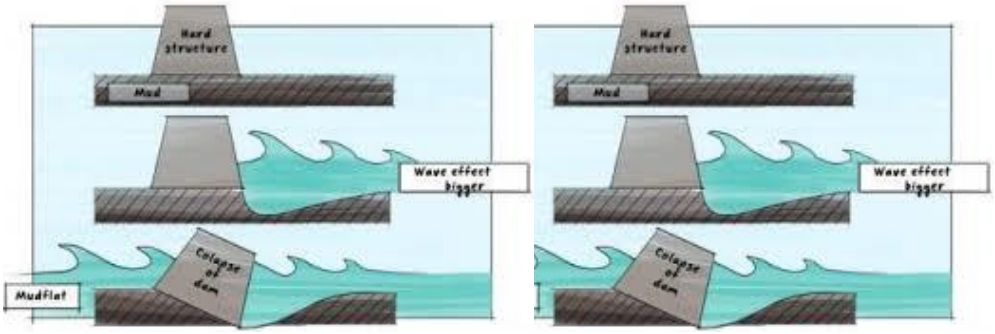
Structures to prevent the waves to reach the erodible materials

- Sea Wall

Sea walls or revetments are structures with the primary purpose to protect the shore against wave attack. Sea walls only protect the coastline behind and not the adjacent areas. Since no sediment can be picked up by the waves, the seabed will be eroded at other places, such as in front of the sea wall and at the downdrift side. The reflection of the waves against the wall will increase the sediment transport capacity, resulting in even more local scour in front of the sea wall. If a relatively short sea wall is built along a beach which is generally eroding over a relatively long stretch then the wall may become isolated when the adjacent beaches do retreat.

iii. Soft engineering and building with nature

A common response to coastal erosion in the tropics is to construct hard engineered structures such as those described above. Such structures, however, limit sediment input and deflect waves away rather than dissipating them, further aggravating erosion. In order to stop the erosion process and regain a stable coastline the loss of sediment must be reversed. The best way to do this is by 'building with nature' instead of fighting it, using engineering techniques that work with natural processes.



Soft engineering (or nature-based) solutions focus nin order to address coastal resilience and adaptation. It does not involve building artificial structures but takes a more sustainable and natural approach to managing the coast. This is achieved by working with ecological principles and practices so that negative impacts on the natural environment are avoided or practically reduced. In addition, these engineering solutions are not only less expensive to implement and maintain, but also last long-term and enhance sustainability. This is possible given that they are based on local dynamics and capacities. Examples of soft engineering solutions are dune regeneration and afforestation, beach nourishment, mangrove restoration and coral reef restoration.

Figure 2524. hard engineered structures such sea walls often limit sediment input to the coast instead of restoring the sediment balance, and deflect waves away rather than dissipating them, further aggravating erosion and can even result in the collapse of the sea

Mangrove restoration

Many coasts are typically dynamic and naturally subject to erosion and accretion. However, mangrove conversion and unsustainable land-use and implementation of hard infrastructures changes various factors
including fine sediment balance, hydrology and soil structure. These changes may flip accreting coastlines towards an alternate state where net erosion takes place.

Mangroves may offer low-cost natural approaches to disaster risk reduction in the face of rising sea levels and changes in storm frequency and intensity. Mangroves can provide natural defenses against extreme weather events and disasters, helping to reduce the loss of property and vulnerability of local communities. In combination with other risk reduction measures such as sea walls and early warning systems, mangroves are often cheaper than solely conventional solutions and provide additional benefits like food, timber and carbon sequestration. Furthermore, mangroves can adapt to sea level rises and land subsidence in ways that engineered defenses cannot.

Mangroves can help stabilize shorelines and mitigate coastal erosion by reducing the height and energy of waves, minimizing erosive forces acting on the sediment and preventing it from being carried away from the shore. By retaining sediment, mangroves not only stabilize soil but also help to build it up through the action of mangrove roots that grow into the newly sedimented material, helping to bind it in place. By building up sediments, some areas of mangroves have kept pace with moderate rates of sea level rise over thousands of years. When mangrove soil surface elevation can keep pace with sea level rise, mangroves will be able to continue to protect people and infrastructure from waves. The problem with this function is that in many coastal areas, coastal squeeze (reduction of coastal area due to erosion (loss of land) on the seaside and infrastructure on the inland side make it impossible for mangroves to move inland.

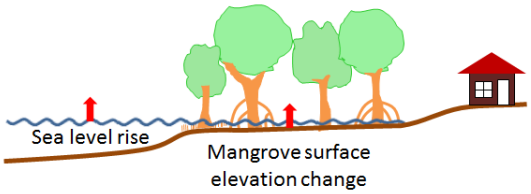


Figure 2625. The response of mangrove soil surface elevation to sea level rise. McIvor et al., 2013.

Mangroves can rapidly reduce wave energy as they pass through the trees. The effectiveness of this barrier in reducing the height of relatively small waves has been found to be anywhere between 13% to 66% over a 100 m wide mangrove belt. The effectiveness is largely dependent on the density, age and type of the mangrove vegetation, the slope of the coast, water depth and wave height. Waves passing through dense aerial roots and tree canopies will be reduced most effectively.

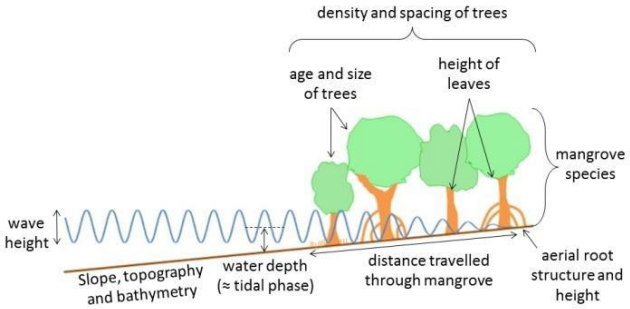


Figure 2726. Factors affecting wave attenuation in mangroves Source: McIvor et al., 2012

The few studies available suggest that mangroves can reduce storm surge levels by up to 50 cm per km width of mangroves. While large areas of mangroves are needed to significantly reduce peak water levels, even relatively small changes in water depth may result in large areas being saved from flooding, particularly in areas of low relief that are typical for mangroves. Natural and built infrastructure can be combined to maximize the mitigation effect on storm surges.

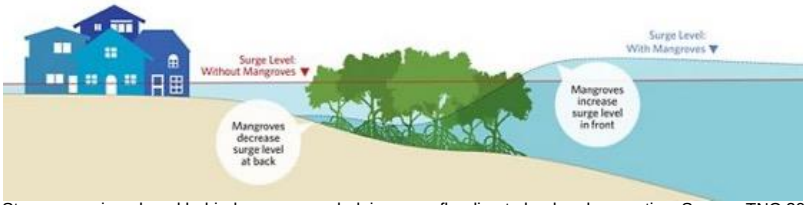


Figure 2827. Storm surge is reduced behind mangroves, helping ease flooding to land and properties. Source: TNC 2018

Mangrove restoration also ensures that the multitude of valuable ecosystem services provided by mangroves are restored. This is not the case when using hard structures for coastal protection which only function as a physical barrier for protection and provide no additional benefits to communities.

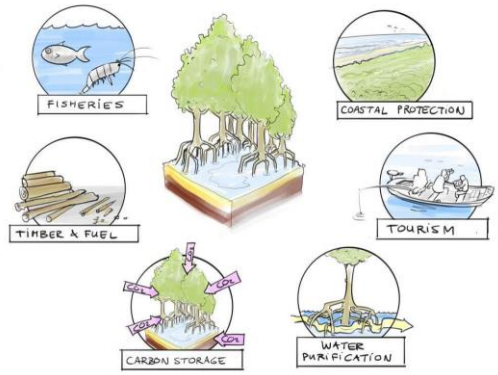


Figure 2928. Mangrove restoration also restores all the other ecosystem services and benefits provided by these mangroves. Source: Wetlands International.

Building with nature

In areas where erosion is ongoing and severe, it is not possible to simply replant the lost mangroves as hydrological and sediment conditions in the eroded area are not optimal anymore and newly planted seedlings will easily be washed away. Therefore, the hydrological and sediment conditions will need to be restored first. It is also preferred that besides active planting of seedlings, the mangroves will restore themselves by spreading seedlings and propagules to areas that they can settle and grow in.

One way to achieve this is to use temporary semi-permeable barriers from poles and brushwood to dampen the waves and capture sediment, creating sheltered areas near the coast for accretion. This building with nature solution is especially effective in strongly eroded (muddy) coastlines. Once the near shore bed level rises and stabilizes enough, mangroves will regenerate naturally, and planting can take place, developing a natural defense that will protect the hinterland from further erosion. Where the coastline has not yet been eroded, effective community-based protection of mangroves is preferred so there is no longer a net loss of mangroves.

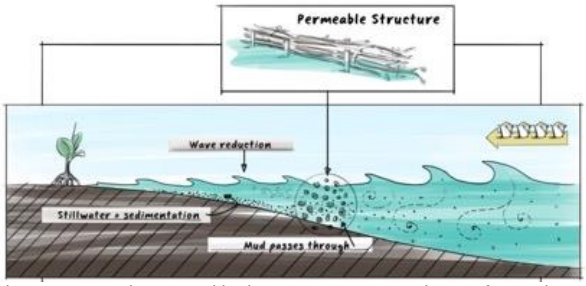


Figure 3029. A Building with nature example: permeable dams or structures made out of natural materials such as bamboo and brushwood can be placed on the seaward side of the intertidal area to be restored, and help stabilize sediments so that mangroves can eb natur

Hybrid solutions

In some cases, innovative hybrid approaches can eb used for coastal resilience and protection combining both natural and built features. Because built and natural infrastructure have different strengths and weaknesses, using a combination of these approaches can capitalize on the strengths of both while aiming to minimize the weaknesses of each

Coastal ecosystem restoration is a key strategy for increasing natural coastal defenses and coastal resilience, but newly constructed or restored natural infrastructure can be weak as organisms take hold. However, these approaches will grow stronger with time as long as the ecosystems are protected from major storms or other stressors as they mature. As a result, there may be opportunities to use engineered structures, such as removable seawalls, to temporarily reduce disturbances and protect natural infrastructure in its early stages. This hybrid approach could help communities use natural infrastructure with more confidence since built infrastructure can provide coastal protection benefits in the interim while natural infrastructure establishes.

Similarly, there is also the potential to use natural infrastructure to protect built infrastructure, lessening the impacts of the sea on built infrastructure. In particular, highly urbanized coastal cities also are looking for creative, hybrid approaches to flood protection because they often do not have the space to implement only natural infrastructure approaches.

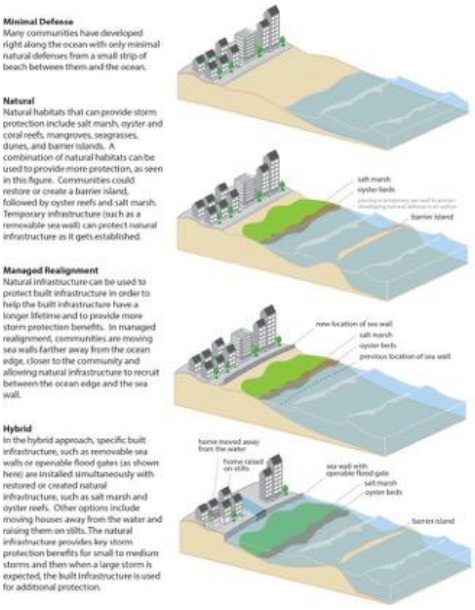


Figure 3130. Different coastal protection and resilience options. Source: TNC

III. Concrete adaptation options

Table 38. Concrete intervention options (under components 3 and 4). Analysis / assessment conducted in cooperation with Arcadis in target area. The intervention highlighted 'green' have been considered during the proposal development process

Area	Hazard and typical scenario	Cause	Impacts	Intervention options	Potential environmental and social impacts and risks	Proven	Cost	Planning (time required)	Can be done/rep-located by other com-munity
Coast	Coastal erosion	Negative sediment budget due to gradients in *longshore* transport	Coastal retreat/ flooding	Zero - option: no coastal defense, relocate people or avoid people moving into risk area through spatial planning. A spatial planning strategy will be implemented through the green belt buffer zone intervention. (This can be considered as a not a concrete intervention but shows the role of land use planning versus concrete interventions)	Social: high Environmental: low Most relevant Principles: 1, **2**, **3**, **4, 5, 7, 8,** 13 Although some communities requested relocation, this is only an option when all inhabitants agree and plans for relocation are adherent to their needs. However, land use plans can avoid people moving into high risk areas	Yes e.g. UN-H land use plans in Haiti avoids people moving into high risk areas	Depends on the costs of relocating communities Land use plans are a low-cost solution for avoid costs associated with cc risks.	-	yes
				Sand bypassing: Beach nourishment and foreshore nourishment (i.e. sand motor) Level / type applicable: - Transformative	Social: low Environmental: low, but needs to be repeated periodically (sediments could be obtained through the regular dredging required in the lagoons due to the reduction of the river water flow) Most relevant Principles: 1, 2, 6, 11, 15 out	yes Dutch "weak links" projects)	roughly €10, - per m3 sand + labor coast (*) Increased affordability of labor-intensive activities in developing economies	1 year	yes
				Deploy groynes to interrupt littoral drift	Social: low Environmental: high (translates erosion problem to down drift side) Most relevant Principles: 1, 2, 6, **9, 10**, **11**, **15** Has shown negative downstream impacts in Ghana	Yes (Dutch coast and many other coasts	roughly €10000, - per meter groyne (very high) E.g. US$ 180 million for 15 groynes in Keta	3 years	no
		Negative sediment budget due to *cross-shore* transport	Coastal retreat/ flooding	Zero - option: no coastal defense, relocate people or avoid people moving in risk area through spatial planning A spatial planning strategy will be implemented through the green belt buffer zone intervention. (This can be considered as a not a concrete intervention but shows the role of land use planning versus concrete interventions)	See above	Yes (see above)	See above	-	yes
				Sand bypassing: Beach nourishment and foreshore nourishment (i.e. sand motor) Level / type applicable: - Transformative	See above	Yes (see above)	roughly €10, - per m3 sand + labour cost (commercial prize)	1 year	yes

				Dune/ barrier nourishment (to prevent for storm erosion) Level / type applicable: - Catalytic (community)	Social: low Environmental: low risk, but needs to be repeated periodically Most relevant Principles: 1, 2, 6, 11, 15 As long as sources sand from areas that won't cause negative impacts, risks are low	Yes Dutch "weak links" projects) Barrier at Prampram harbor has been successfully heightened by fishermen	roughly €10, - per m3 sand + labour cost (commercial prize)	1 year	yes
				Perched beach: submerged dams combined with beach nourishment. Submerged dams may be possible areas for aquaculture	Social: low Environmental: could be high / depends on local situation (not applicable when also gradients in longshore currents cause erosion Most relevant Principles: 1, 2, 6, **9, 10**, **11**, **15**	Aquaculture on dams has not been proven	roughly €10, - per m3 sand plus costs to construct submerged dams (*)	< 3 years	yes
		Combination of the above	Coastal retreat/ flooding	Zero - option: no coastal defense, relocate people or avoid people moving in risk area through spatial planning A spatial planning strategy will be implemented through the green belt buffer zone intervention. (This can be considered as a non-concrete intervention but shows the role of land use planning versus concrete interventions)	See above	yes	See above	-	yes
				Beach nourishment and dune nourishment Level / type applicable: - Transformative	Social: low Environmental: low, but needs to be repeated periodically Most relevant Principles: 1, 2, 6, 11, 15	yes	roughly €10, - per m3 sand (commercial prize) (*)	1 year	yes
				Beach nourishment and dune nourishment in combination with groynes	Social: low Environmental: high (translates erosion problem to down drift side) Most relevant Principles: 1, 2, 6, **9, 10**, **11**, **15** Has shown negative downstream impacts in Ghana	yes	roughly €10, - per m3 sand plus €10000, - per m groyne (very high) E.g. US$ 180 million for 15 groynes in Keta	< 3 years	yes
				Make artificial barrier inland with natural elements to strengthen lagoon during storm conditions. Community will not get flooded, Options to start pen culture in salty lagoon Level / type applicable: - Catalytic (community)	Social: low Environmental: unknown (not implemented yet). Most relevant Principles: 1, 2, 6, **9, 10**, **11**, **15**	No This has been requested by prampram fishing community	unknown	< 3 years	yes
		River delta erosion due to decreased river	Sediment is trapped in river mouth.	Sand bypassing. Dredging sediment in river mouth and relocating it down stream in erosive areas Level / type applicable:	Social: low Environmental: low Most relevant Principles: 1, 2, 6, **9, 10**, **11**, **15**	Yes By various governments; not so much by communities	low costs, can be done by local communities. People have to be	1 year	yes

		discharge (damming of river)	Coastal retreat down stream of net longshore current	- Transformative - Catalytic (community)			compensated for their work		
				Same as above, but with construction of groyne upstream of river mouth. Sediment is trapped at the groyne, which makes bypassing easier	Social: low Environmental: high **(**possibly increases negative effects at downstream side of river mouth). Most relevant Principles: 1, 2, 6, **9, 10**, **11**, 15 Has shown negative downstream impacts in Ghana	yes, see current cross shore groyne at Volta river mouth. Sediment is trapped, but no artificial bypassing takes place (opportunity to start artificial bypassing).	roughly €10000, - per m groyne. (very high) E.g. US$ 180 million for 15 groynes in Keta	< 3 years	no
	Flooding from sea	Swell wave overwash	flooding	Dune/ barrier nourishment This can include planting of vegetation in existing dunes to prevent erosion. Level / type applicable: - Catalytic (community)	Social: low Environmental: low (may need to be repeated periodically in combination with cross shore sediment transport) Most relevant Principles: 1, 2, 6, **9, 10**, **11**, **15** As long as sources sand from areas that won't cause negative impacts, risks are low	Yes Dutch "weak links" projects) Barrier at Prampram harbor has been successfully heightened by fishermen	roughly €10, - per m3 sand	1 year	yes
				Set up early warning systems and temporary flood defences, such as sand bags, envisioning propor maintenance and pick up post-event Level / type applicable: - Catalytic (community)	Social: medium Environmental: low (awareness and knowledge on flooding needs to be created. Discipline to deploy temporary flood defense during rainy season is difficult to create) Risk to deploy sand bags and do not collect them back results into environmental pollution Most relevant Principles: 1, 2, 6, **9, 10**, **11**	Not on a small community scale with no experience on these kind of solutions	probably cheap (materials for sand back/ sand and workshops)	1 year	yes
lagoon	Lagoon flooding	Sedimentation in river mouth due to decreased river discharge (damming of river)	flooding of lagoon potentially in combination with down drift erosion	Zero - option: do nothing, relocate people people or avoid people moving in risk area through spatial planning (This can be considered as a non-concrete intervention but shows the role of land use planning versus concrete interventions)	See above	yes	See above	-	yes
				Sand bypassing. Dredging sediment from river mouth and relocating it down stream in erosive areas A spatial planning strategy will be implemented through the green belt buffer zone intervention. Level / type applicable: - Transformative -	See above	Yes By various governments; not so much by communities	low costs, can be done by local communities. People have to be compensated for their work	1 year	yes

				Same as above, but with construction of groyne upstream of river mouth. Sediment is trapped at the groyne, which makes bypassing easier	See above Has shown negative downstream impacts in Ghana	See above	roughly €10000, - per m groyne. (very high) E.g. US$ 180 million for 15 groynes in Keta	< 3 years	no
	Erosion of lagoon banks	Increased water levels (during monsoons in lagoon due to sedimentation in river mouth	Flooding, decreasing land area	Open up river mouth by dredging/ sediment bypassing Level / type applicable: - Transformative	Social: low Environmental: can be high Opening up a river mouth needs to be done very carefully to control water flow Most relevant Principles: 1, 2, 6, **9, 10**, **11**, **15**	Yes Many examples around the world and some in Ghana and Côte d'Ivoire.	low costs, can be done by local communities. People have to be compensated for their work	1 year	yes
		Deforestation	Erosion of banks since sediment is no longer being captured by vegetation	Replant resilient forests/ mangroves (mainly Côte d'Ivoire), start agriculture on the banks (salt / brackish water crops) Level / type applicable: - Catalytic (community)	Social: low Environmental: low Most relevant Principles: 1, 2, 3, 5, 6, 7, 9, 10 Although risks are low participatory processes to address needs are required	Yes	low costs, can be done by local communities.	< 3 years	yes
	Salt water intrusion	Decreased river discharge due to damming of river	Lack of fresh water for agriculture	Change crops suited for a salt environment Level / type applicable: - Catalytic (community)	Social: low Environmental: low Most relevant Principles: 1, 2, 3, 5, 6, 7, 9, 10 Main risk is related to identifying the most suitable crop and to operate / maintain these.	Identify most suitable proven option	low costs, can be done by local communities.	< 2 years	yes
			Decrease population of fresh/ brackish water fish	Change to aquaculture (e.g. shrimp farms or other type of fish) Level / type applicable: - Transformative - Catalytic (community)	Social: low Environmental: medium Most relevant Principles: 1, **2**, 3, 5, 6, 7, **9**, **10**, **12**, 15 Main risk is related to identifying the most suitable species and that these can be managed by specific groups / addressing their specific vulnerabilities	unknown	unknown	< 3 years	yes
				Start salt mining on lagoon marshes Level / type applicable: - Catalytic (community)	Social: low Environmental: low Most relevant Principles: 1, **2**, 3, 5, 6, 7, 9, 10, 12, 15 Main risk is related to ensuring communities / vulnerable groups benfit from the intervention	unknown	unknown	< 2 years	yes

			Lack of fresh drinking water	Provision of fresh / potable water (e.g. through water harvesting) for agriculture Level / type applicable: - Catalytic (community)	Social: low Environmental: low Most relevant Principles: 1, **2**, 6, 9, 10,	Yes (but not in target area) Many technical options	unknown	3 years	Possibly
	Pollution of lagoon	Lack of refreshment from sea since river mouth is blocked by sediment	Lack of fresh drinking water	Provision of fresh / potable water (e.g. through water harvesting)	See above	Yes (but not in target area) Many technical options	unknown	3 years	Possibly
			Lack of fresh water for agriculture	Open upriver arm to lagoon to refresh water Level / type applicable: - Transformative	Social: low Environmental: may be high (may results in negative environmental effects up and downstream in river and in lagoon if not well managed One positive impact would be the reduction of bilharzia parasite due to water salinity increase Most relevant Principles: 1, 2, 6, **9, 10**, 11, 12, 15 Opening up a river mouth needs to be done very carefully to control water flow	Yes (but not in target area)	unknown	1 year but maintenance required	no
			Diseases	Create awareness on polluted water (possibly combined with above) (This can be considered as a non-concrete intervention to support above) Level / type applicable: - Catalytic (community)	Social: low Environmental: low Most relevant Principles: 1, 2, 3, 5, 7	yes	low costs	1 year	yes
		Dumping of waste in the lagoon	see above	Create awareness/ set up a waste management program This may need to be combined with some of the above interventions to ensure sustainability Level / type applicable: - Catalytic (community)	Social: low Environmental: low Most relevant Principles: 1, 2, 3, 5, 7, 12, 13	yes	low / medium costs	1 year	yes
		People use lagoon as open toilet	see above	Create awareness/ deploy sanitary facilities This may need to be combined with some of the above interventions to ensure sustainability Level / type applicable: - Catalytic (community)	Social: low Environmental: low Most relevant Principles: 1, 2, 3, 5, 7, 12, 13,	yes	low / medium costs	1 year	yes

ANNEX 4: Overview of consultations, including objectives, outcomes and conclusions

3. Consultative process 2017

6. Ghana

The initial consultative process in Ghana held in 2017 was done through 17 private meetings with government bodies and program entities (see table 39). The mixed groups consultation counted with broad participation of community members such as fisherman, student, pensioner, oyster trader, food seller, coconut seller. From the 12 groups discussions held, four vulnerable groups where represented, and women participation was 40%. The project aims to improve women and vulnerable groups representation in in the decision making of the community and to leverage social inclusion.

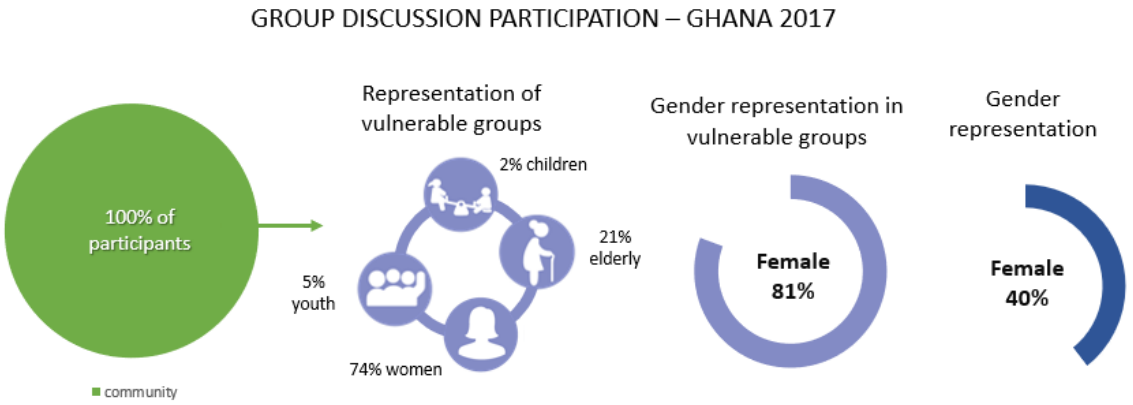


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Table 39. Private meetings, Ghana

Date	Stakeholder	Consultation objective	Outcome	Conclusion
16-17 nov Bonn	Ministry of Environment, Science, Technology and Innovation	- Agree on AF proposal priorities and target areas (districts level) - Understand national priorities - Identify relevant projects and lessons, concerns and complementary potential	- Agreement of roadmap for developing this proposal	- Invite both leading ministries for World Urban Forum 9 (7-13 Feb 2018) to discuss international cooperation and needs - Organise National – district workshop to agree on national – local implementation modality and interventions after the WUF
6 nov 2017	Ministry of Local Government and Rural Development	- Agree on AF proposal priorities and decentralized implementation modality - Identify relevant projects and lessons, concerns and complementary potential	- Agreement on AF proposal priorities and decentralized implementation modality, including for spatial planning - Need to complement WB project for Resilient Greater Accra Metropolitan Area (GAMA) where ministry takes a coordinating role	
December 2017	Tema metropolis	- Agree on AF target areas (community level) - Identify focal point - Understand local issues and needs - Identify relevant projects and lessons, concerns and complementary potential	- Priority community: newtown informal settlement - Focal point: Ofori Joseph (assembly representative)	- District and community focal points have been identified - District agreement on target areas - Communities don't always trust government involvement - Overlap with other projects has been checked
December 2017	Ningo Prampram district		- Priority communities: Prampram informal harbour area, old ningo and Ayitepa - Focal point: Aboagye Aaron (Physical Planning Officer) - Old Ningo: Dzamaku Enoch - Prampram: Solomon Tangman - Ayitepa: Sampson Adjaklo	

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December 2017	Ada West district		- Priority communities: Akplabanya, Goi and Kportitsekorpe - Focal point: Agbeve S. S. (Planning Officer) - Akplabanya: Amos Kwao - Goi: John Tsiri - Kportitsekorpe: Joseph Ahuakese	
December 2017	Ada East district		- Priority communities: Totope, Azizanya and big Ada - Focal point: Gyamfi Kwadwo (assistant director) - Big Ada: Awal Iddrisu	
December 2017	Keta district		- Priority communities: Fuvemeh, Woe, Anloga, Vodza - Focal points: - Fuvemeh: Oswald Etse - Woe: Victor Amekudzi - Anloga: Ernest Agbota	
6 nov 2017	UN Residence coordinator	- Agree on cooperation modaility / alignment with other UN projects	- Complement UNCDF LoCal project	
6 nov 2017	UNDP	- Understand main issues, concerns and needs in target areas / communities; - Understand relevant projects and lessons, concerns and complementary potential, esp. AF Funded project: 'Increased Resilience to Climate Change in Northern Ghana through the Management of Water Resources and Diversification of Livelihoods and NAP process	- Align with NAP process - Northern project not relevant	
10 nov 2017	UNCDF	- Understand main issues, concerns and needs in target areas / communities; - Understand relevant projects and lessons, concerns and complementary potential, esp. LoCal project	- Will align with LoCal project but is very small (US$125,000)	- Possible option to scale up LoCal within UN-Habitat / AF project framework
7 and 10 nov 2017	Development Institute / Ghana Delta alliance Wing	- Understand main issues, concerns and needs in target areas / communities; - Understand relevant projects and lessons, concerns and complementary potential, esp. government and NGO related projects - Discuss cooperation options for community assessments	- Basic assessments already conducted with Delta alliance in Keta - Good understanding of local issues and good network - DECCMA project leader is part of Delta Wing board.	- Cooperate to conduct community level surveys and focus group discussions - Use DECCMA assessments already done
7 and 10 nov 2017	Hen Mpoano NGO	- Understand main issues, concerns and needs in target areas / communities; - Understand relevant projects and lessons, concerns and complementary potential, esp spatial mapping, fishing and community level related work - Discuss potential cooperation options	- Good understanding community level work and spatial (drone) mapping and modelling	- Possibly cooperate to fully map communities and risk areas for full proposal - Partner for community level work during project
7 nov 2017	USAID / Ghana CRC/URI PACT Tetra tech	- Understand main issues, concerns and needs in target areas / communities; - Understand relevant projects and lessons, concerns and complementary potential, esp. West Africa Biodiversity and Climate Change Program (WA BiCC) and Ghana sustainable fisheries management project'	- WA BICC project has no implementation in Ghana - Little lessons available from other countries because of initial stage	- Monitor possible lessons in Côte d'Ivoire
7 nov 2017	Spatial solutions	- Understand main issues, concerns and needs in target areas / communities; - Understand relevant projects and lessons, concerns and complementary potential, esp. related to spatial planning in target areas	- Good understanding of spatial planning needs and processes - No spatial plans exist in target areas (except greater accra plan which included Tema and Prampram at high level) but new government prioritizes spatial planning - Government did not prioritize the development of spatial plans in target areas because of lack of oil and economic need - Estimated cost for s structure plan done by private company is US$ 1,3 m and for a district US$370,000	- Willingness and need to develop spatial plans in target areas at district and local level focused on identifyin risk areas, current and future land use needs and long-term coastal management needs

Table 40. Focus group discussions with specific focus on vulnerable fishing communities, Ghana. Focus group discussions were conducted with women oyster traders, women petty traders and women fish mongers

LOCATION	DATE	NAME	AGE	SEX	OCCUPATION
Community: Prampram District: Prampram District, Country: Ghana	04/12/17	David Awulu Ayi	44	Male	Fisherman
		Ayi Botwoe	46	Male	Fisherman
		Isaac Mensah	52	Male	Fisherman
		Quianor Gblim	60	Male	Fisherman
		Mensah Doku	36	Male	Fisherman
		Ashong Shamo	74	Male	Fisherman
		Jonas Quianor	68	Male	Fisherman
		Albert Oko Allotey	56	Male	Fisherman
		Lartey Mason	58	Male	Fisherman
		Isaac Lartey Tettey	48	Male	Fisherman
		Kwashie Mensah	65	Male	Fisherman
		Mensah Sossey	66	Male	Fisherman
Community: Old Ningo District: Prampram District Country: Ghana	04/11/17	Hon. Enoch Narteh Brown	39	Male	Farmer
		Simon Acquaah	20	Male	Student
		Moses Tetteh Bamflo	27	Male	Driver/Fisherman
		John Teye Bamflo	29	Male	Mason/Farmer
		Cecilia Tetteh	54	Female	Trader
		Doris Kweinortey	33	Female	Trader
		Samuel Teye Narteh	66	Male	Pensioner
		David Siaw	27	Male	Fisherman
		Mabel Teye Kiwablah	29	Female	Trader
		Mary Oye Nartey	58	Female	Trader
		Vivian Addo	41	Female	Fisherman
		Moses Tetteh	68	Male	Carpenter
		Awisi Siaw	26	Female	Farmer
		Joyce Kwaku	36	Female	Trader
		Lydia Tetteh	38	Female	Trader
Community: Ayetepa District: Prampram District Country: Ghana	04/11/17	Kwao Djan Kwasi	30	Male	Fishing and Farming
		Emil Peter Kwaku	65	Male	Farming and Fishing
		Aye Obodai	85	Male	Chief Fisherman
		Joseph Obodai Tei	65	Male	Fishing and Farming
		Obodai Bensco	65	Male	Fishing and Farmer
		Duamor Love	44	Male	Fisherman
		Adzah-Tettey	55	Male	Fishing and Farming
		Richard K. Kwasi	45	Male	Fishing
		Kodjo Sampson Adgaklo	43	Male	Assembly Man
Community: Akplanbanya District: Ada West Country: Ghana	05/11/17	Avinu Isaiah	52	Male	Fisherman
		Eam Avinu Brabo	60	Male	Fisherman
		Katey Emmanuel	38	Male	Seaman
		Alimo Buortey	58	Male	Fisherman
		Okutu Richard	35	Male	Mason
		Atlas Amanor	50	Male	Fisherman
		HB Samuel	30	Male	Fisherman
		Nene Raphel Alimo	50	Male	Chief Fisherman
Community: Goi District: Ada West Country: Ghana	05/11/17	Isaac Alipue Armah	30	Male	Farmer
		Olipeseku Doe	30	Male	Mason
		Kumadoe Juliana	37	Female	Fishmonger
		Kumadoe Peter	35	Male	Store-Keeper
		Tamaklo Sackey	42	Male	Fisherman
		Joseph A. Sebie	46	Male	Fishmonger
		Enoch Teye Otipeseku	32	Male	Child Advocacy
		Maxwel O. Ledi	46	Male	Mason
		Ernestina Agama	55	Female	Fish monger
Community: Kportitsekope District: Ada West Country: Ghana	05/11/17	Tetteh Tsu Agbove	47	Male	Fishing/Sait Miner
		Korletey Tetteh Doku	50	Male	Fishing/ Salt Miner
		Christian Otipeseku	34	Male	Driver/Salt Retail
		Gabriel Osabutey	45	Male	Fishing
		Gloria Doku	23	Female	Petty Trader
		Ahakesi T. Rockson	37	Male	Assembly Man
Community: Azizanya District: Ada East Country: Ghana	30/11/17	John Tefekpeli	37	Male	Fishing
		Agboshi Mary	32	Female	Fish Monger
		Augustina Asamenya	32	Female	Fish Monger
		Hordo Beauty	33	Female	Fish Monger

		Kwesi Fugdzi	40	Male	Fishing
		Fredrick Doe	31	Male	Fishing
		Esther Agbashi	44	Female	Fish Monger
		Korkor Koranteng	40	Female	Fishing
Community: Totope District: Ada East Country: Ghana	30/11/17	George Numo	27	Male	Fishing
		Dokuyo Numo	50	Female	Fish Monger
		Hannah Numo	40	Female	Fish Monger
		Jonathan Nartey	45	Male	Fishing
		Yohana Matsmasey	52	Male	Fishing
		Mary Numo	42	Female	Fish Monger
		Rose Ameyah	55	Female	Fish Monger
		Akweley Agbalaba	70	Female	Fish Monger
		Korkor Numo	61	Female	Petty Trading
		Eben Okine	46	Male	Fishing
		Joshua Kugblenu	30	Male	Fishing
Community: Big Ada District: Ada East Country: Ghana	30/11/17	Felicia Ametepey	80	Female	Oyster Trading
		Kaki Koranteng	65	Female	Oyster Trading
		Comfort Wormenor	55	Female	Oyster Trading
		Aybonyua Martha	45	Female	Oyster Trading
		Theresh Agbongua	47	Female	Oyster Trading
		Kadakie Keranteng	41	Female	Oyster Trading
		Martha Buernor	30	Female	Oyster Trading
		Mary Oha	40	Female	Oyster Trading
		Klomika Felicity	22	Female	Oyster Trading
		Ayeetey Adobea	25	Female	Oyster Trading
		Patience Wayagbor	25	Female	Oyster Trading
Community: Vodza District: Keta Municipal (Volta Region) Country: Ghana	29/11/2017	Nani Kukubor		Male	Stool Father
		Chaka Demabia Kukubor		Male	Stool Secretary
		Ben Atsu Kukubor		Male	Pump Attendant
		Edward Kukubor		Male	Carpenter
		Daniel Kukubor		Male	Teacher
		Sariki Gariba Haokimu		Male	Businessman
		Prosper Kukubor		Male	Pump Attendant
		John Daba Adikah		Male	Pensioner
		Dodzi Nyavor		Male	Electrician
		Sosu Makattah		Male	Fisherman
		Christopher Mensah		Male	Teacher
		Moses Nutsugah		Male	Fisherman
		Victor Ahedor		Male	Announcer
		Joshua Agbexudor		Male	Fisherman
		Mliwonor Fiatorwogbor		Male	Fisherman
		Kwashie Gawugah		Male	Fisherman
		Emmanuel Amekuedi		Male	Pensioner
Community: Woe District: Keta Municipal (Volta Region) Country: Ghana	28/11/17	Awleshi Azaglo		Female	Food Seller
		Kudedzi Judith		Female	Petty Trader
		Kudite Mary		Female	Petty Trader
		Yadome Beneditha		Female	Petty Trader
		Gawuga Patience		Female	Food Seller
		Kanitsi Confident		Female	Fish Monger
		Ameavor Doris		Female	Fish Monger
		Ameavor Esther		Female	Food Seller
		Sukumea		Female	Petty Trader
Community: Anloga /Alagbati/Alagbasi District: Keta Municipal (Volta Region) Country: Ghana	28/11/17	Lucky Deffore		Female	Fish Monger
		Esinam Whoenyegah		Female	Fish Monger
		Augestina Agbetshi		Female	Fish Monger
		Rose Abohor		Female	Fish Monger
		Patience Ativor		Female	Petty Trader
		Aforzazu Gakor		Female	Food Seller
		Lena Vormahor		Female	Petty Trader
		Awunor Kafui		Female	Student
		Nawukoenya Asimah		Female	Trader
		Klu Denueme		Male	Farmer
		Edward Adrnyi		Male	Fisherman
		Eril Fianoo Edem		Male	Student
		David Zaglago		Male	Fisherman
		Gbeve Benjamin		Male	Fisherman
		Peace Kusitor		Female	Trader
		Peace Agbonyo		Male	Petty Trader
		Hodogbe Emmanuel		Male	Fisherman
		Rose Kporxa		Female	Coconut Seller
		Governor Tamakloe		Male	Fisherman

iv. Côte d'Ivoire

~~iv.~~

The initial consultative process in Cote d'Ivoire held in 2017 was done through 14 private meetings with government bodies and program entities (see table 39). The mixed groups consultation counted with participation of vulnerable groups, government, and local community. From the 9 groups discussions held, four vulnerable groups where represented, and women participation was 27%. The project aims to improve women and vulnerable groups representation in in the decision making of the community and to leverage social inclusion.

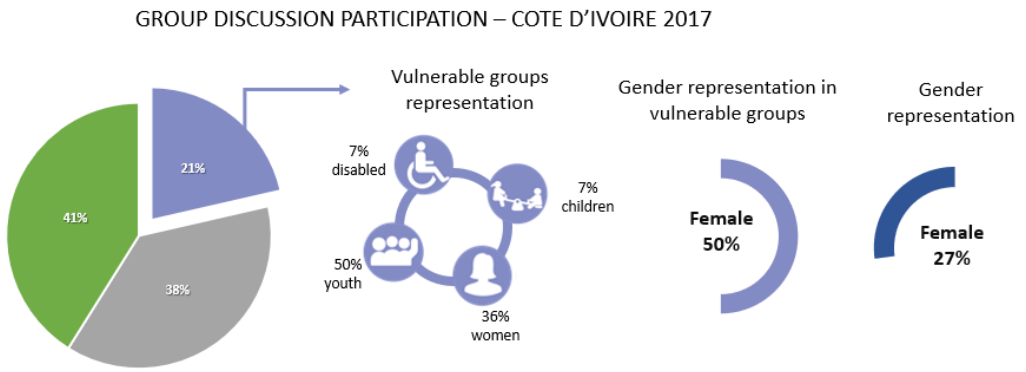

Table 41. Private meetings, Côte d'Ivoire

Date	Stakeholder,	Consultation objective	Outcome	Conclusion
13 nov 2017 Bonn / COP 23	Ministry of Urban Sanitation, Environment and Sustainable Development	- Agree on AF proposal priorities and target areas (districts level) - Understand national priorities - Identify relevant projects and lessons, concerns and complementary potential	- Agreement of roadmap for developing this proposal	- Invite both leading ministries for World Urban Forum 9 (7-13 Feb 2018) to discuss international cooperation and needs - Organise National – district workshop to agree on national – local implementation modality and interventions after the WUF
Through above ministry	Ministry of Construction, Housing, Sanitation and Urban Planning			
16 nov 2017	Cocody Department	- Agree on AF target areas (community level) - Identify focal point - Understand local issues and needs - Identify relevant projects and lessons, concerns and complementary potential	- Priority community: Cocody village, Blockhaus, M'pouto, M'Badon - Focal point: Mayor: N'goan Aka Mathias - M'Pouto: Ceke Nangai - M'Badon: Djoman Bogue	- Target communities identified - Mayor is a driver of eco-city concept and empahises the need to adapt to climate change – thus he could support political mobilization
16 nov 2017	Bingerville Department		- Priority community: Bingerville, Aghien, Akanje - Focal point: Mayor: Beugre Djoman - Aghien: Alle allee Jean Pierre - Bingerville: Bagodou Augustin - Akanje: Mobio	- Target communities identified - Use good practice of mangrove planting
17 nov 2017	Jacqueville Department		- Priority community: Gand-jacq, Techmien, Kouve; - Focal point: Aka Auguste (mayor_ - Grand-Jack: M Soppy Tiakpa Justin - Techmien: N'Geussan Francois	- Possibly utilise coping mechnanism of moving away from the shore in spatial planning approach - Location to understand possible impacts of WACA project in Grand-Lahou
17 nov 2017	Grand-Bassam Departments		- Priority community: Moossou and Quartier France - Focal point: Georges Ezalé, Mayor of Grand-Basam - Brindoumi, Chief Technical officer of the town hal - Aketchi Anselme, the **youth leader**	- Focus on possible involvement of hotels (i.e. private sector) in addressing erosion, possibly together with Assinie and Assouinde (which are tourism hotspots)
17 nov 2017	Port Bouet Department		- Priority community: centre and Adjoufou / Gonzagueville - Focal point: Tanoh (technical service of the Town hall)	- Coastal erosion main issue. Possibly involve tourism sector

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13 nov 2017	World Bank	- Agree on cooperation modality for potential coastal interventions in target areas - Understand main issues, concerns and needs in target areas / communities; - Understand relevant projects and lessons, concerns and complementary potential, esp WACA project	- Multi sector risk assessment has been done but not in Ghana - Based on the assessment, interventions will focus on eco-systems, stabilisation of the coast and opening of the lagune in Grand-Lahou worth US$ 30 m - They lack complementary spatial planning intervention and are very open to coordinate - Spatial planning important for ministry of Interior - There will be a regional climate change observatory	- Potentially complement WACA project with spatial planning element in Grand-Lahou - Involve ministry of Interior in project design •
13 nov 2017	AfDB	- Understand main issues, concerns and needs in target areas / communities; - Understand relevant projects and lessons, concerns and complementary potential, esp related to CC and urban development and AF projects	- AfdB uses ACCF to develop projects with national government for AF and GCF as a means to create government need for loans - No overlap with AF proposal and AfdB process is new and therefore not fast	- Monitor process of AF project development and potential link with forest livelihoods •
14 nov 2017	Abidjan Convention / UNEP	- Agree on cooperation modality for knowledge management - Understand main issues, concerns and needs in target areas / communities; - Understand relevant projects and lessons, concerns and complementary potential, esp related to Abidjan	- There will be a regional resource center funded by USAID and IBM - They have great knowledge of regional and national initiatives, projects and relevant documents which they will share - They suggested to use scenario's for interventions and emphasize using a blue economy (spatial planning) approach (tunring bad situations in opportunities)	- Use the regional resource center as the main platform for KM / lessons from this project - Identify potential other areas for cooperation - Consider using scenario's for proposed interventions and blue economy (spatial planning) approach
14 nov and 16 nov 2017	Université Felix Houphouet Boigny, Abidjan / CURAT (remote sensing and GIS)	- Understand main issues, concerns and needs in target areas / communities; - Understand relevant projects and lessons, concerns and complementary potential, esp government and NGO related projects - Discuss cooperation options for community assessments	- CURAT does modeling of coastal morphology and hydrology in target areas and can do impact assessments - Recent study: ocean current goes west – east except in Grand-Lahou and Grand-Bassam - They work with WACA project - There are 5 climate change / erosion hotspot areas in Côte d'Ivoire: Fresco, Grand-Lahou, Abidjan, Grand-Bassam and Assinie	- Focus on hotspot areas around Abidjan and Grand-Bassam (since WACA works in Grand-Lahou and USAID in Fresco - Cooperate to conduct community level surveys and focus group discussions - Consider working with CURAT to conduct EIA
17 nov 2017	Oceanographic Research Centre		- They have experience with conducting vulnerability assessments for the WB and USAID	- They are too expensive to conduct the vulnerability assessments at this stage
14 nov 2017	École d'architecture D'Abidjan		- Cocody has a good 'eco-city' plan with climate change being central - There is a need to better coordinate between the minstry of environment, departments and local planning - Director has experience with developing GEF project proposals	- Include Cocody most vulnerbale communities in project - Focus on integrating environmental / climate change risks in department and local spatial plans in target areas - Cooperate to conduct community level surveys and focus group discussions
13, 15 and 16 nov 2017	Earth Right Institute	- Understand main issues, concerns and needs in target areas / communities; - Understand relevant projects and lessons, concerns and complementary potential, esp. government and NGO related projects - Discuss cooperation options for implementing (part) of the climate change plan for Cocody.	- Showed us relevant departments and introduce dus to mayors - Option to involve ERI for conducting rapid community surveys with Oceanic research center	- Involve ERI for conducting rapid community surveys

Table 42. Focus group discussions, Côte d'Ivoire. The President of the women's associations was consulted, as well as women's agents

LOCATION	Date	NAME	SEX	OCCUPATION	CONTACTS
Community: Cocody village, Blockhaus, M'Pouto, M'Badon District: COCODY COMMUNE Country: CÔTE D'IVOIRE	06 - 31/12/17	N'GUESSAN M'Gbra Roger	Male	Director of the School of Architecture of Abidjan (EAA)	59 18 81 99
		IPOU Ahou Céline	Female	Journalist	07 62 28 33
		MOUSSAVOU Diaby Audrey	Female	(Diaspora CEDEAO agent)	08 48 47 27
		GOLE Lou Yolande	Female	Household	57 54 90 23
		FOFANA Souleymane	Male	Economic operator	08 08 54 57/02 88 38 04
		ANON Jules Narcisse Aholia	Male	Teacher	59 49 23 98/02 08 63 55
		ASSEMIAN Jude	Male	Economic operator	07 79 63 90
		APPIA Pascal Davis	Male	Artisans' teacher	47 80 47 11
		KOUADIO Arnaud	Male	Student	49 80 11 71
		N'FRANI Meya	Male	MJVC	58 35 36 88
		N'DRI KUOADIO Marcel	Male	AJDY	08 73 70 29/01 65 23 49
		KOUASSI Konan Eric	Male	President of the disabled	57 30 60 81
		SAHI Rémi	Male	Chiefs' President	05 79 21 47/09 79 47 68
		AKPOE NEE KONAN Affoué	Female	President of women's associations (Cocody)	78 03 99 83
		TIE Jeannette	Female	Trader	08 96 53 71
		YAPO Julienne	Female	Household	07 10 80 71
		NEME Gisèle	Female	Household	08 33 07 22
		N'GUESSAN	Female		
		MOUROUFIE	-		
		OUATTARA Adjara	Female	Cassava producer	07 92 62 68
		KOUAME AYA Antoinette	Female	Trader	07 96 75 00
Community: Akandjé District: BINGERVILLE DEPARTEMENT	06 - 13/12/17	MOBIO Atsin	Male	Customary Chief	07 83 68 50
Community: Aguien District: BINGERVILLE DEPARTEMENT	07/12/17	ALLE ALLE Jean	Male	Chief	
		DIDJA Boni	Male	Teacher	09 94 02 22
		DJOKRE Olivier	Male	Fisherman	44 25 79 25
		AKE Alice	Female	**Women's** agent	40 11 56 57
		MOBIO Jacqueline	Female	*Young woman*	42 20 62 98
		ALISSIKA Benjamin	Male	Farmer	41 48 43 93
		Yves	Male	*Young man*	
Community: Bingerville commune District: BINGERVILLE DEPARTEMENT	07 - 08/12/17	BAGODOU Augustin	Male	Secretary General of the Town Hall	89 10 08 93
		KOUASSI Monique	Female	Women's agent	07 51 20 61
		BEUGRE Jean-Martin	Male	Teacher	
		BOHOU Serge	Male	*Young man*	07 96 59 17
		ALLAH Grâce	Female	*Young woman*	09 11 88 61
Community: Port-Bouet Centre District: PORT-BOUET COMMUNE	06 - 13/12/17	TANOH	Male	Technical Manager of the Town Hall	
Community: Adjouffou/Gonzagueville District: PORT-BOUET COMMUNE	12-14/12/17	AMAN Niangran Arsène	Male	President of ACCQROB ("Alliance des Chefs de Communautés et de Quartiers Route de Bassam") Alliance of Community and Neighborhood Heads Bassam Road	41 10 28 43
		KOUAKOU Konan Anatole	Male	Chief	07 45 98 09
		TOUAN Nah Anatole	Male	Chief	07 65 69 27
		EHOUMAN Hyacynthe	Male	Chief	01 17 12 52
		EBI Kouakou	Male	Chief	41 52 53 65
		DRO Emile	Male	Chief	03 58 94 80
		GOH Diomandé	Male	Chief	07 43 10 41
		KETCHI Blaise	Male	Chief	47 89 76 07

Community: Moossou, Quartier France District: GRAND-BASSAM DEPARTMENT	06 - 31/12/17	EZALAY Georges Philippe	Male	Mayor of Grand-Bassam	
		ALLOU Georges	Male	King's Advisor	
		M'BALLA Gnoan Roger	Male	1rst King's Advisor	

Community: Tchemien District: JACQUEVILLE DEPARTMENT	10/12/17	N'GUESSAN François	Male	Chief of the village	59 35 63 48
		DOSSO Aboubacar	Male	School Director	48 90 75 23
		N'GUESSAN Avy Serges	Male	1st Notable and Secretary of the Chief	48 15 10 34
		YESSO Elise	Female	**Women's** President	59 88 15 08
		NOUFOU Seydou Pierre	Male	**Secretary of Youth**	04 52 10 75
		KODIA Ignace	Male	Planter	47 23 42 58
		AKA Evariste	Male	Fisherman / Alert Officer	08 50 44 34
Community: Grand-Jack District: JACQUEVILLE DEPARTMENT	06 - 13/12/17	SOPPY Tiakpa Justin	Male	Chief of the village	07 93 77 27
		BODO Ahui Samuel	Male	1st Notable	46 88 24 57
		LOGON Cyrille	Male	Spokesperson	47 13 46 99
		BODO Beugré	Male	School Director	07 06 98 66
		BABON Mathieu	Male	Planter	01 96 00 12
		AHUI Ezéckiel	Male	Resident	09 25 38 20
		OKPO Cyrille	Male	**Fishermen's leader**	47 37 98 08
		AMENAN Elisabeth	Female	**Women's President**	

II. Consultative process 2018

Table 43. Consultations 2018.

Date	Stakeholder	Consultation objective
07-13 February 2018 at World Urban Forum	Leading ministries from Ghana and Côte d'Ivoire	- Bring together leading ministries from Ghana and Côte d'Ivoire to: o Agree on regional approach and coordination mechanisms o Agree on / confirm list of priority interventions and target areas (especially related to larger interventions with potential international impacts)
March 2018 In Ghana and Côte d'Ivoire	Leading ministries and target districts in Ghana and Côte d'Ivoire	- Bring together leading ministries and target district / department governments in both Ghana and Côte d'Ivoire to: o Agree on implementation and coordination modalities o Agree on / confirm list of priority interventions and target communities (especially related to spatial / land use planning and larger interventions)
April 2018 In Ghana and Côte d'Ivoire	Target communities and vulnerable groups	- Agree on list of priority interventions at community level and understand specific needs and issues per vulnerable group.
April – November 2018	Institutions to develop required models and conduct assessments	- Develop models / collect data required to understand impact of proposed interventions - Conduct detailed vulnerability / risk mapping - Conduct impact assessments / risk screening of proposed interventions / feasibility studies
December 2018	Target communities and vulnerable groups in Ghana and Côte d'Ivoire	- Final selection / verification of proposed interventions by discussing the following criteria: o Benefits to communities / groups o Cost-effectiveness o Sustainability / maintenance arrangements o Environmental and social risks - Confirm / identify design needs per vulnerable groups of proposed interventions

III. Consultative process 2019

5. Ghana

Consultation in 2019 in Ghana was done through 13 private meetings with government bodies and program entities and 2 workshops (see table 44). Main stakeholders represented are academia, government and NGOs and programmes. Gender balance need to be addressed by the project to promote social inclusion.

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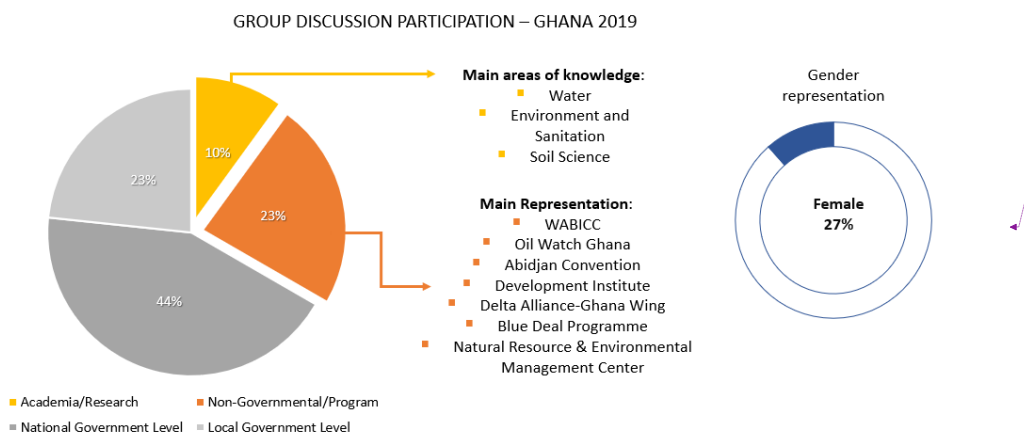

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Table 44. Overview consultations (private meetings and focus group discussions) mission April 2019

Date	Stakeholder,	Consultation objective	Outcome	Conclusion	Evidence		
3 April 2019 Accra	UNDP Gita Welch Resident representative Jennifer Asuako Programme Analyst (**gender**) Sylvia Sefakor Senu Economic analyst (**youth**)	- Identify relevant projects and lessons, concerns and complementary potential - Identify potential project risks and opportunities related to **gender and youth**	- No geographic overlap with UNDP projects - Compliment GEF Guinea project about marine ecosystems - Compliment REDD+ and GCF work on ecosystems - **Gender** issue: limited participation and platforms; men control resources, including land - **Youth** issue: want to be involved in new / innovative work - not conventional - Information could be shared through mobile phones	- Need to involve both men and **women** to address resource control issues - **Youth:** use youth groups / associations and focus on 'innovative' work such as ecotourism		 Technique: interview / discussion
3 April 2019 Accra	UNICEF Muhammad Rafiq Khan Chief of Child protection	- Identify relevant projects and lessons, concerns and complementary potential - Identify potential project risks and opportunities related to **gender and children**	- No geographic overlap with UNICEF projects - Cholera is an issue along the coast - Children issue: human trafficking due to reduction in fish stock (income) + high rate orphanages in Keta	- Project should focus on income for fishermen to avoid human trafficking		 Technique: interview / discussion
3 April 2019 Accra	Dutch embassy Janet Dufie Arthur Policy officer WASH	- Identify relevant projects and lessons, concerns and complementary potential •	- Relevant NGOs / organisations in the Volta area: IUCN, Both End and Wetlands international	- IUCN, Both End and Wetlands international to be coordinated by the Development Institute (partner UN-Habitat)		 Technique: interview / discussion
4 April 2019 Accra	UNCDF Angela Yayra Amoah National project coordinator	- Identify lessons learned Local project and climate change project	- UNCDF channels climate change funding from national level to local level using a performance-based approach for districts to use the funding - Buy-in communities is important	- Project could consider similar approach that UNCDF uses if not		 Technique: interview / discussion

		• approach		too may delays and if makes sense with already identified actions and executing entities	
4 April 2019 Accra	University of Ghana Ayaa K Armah Shrimp Marculture, coastal management, EIA, marine biodiversity conservation	- Understand EIAs requirements and process for Ghana	- Process can take up to 9 months but will include comprehensive assessment	- Consider Ayaa K. Armah for EIAs required by national law	 Technique: interview / discussion
5 April 2019 Accra	Ministry of Environment, science, technology and innovation Fredua Agyeman Director environment and AF DA	- Align with priorities ministry and discuss management arrangement - Compliance with rules, technical standards, and regulations	- Project is in line with priorities - Mr Agyman will appoint a focal point / deputy for the project to oversee it. - District assemblies (district chiefs) and traditional chiefs are key, also to mobilise communities; ensure capacity of district assemblies is build / sustained - Coordinate with WACA programme - Involve (the new) Coastal Development Authority (policy and coordination along the coast), EPA (environmental aspect of plans), NDPC, Hydrological authority and fishermen association	- See on the left - Development Institute to coordinate on the left	 Technique: structured interview / discussion + workshop
5 April 2019 Accra	Representatives from target districts, land use and spatial planning authority, university, NGO	- Agree on priority areas project - Agree on content components	- Component 1: work with land use and spatial planning authority and build capacity at district level; consider development of coastal / marine spatial plan (is a need, including study sediment flow etc.) - Component 2: involve district chiefs and traditional chiefs and **women and youth** (through community groups / association) and awareness through church - Component 3: involve Ministry of housing and construction for engineers (if needed) - Component 5: consider involving African center of coastal resilience – university of Cape (as they already monitor coastal erosion / sediment budget + coordinate with Coastal Development Authority		
8 April 2019 Ada West and communities	Ada West Hon A.L. Akrofi District chief executive Community representatives (chiefs, **women and youth organizations, elderly, fishermen, farmers**	- Through focus group discussions, align possible adaptation measures with district and community priorities (2019-2021 development plans) and assess feasibility and data gaps (with Arcadis)	Possible feasible adaptation measures related to coastal erosion / tidal / sea floods and siltation (sea level rise, storms, etc.) in line with priorities (in district development plans and confirmed by chiefs): - **Wokumagwe, Aklabanya and Goi** • Main issues: Erosion + coastal floods, Flash floods, Dry lagoon in dry season + loss of livelihood in lagoon • Possible adaptation measures: Coastal lagoon flood and drought management system + livelihood support (fish) • Lolonya: • Main issues: Erosion + coastal floods • Possible adaptation measures: Raising the barrier + planting vegetation (with sand already there and community already trying)		  Technique: structured interview / discussion
9 April 2019 Ada East and communities	Ada East Sarah Dukbakie Pobee District chief executive Community representatives (chiefs, **women**	- Through focus group discussions, align possible adaptation measures with district and community priorities (2019-2021	Possible feasible adaptation measures related to coastal erosion / tidal / sea floods and siltation (sea level rise, storms, etc.) in line with priorities (in district development plans and confirmed by chiefs): - **Azizanya / Kewunor**: • Main issues: Volta river and lagoon flooding; Limited livelihood options. • Possible adaptation measures: Mangrove planting to maintain sediment and regulate water with gateway to		

	and youth organizations, elderly, fishermen, farmers	development plans) and assess feasibility and data gaps (with Arcadis)	reduce flooding + livelihood support (fish, crabs and ecotourism) - Big Ada • Main issues: Volta flooding; Limited livelihood options (clams) • Possible adaptation measures: Mangrove planting + raising the barrier with sediment from river (in the middle) by community?	 Technique: structured interview / discussion
10 April 2019 Keta district and communities	Keta Oswald Etsey Kpodzo Community representatives (chiefs, **women and youth organizations, elderly, fishermen, farmers**	- Through focus group discussions, align possible adaptation measures with district and community priorities (2019-2021 development plans) and assess feasibility and data gaps (with Arcadis)	Possible feasible adaptation measures related to coastal erosion / tidal / sea floods and siltation (sea level rise, storms, etc.) in line with priorities (in district development plans and confirmed by chiefs): - Fuvemeh and **Agorkedzi** / **Dzita / Agbledomi** • Main issues: rapid erosion / disappearance community • No appropriate relocation option. • Possible adaptation measures: relocate – use existing pond for fish or related + ecotourism - Anloga (**Whuti** and **Lagbati**), **Woe** • Main issues: salt water intrusion due to coastal erosion, sea level rise and overuse boreholes– dying crops • Possible adaptation measures: Salt resilient crops + rainwater infiltration ponds / recharge groundwater; ecotourism - **Vodza** • Main issues: Coastal flooding into community • Possible adaptation measures: shape the beach with sand already there	  Technique: structured interview / discussion
12 April 2019 Accra	Ministry of Environment, science, technology and innovation Fredua Agyeman Director environment and AF DA	- Verify approach and agree on way forward	• Project management arrangements (organigram) to be prepared and agreed upon by Fedua	 Technique: structured interview / discussion + workshop
12 April 2019 Accra	Representatives from target districts, land use and spatial planning authority, university, NGO	- Verify / agree upon proposed adaptation measures - Get inputs on proposed adaptation measures - Agree on way forward	- Component 1: work with land use and spatial planning authority and build capacity at district level; consider development of coastal / marine spatial plan (is a need, including study sediment flow etc.) Align with ministry framework - Component 2: involve **district chiefs and traditional chiefs and women and youth** (through community groups / association); and awareness through church - Component 3: See above proposed measures - Component 5: consider involving African center of coastal resilience – university of Cape (as they already monitor coastal erosion / sediment budget + coordinate with Coastal Development Authority	
12 April 2019 Accra	Environmental Assessment and Audit Department of EPA Kwabena Badu-Yeboah Ag Director EAA	- Understand process to conduct EIAs required by national law	- Steps: 1. Prepare a list of proposed adaptation measures and discuss what exactly will be required 2. Register project 3. Conduct studies required by UN-Habitat	 Technique: structured interview / discussion

Table 45. Participation on the workshop for the Blue Deal Programme

Date	Stakeholder	Objective	Conclusion
8th October 9th October Sogakope	Blue Deal Programme team	Discuss complementarities and potential overlap with AF project. Presentation on updates of the AF project to main stakeholders.	Clear alignment between Blue Deal Programme future work in Ghana and UN-Habitat's AF proposal. Current challenge is the difference in timeframes. Well received presentation of UN-Habitat's project by all stakeholders, political will to support its implementation.

10th October Accra	Land Use Spatial Planning Authority	Discussion on component 1. Spatial Planning: objective, outcome, and budget.	Overall agreement with the Land Use Spatial Planning Authority on project component 1 on Spatial Strategies. Follow up on detailing collaboration and geographical scope.

v. Côte d'Ivoire

Consultation in 2019 in Cote d'Ivoire 12 private meetings with government bodies and program entities and 4 consultation with technical experts (see tables 46 and 47). Main stakeholders represented are the local community, academia, government and NGOs and programmes. For this consultation, no information on gender was gathered and the gender woman representation will be addressed by the project to promote social inclusion.

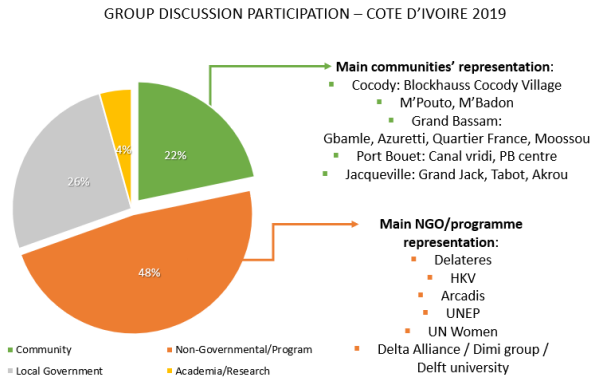

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Table 46. Overview consultations (private meetings and focused group discussions) mission April 2019

Date	Stakeholder	Consultation objective	• Conclusion	Evidence
11 April 2019 Abidjan	UNEP Angele Luh Resident representative	- Identify relevant projects and lessons, concerns and complementary potential - Ensure synergies between projects	- No geographic overlap with UNEP project - Compliment GCF project about mangrove ecosystems restoration in Cocody - Cocody Cité verte project; ensure complementarity and no duplication	 Technique: interview / discussion
11 April 2019 Abidjan	Ministry of Interior (DGDDL) Mr. Lazare Dago Djahi General secretary	- Inform the government of the work developed so far and detail components, agenda of the workshop and field mission and management arrangement - Understand the spatial planning structure and governance in Côte d'Ivoire. Which plans are existing and ongoing initiatives	- Project is in line with priorities of government - Project management arrangements (organigram) to be prepared - Component 1: work with Territorial collectivity, Environment Ministry and build capacity at Region and community level; consider development of local plans, Schema Regional Directeur and Agenda 21.	 Technique: interview / discussion
11 April 2019 Abidjan	Ministry of construction, housing and Urban Planning (MCLU) Mr Koalla Celestin Director of housing Mr. Alexandre Kouame General Director of urban planning and land	- Inform the government of the work developed so far and detail components - Align with priorities ministry - Understand the spatial planning structure and governance in Côte d'Ivoire.	- Project is in line with priorities of government - Schema Directeur d'Urbanisme du Grand Abidjan is developed and under revision - PUD (Not developed yet in target Communes) - Some communities have developed their plans de lotissements •	 Technique: interview / discussion

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12 April 2019 Abidjan	Ministries, Professors, Representatives from target departments, etc	- Agree on priority areas project - Agree on content components	- Component 1: work with Communities, Ministry of Environment, territorial collectivity (DGDDL), and build capacity at regional level and community level; consider development of local plans / Schema Regional de Grands Ponts, Agenda 21. - Need to Involve BNETD, MINEDD, Ministry of the City, Ministry of Interior under the aegis of the National Agency for Coastal Management for Coastal Law in the Schemes of planning - Component 2: involve **Municipality chiefs, community chiefs and women and youth** (through community groups / association) - Component 3 & 4: Include other vulnerable communities for Jacqueville and Grand Bassam - Component 5: creation of a Excellency center reuniting different institutions and university, necessity to collaborate with SODEXCAM and CRO for data collection and sharing	 Technique: structured interview / discussion + workshop
15 April 2019 Abidjan	UN Women Antonia N'Gabala Sodonon – Resident representative	- Identify relevant projects and lessons, concerns and complementary potential - Identify potential project risks and opportunities related to **gender and children**	- No geographic overlap with UN women projects - **Youth** issue: want to be involved in new/innovative work (incubator business) – poverty leading to prostitution, migration to cities for better opportunities, lack of education for children, child labor. - **Gender issue**: limited access to land; men control resources and land, migration issues; high rate of prostitution in cities - **Youth: use youth** groups / associations and focus on 'innovative' work such as ecotourism - UN Women developed partenariat with university to implement **gender** club for open discussion on issues (migration, etc)	 Technique: interview / discussion
15 April 2019 Abidjan Cocody communities (BlockhaussCocody Village, M'Pouto, M'Badon)	Cocody communities Municipality representatives (Direction Serv. Techniques) Community representatives (**chiefs, women and youth organizations, elderly, fishermen, farmers**	- Align possible adaptation measures with district and community priorities (2019-2021 development plans) and assess feasibility and data gaps (with Arcadis)	Possible feasible adaptation measures - Main issues: rapid Growth, reclamation of land using waste, sand, • No appropriate drainage system and sewage system. • Flooding, flash floods, lagoon pollution due to waste, loss of livelihood from the lagoon, loss of agriculture land. • Possible adaptation measures: development of plan to control urban growth, buffer zone (with public space or agriculture land) around the lagoon to prevent building use as environmental area. • Waste collection by communities (in collaboration with UNICEF *"conceptos plasticos*" initiative) •	  Technique: structured interview / discussion
16 April 2019 Grand Bassam communities (Gbamle, Azuretti, Quartier France, Moossou) and Port Bouet communities (Canal vridi, PB centre)	Grand Bassam and Port Bouet communities Municipality representatives (Direction Serv. Techniques) Community representatives (**chiefs, women and youth organizations, elderly, fishermen, farmers**	- Align possible adaptation measures with district and community priorities (2019-2021 development plans) and assess feasibility and data gaps (with Arcadis)	Possible feasible adaptation measures related to coastal erosion / sea floods, sea level rise, and salination of lagoon, etc. in line with priorities (confirmed by chiefs and municipality): - Grand Bassam (Gbamlé, Azzuretti, Quartier France, Moossou): • Main issues: coastal erosion; high waves intensity, flooding due to storms and high waves. Pollution in the lagoon, salinity of lagoon, Limited livelihood options, Deforestation of Mangrove for firewood • Possible adaptation measures: Mangrove planting to regulate water and reduce flooding + livelihood support (fish, crabs, etc), introduce crops for salty environment,	

			Ecotourism, beach sand nourishment for coastal protection - Port Bouet • Main issues: Coastal erosion; Flash floods, storms and high waves causing damages on infrastructures. Informal settlements close to the lagoon areas facing floodings. • Possible adaptation measures: given the high degree of erosion; building with nature would not be suitable solutions for this area. • Development of plan to control urban growth, buffer zone (with public space or agriculture land) around the lagoon to prevent building.	 Technique: structured interview / discussion
17 April 2019 Jacqueville communities (Grand Jack, Tabot, Akrou)	Jacqueville communities Municipality representatives (Direction Serv. Techniques) Community representatives (**chiefs, women and youth organizations, elderly, fishermen, farmers**	- Align possible adaptation measures with district and community priorities (2019-2021 development plans) and assess feasibility and data gaps (with Arcadis)	Possible feasible adaptation measures related to coastal erosion / sea floods, sea level rise, lagoon floodings and salination of lagoon, etc. in line with priorities (confirmed by chiefs and municipality): - Coastal communities (Akrou, Grand Jack, etc) • Main issues: Rapid Coastal erosion, coastal flooding, sea level rise, • Possible adaptation measures: Sand nourishment (shape the beach with sand already there) for coastal protection + ecotourism - Lagoon communities (Tabot) • Main issues: low depth of lagoon, salination and pollution of lagoon, use of pesticides for fishing leading to loss of livelihoods, open defection, mangrove deforestation • Possible adaptation measures: Salt resilient crops + fishing/crabs/ ponds, ecotourism, green belt, mangrove planting for livelihood support,	  Technique: structured interview / discussion
18 April 2019 Abidjan	Ministry of Environment Dr. Tangoua Kone – Direction de la lutte contre les Changements Climatiques – GCF Focal Point Dr.Akossi Oreste Santoni– Direction de la lutte contre les Changements Climatiques – AF Focal Point	- Discuss the work developed so far and detail components - Verify approach and agree on way forward	- Project is in line with priorities of government - No overlap with other national AF project and Regional project - Need to align with WACA project and compliment	
18 April 2019 Abidjan	UNICEF Mr. Aboubacar Kampo Resident representative	- Identify relevant projects and lessons, concerns and complementary potential - Identify potential project risks and opportunities related to **gender and children**	- No geographic overlap with UNICEF projects - Children issue: human trafficking due to reduction in fish stock (income) - Child labor issues => forced to work at very early age - HIV is a problem among **youth** (especially girls) community. - Social housing project initiative in collaboration with Colombian start up *"Conceptos plasticos"* using recycled plastic => to reduce waste pollution and avoid use of natural resources for construction (which is leading to erosion) -	 Technique: structured interview / discussion

19 April 2019 Abidjan	Ministries, Professors, Representatives from target departments, NGO, etc	- Verify / agree upon proposed adaptation measures - Get inputs on proposed adaptation measures - Agree on way forward	- Component 1: work with Communities, Ministry of Environment, territorial collectivity (DGDDL), and build capacity at regional level and community level; consider development of local plans / Schema Regional de Grands Ponts, Agenda 21. - Component 2: involve municipality **chiefs and traditional chiefs and women and youth** (through community groups / association) in the planning process and interventions strategies. - Component 3: See above proposed measures • Component 5: creation of a Excellency center reuniting different institutions and university, necessity to collaborate with SODEXCAM and CRO for data collection and sharing	 Technique: structured interview / discussion + workshop
19 April 2019 Abidjan	ANDE Agence Nationale de l'Environnement Mr. Amalan Sylvain - Chef de services EIES Mr. Kouassi Brou N'Gbin - Sous Directeur des evaluations environnementales et sociales	- Understand process to conduct EIAs required by national law	- Steps: 1. Prepare ToR 2. Validate by ANDE 3. Conduct Feasibility studies by aggregated consultant/company 4. Report - Validation by ANDE (2 months process)	 Technique: structured interview / discussion

Table 47. Consultations with international technical experts

Date	Stakeholder, incl. role / function	Consultation objective	Outcome	Conclusion
Many skype calls + 6 -10 nov 2017	Arcadis	- Discuss cooperation options - Identify technical intervention options and feasibility responding to local needs	- Arcadis joined the mission to Ghana - They did an assessment in greater Abidjan area with UN-Habitat before - Arcadis proposed possible technical interventions responding to local needs	- Conduct assessment together durig project development phase - Use proposed technical interventions that are relatively low-cost and focus on livelihood enhancement or protection
Many skype calls	Delateres	- Discuss cooperation options: - Understand causes of erosion from coastal morphology and dynamics, hydrology of the lagoons and environmental and social impacts of proposed interventions at local and regional scale	- They did some of the larger studies in Côte d'Ivoire on sedimentation, including for opening river mouth in Grand Bassam (to be done by Marocco but no funding) - They are interested in working together	- Possibly involve them when coastal morphology study is needed
Many skype calls	Delta Alliance / Dimi group / Delft university	- Discuss cooperation options - Identify main issues and needs in target areas and parallel academic programme	- Cooperate with Ghana Delta Wing - Consider cooperating on creating 'urban lab' in both countries	- Cooperation with Delta Wing in Ghana - Assist setting-up Delta wing in Côte d'Ivoire
Skype 29 nov	HKV consultatnts (in Ghana)	- Discuss complementary potential WB (GFDRR group) funded Greater Accra climate change risk mitigation strategy and investment plan - Discuss complementary potential UNDP / Royal Haskoning project community resilient for early warning in Ghana	- Great accra plan focuses on river in Accra - HKV developed risk / hot spot maps for greater Accra region - HKV will be 'Kernadviseur' from Dutch water sector	- They will share risk maps and relevant docs - Explore option to work together / build on their work for full proposal

IV. Consultative process 2020

Objective:to solicit views and concerns of the PAPs about the project interventions

6. Ghana

Consultation in 2020 in Ghana was done through 8 group discussions with the community members. Gender and vulnerable groups representation is illustrated in images. However, detailed data will be used in the project to address social inclusion.

~~6.~~

Table 48. Overview consultations (focused group discussions) during field work 2020.

Date	Stakeholder/Participants	Issues and Conclusion	Evidence
28/02/2020	Agbledomi (18 participants) Assemblyman, Fishermen, Opinion leaders etc Focal Point: Jasper Agbenator (0548302123)	Questions and issues raised: There is a deity associated with the lagoon. The name is called 'Detor'. Also, there are lagoon associated with deities such as Amekutoe, Vitame and Batɛmɛ. These lagoons used to be overseen by Batɛ clan. Are landowners willing to release land for mangrove restoration program? ANS: YES, we are willing to give our lands. Land ownership - Land is private and we are ready to give out lands where it is due.	
03/07/2020	Agorkedzi (11 participants) Focal Point: Moses Akorli (0249870973)	Will they nourish the beach for the community? ANS: No, the project will not do that. Heritage sites – Currently, there is not identified heritage site in the community. The deity identified here is called Mama Akorvi Land ownership - Land is private and we are ready to give out lands where it is due.	
13/07/2020	Akplabanya Fish Smokers Association (119 Participants); Community Members (17 participants) Focal Point: Frederick Labia (0246779145)	Will there be installation of machines or monitoring systems in the community to do anything with regards to coastal erosion? Heritage sites – Currently, there is not identified heritage site in the community. Land ownership - Land is private and we are ready to give out lands where it is due.	

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14/07/ 2020	Atiteti (11 participants) Refer to list of participants Focal Point: Agbanavor Raphael (0244044376)	Will the land eventually turn out to be owned by The UN-HABITAT/ The DI? ANS: No, The project belongs to the community and so with the CREMA model or approach, the community will be made to manage the project properly Heritage sites – Currently, there is not identified heritage site in the community. The deity so far identified is Nana Akigeli. Land ownership - Land is private and we are ready to give out lands where it is due.	
14/07/ 2020	Dzita (14 participants Focal Point: Agbotadua Ahevi (0244116528) (see above table)	Will there be installation of machines or monitoring systems in the community to do anything with regards to coastal erosion? Heritage sites – There is a shrine in the community called “Vitame” The shrine area is made up of small shrubs mixed tall trees (Neem tree, Grape tree and Efor)	
04/07/ 2020	Goi (16 participants Stool elder, Chief Fisherman, **Youth,** Focal Point: Nomo Tetteh Ruben Otisepeku (0247266003)	-Will drainage systems be constructed in the community to solve flooding issues around school and library? Will the sea affect the community when we deepen the lagoon Ans: The deepening of the lagoon will rather reduce flooding. Heritage sites – Currently, heritage site in the community close to the lagoon is called “Amalengor”.	
28/02/ 2020	Lagbati/Lashibi (20 participants) Focal Point: Mr. Agbota (0240989717)	Meeting commenced with prayer at 9:30 am and self-introduction Will the project give us saline crops to plant? ANS: Yes, this will help solve issue of crop that do not well in salty soils in your area Heritage site – None has been identified in the project area.	
15/07/ 2020	Whuti (43 members) Refer list Focal Point: Joseph Ali (0545165409)	Fear of Crop failure Destruction of agriculture We plead that land owners around the lagoons should be made to agree to the use of their lands during project implementation Lagoon erosion	

vi. Côte d’Ivoire

Consultation in 2020 in Cote d’Ivoire was done through 6 group discussions with the community members. Gender and vulnerable groups representation is illustrated in images. However, detailed data will be used in the project to address social inclusion.

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Table 49. Overview consultations (focused group discussions) during field work 2020.

Date	Stakeholder/Participants	Objective	Conclusion	Evidence
07 février 2020	AF focal point, Abidjan Convention, technical expert from WABICC, UN-Habitat	Expert group meeting for ESIA to validate final interventions and prepare for field work and consultations.	With the adequate studies, all interventions are suitable for the target areas both in socio-economic and environmental terms.	
17 mars 2020	42 participants.	Public consultation in Grand-Basssam as part of the participatory process of the ESIA. Validate final interventions.	- 83% of participants were favourable to the project and the interventions. - 11% were favourable but presented some concerns such as high technical capacities needed and compliance with technical standards.	
07 mai 2020	36 participants.	Public consultation in Jacqueville as part of the participatory process of the ESIA. Validate final interventions.	- 87% of participants were favourable to the project and the interventions. - Remaining 13% were favourable but presented some concerns such as ensuring social inclusion and realisation of environmental and social analysis.	
14 mai 2020	35 participants.	Workshop for the formalization and launching of the Technical Committee in Grand-Bassam as part of the participatory process of the ESIA.	- All stakeholders have been informed and the technical committee has been established.	
29, 30 juin et 01 et 07 juillet 2020	150 participants.	**Focused group discussions** in Grand-Bassam as part of the participatory process of the ESIA. Discuss the interventions with **women and youth**.	**Women and youth** agree on the relevance interventions have in their communities and vulnerable groups. They presented some concerns linked to implementation and maintenance that will be integrated for the execution.	
03, 04 et 10 juillet 2020	120 participants.	**Focused group discussions** in Jacqueville as part of the participatory process of the ESIA. Discuss the interventions with **women and youth.**	**Women and youth** agree on the relevance interventions have in their communities and vulnerable groups. They presented some concerns linked to implementation and maintenance that will be integrated for the execution.	

V. Consultative process 2021

The objective of this consultative process is to validate the pre-selected sites for project interventions

7. Côte d'Ivore

Consultation in 2021 in Cote d'Ivoire was done through group discussions and private meetings with vulnerable groups, government, and broad community participation. From the group's discussions held, 3 vulnerable groups where represented, and women participation was 14%. The project aims to improve women and vulnerable groups representation in in the decision making of the community and to leverage social inclusion.

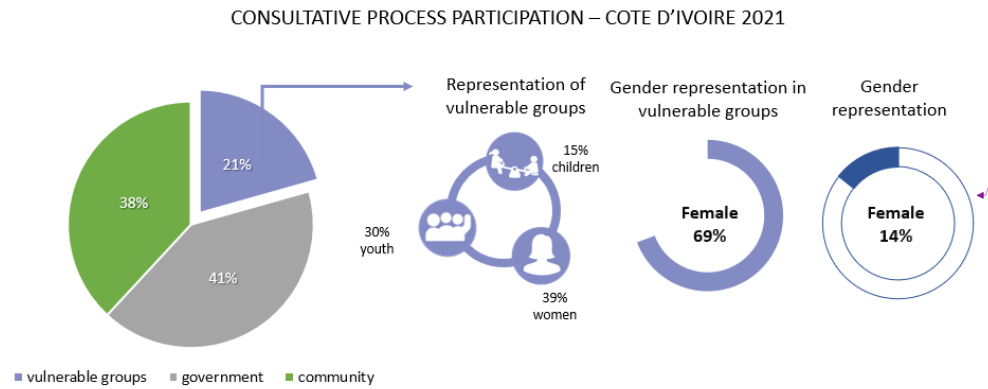

Table 5043. Overview consultations (private meetings and focus group discussions) during field work 2021.

Date	Stakeholder/Participants	Issues and Conclusion	Evidence
16/04/2021	Jacqueville Town Hall (Mayor, Technical Director and Project Manager/Focal Point – Geomatician) Mayor: Joachim BEUGRE - +2250709414118 Technical Directot: Likes Francis DJETY djetyaimefrancis@gmail.com +2250707878890 Project Manager/Focal Point – Geomatician – Romeo N'CHO romeo_ncho2015@outlook.com +2250777557845	The urban and land environment is particularly dynamic in this area where coastal land is the main source of income in the population. For a long time, Jacqueville has experienced a demographic and economic boom, however it has been exacerbated since 2013 after the bridge connection to Abidjan. Protected areas: There is a desire to preserve the space but little or no way to enforce a restriction on a protected area Like all coastal lands, Jacqueville are subject to significant erosion.	
16/04/2021	Attoutou B (2 participants) Focal Point: Innocent DATCHA BEUGRE (+2250504269279)	Project areas and land allocation: In Oftoutou A, the site is reserved for mangrove rehabilitation, currently is being exploited for pig farming. It also serves as a wild dump. Villagers burned up part of the area to make it accessible to plantations. The village has also a preservation area. In Taboth, the place for pen culture is preserved, the fishing activity is already in place, specially fisherwomen. There are women guards, with baskets like water tanks, selling fishing products.	

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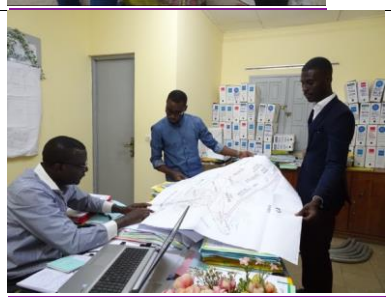
16/04/2021	Koko	In Koko, the mangrove to be rehabilitated has already been set up, as evidenced by a subdivision terminal that was found there.	
16/04/2021	Taboth	Project areas and land allocation: Pen culture system and mangrove rehabilitation Most of the inhabitants live from fishing and we meet on the water's edge, a kind of public square of the village, a group of about ten women who washed the crabs. They are aware of the project to set up aquaculture facilities.	
22/04/2021	Interview with local authorities – Grand Bassam Mr. Ayemou: Director of the technical department Mr. Brawa Ives Hermann: Assistant - Director of the technical department (0759952031)	Tourism remains the main source of economy of this city since the colonial period. Adding to cultural and recreational aspects, the religious aspect also attracts tourists to Grand Bassam. In addition to tourism, fishing is the subsistence activity of the **indigenous people** of the commune of Grand Bassam, **men practicing it preferentially at sea and women on the lagoon**. Protected areas: Buffer zone around Quartier France – an area of 552 HA In Azuretti, there is also a sacred lake and a sacred mangrove Soil fragility – Sandy structure that is not very rich and do not favor agriculture activity	
22/04/2021	Azuretti Focal point: Essouan Kouassi 0153504540 Gbamélé Focal point: Beged 07074322525 Mondoukou Focal point: 0707567981	Azuretti – Pen Culture System In this village, we met the chief and his notability as well as a **group of women from a socio-economic association**. They are all in favour of the project, it would be an alternative for their development and decrease poverty rate. For them, fishing is becoming more and more fruitless because the vessels they are subjected to excessive competition from large fishing vessels.	
22/04/2021	Vitré 2: Focal point: KOTCAH Wanga Moise – 0707433452 President of ADEPAV: YOBOU Albert – 0777883757 (association for fishing and agriculture with about forty members)	The population said that they were informed of the project and they participants were favourable to the project and the interventions.	

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ANNEX 5: ESIA-ESMP

Content:

I. Purpose

The purpose of this section is to demonstrate in an overview of how this project complies to the AF ESP, and, more in detail, of measures taken in the project design phase to ensure that the project promotes positive environmental and social benefits and avoids, reduces, or mitigates adverse environmental and social risks and impacts taking into consideration the 15 Adaptation Fund principles.
The Environmental and Social Management Plan (ESMP) forecasts, prevents, manages and mitigates the potentially negative impacts of the activities by minimising negative impacts on people and the environment. It further provides measures to uphold the principles throughout implementation.
This proposal and related country-specific ESIA-ESMP and consultation reports are accessible online through:

Ghana ESIA-ESMF report
Côte d'Ivoire ESIA ESMP report

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II. Process to comply with the AF ESP

To ensure compliance with the AF ESP, all proposed project activities have been screened against the 15 AF principles (i.e. safeguards) to identify potential environmental and social risks and to assess related potential impacts. Where risks have been identified, impact assessments have been conducted and where needed, measures to avoid or mitigate risks and impact, and monitoring arrangements have been detailed.

In particular, given the structure of the project, a general risk screening and ESMP was undertaken for each of the five components of the project (section iv of this Annex). In addition, a detailed risk screening and ESMP were processed for each output and activities comprised by components 3 and 4 (see Section iv - Annex 5). Thus, outputs under components 3 and 4 (section v of this annex) involve physical activities, and present a variety of aspects. The planned activities under project Component 3 and 4 may entail more risks than the planning and training activities under project Components 1,2 and 5.

Community surveys and public consultations were used to collect disaggregated data focused on climate change related issues, needs and perceptions of marginalized and vulnerable groups, activity prioritisation and the identification and verification of potential risks and impacts (see Annex 4) where needed measures to avoid or mitigate potential risks have been duly identified. The risk screening and design of the ESMP was conducted in collaboration with communities and local municipalities, and its outcomes were subject to public consultations/ disclosure (see Annex 4). The ESMP contains the risk impact assessment, mitigation measures and monitoring measures to address the risks identified through the screening.

III. Summary description of the project and rationale of the Annex

The project aims at **improving adaptation to climate-change risks in the coastal areas of the region.** Such goal is pursued through four objectives:

- **Objective 1: Support long-term spatial planning** to develop capacities and establish conditions to adapt to the adverse effects of climate change at national level and in vulnerable cities of Ghana and Cote d'Ivoire
- **Objective 2: Capacity Building** to strengthen this knowledge both for governmental institutions and communities, providing the tools for a more informed policy decision-making, and more resilient local practices.
- **Objective 3: Concrete adaptation interventions** to prepare, implement and sustainable manage priority sub-projects at the local level
- **Objective 4: Partnership building** to promote inter-country experience sharing and cross-fertilisation regarding the adaptation to transboundary climate-related natural hazards and disseminate lessons learned for progressively building urban climate resilience in coast West Africa.

Therefore, **there are five Project Components** (which will be described in more detail in Part II). Components 1 and 2 contribute to objective 1 and 2, components 3 and 4 contribute to objective 3, and component 5 contributes to objective 4. Physical interventions (components 3 and 4) of the projects focus on **Ghana and Côte d'Ivoire**, which are meant to serve as pilots for further upscaling in the sub-region (see component 5). More specifically:

- **Component 1**: Promote climate change resilient coastal development through sub-regional and district-level spatial development frameworks and to strengthen institutional capacities to develop, use and update these spatial frameworks. This is in line with AF outcomes: 2) Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses; 7 Improved policies and regulations that promote and enforce resilience measures;
- **Component 2**: Strengthen community awareness and capacities to adapt to climate-related coastal hazard and threats through community planning. This is in line with AF outcome: 3) Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level;
- **Component 3**: Increased climate change resilience of coastal areas through increased ecosystem / natural resource resilience. This is in line with AF outcomes: 5) Increased ecosystem resilience in response to climate change and variability-induced stress;
- **Component 4**: Increased climate change resilience of coastal communities through diversified and strengthened livelihoods. This is in line with AF outcomes: 6) Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas;
- **Component 5**: Development and diffusion of innovative (ecosystem-based solutions and building with nature) coastal climate change adaptation practices in West Africa, including establishment of an effective monitoring system for the proposed concrete adaptation measures. This is in line with AF outcome: 8) Support the development and diffusion of innovative adaptation practices, tools, and technology.

Here the project is presented at two levels. The first level is general, analysing all five components of the project (see Section iv of this Annex). The second level zooms into the activities belonging to components 3 and 4 (sub-projects implementation – the only level that includes physical interventions) because they require a more technical and detailed assessment and presents related risks and mitigation measures (see Section v of this Annex).

iv. Risk screening, categorization, and ESMP for all project Components

An initial screening and assessment process was carried out to identify and evaluate the environmental and social risks and impacts of proposed activities for the **entire project**. Due to the nature of some of the proposed sub-projects under Components 3 and 4, the entire project has been categorised as **Medium Risk / Category B** (See section II,L in the full proposal). Consequently, an ESMP was developed.
According to the Ghana's EIA Regulations, the project has been categorized as "Category B" project as well. An ESIA-ESMP study and report and consultations report have been prepared by an accredited consultant in Ghana. Although impact assessments were not required for all proposed projects under Ghana law, the study considered all project activities to comply to the AF ESP. According to the Côte d'Ivoire EIA Regulations, the project has been categorized as "Category B project as well. An ESIA-ESMP study and report and consultations report have been prepared by an accredited consultant in Ghana. Although impact assessments were not required for all proposed projects under Ghana law, the study considered all project activities to comply to the AF ESP.

In terms of process, normative, planning and capacity development activities under all components were screened against the 15 AF principles. Table 1 below shows the results of both the screening and ESMP for the five components. More specifically, for the screening part, it is specified whether the risks exist or not, for each principle and for each component, and when no risk is identified, the evidence for the absence of the risk is presented. In case risk is present, a description of the risk (a synthetic and qualitative assessment) is provided, and mitigation measures are proposed, as ESMP. Overall, results from this screening show that potential risks impacts are not considered to be significant, as the project activities were designed to minimise potential risks. Nevertheless, measures will be undertaken to ensure that no environmental or social impacts can occur. General monitoring measures are presented in **Part III, Section E** of the main project document.

In terms of methodology, both the screening and ESMP development were carried out adopting the ESP guidelines provided by the Adaptation Fund as a basis. From the guidelines, a list of questions and desk review resources necessary for screening the existence of risks under each principle were prepared. Results and, if required, mitigation measures emerged through field missions of environmental and social experts to all project sites, desk research, surveys, focus group discussions and community-led planning and decision-making processes. All steps, as mentioned under Section 2 of this annex, were presented for public disclosure in every city, the results of which are available in **Annex 4 (consultation).**

Table 1: Risk screening and ESMP for project Components 1, 2, 3, 4 and 5

Principle	Component 1: Promote climate change resilience through spatial development frameworks	Component 2:Resiliene building planning at community level	Component 3*: Transformative concrete ecosystem/natural resource adaptation interventions at sub-regional and district level *the screening and assessment of risks for this component are better presented in the table below, subproject by subproject. However, here the general assessment and measures are mentioned.	Component 4*: Catalytic concrete climate change adaptation interventions at community level *the screening and assessment of risks for this component are better presented in the table below, subproject by subproject. However, here the general assessment and measures are mentioned.	Component 5: Knowledge sharing and monitoring	Over all pre-senc e of the RISK within the proje ct
1.Compl iance with the Law	**Risk: NONE** Evidence: There are no obstacles to comply to national technical standards (see part II.F). No additional measures.	**Risk: NONE** Evidence: There are no obstacles to comply to national technical standards (see part II.F). No additional measures.	**Risk: NONE** Evidence: There are no obstacles to comply to national technical standards for developing sub-project implementation plans and technical studies (see part II.F). No additional measures.	**Risk: NONE** Evidence: There are no obstacles to comply to national technical standards for developing sub-project implementation plans and technical studies (see part II.F). No additional measures.	**Risk: NONE** Evidence: There are no obstacles to comply to national technical standards (see part II.F). No additional measures.	NON E
2.Acces s and equity	**Risk: YES** **Probability: low** **Significance: medium** Mitigation measures: Different stakeholders and groups will be mapped. The set-up of teams to be trained about the new frameworks, will ensure that equity is always put in place. In addition, the frameworks are designed talking into account the different groups and needs (based on consultation with authorities and socio-economic analysis of the context). This will ensure that results from the implementation of the frameworks promote equity.	**Risk: YES** **Probability: low** **Significance: medium** Mitigation measures: Different stakeholders and groups will be mapped. The set-up of teams to be trained about the new frameworks, will ensure that equity is always put in place. In addition, the frameworks are designed talking into account the different groups and needs (as already initialized in the preparation of the project: see annex 4 for consultation). This will ensure that results from the implementation of the frameworks promote equity.	**Risk: YES** **Probability: positive** **Significance: medium** Mitigation measures**:** Although the project preparation process has been fully participatory, there can still be a risk of non-equal participation / representation and decision-making during project implementation activities; thus this needs to be avoided. Implementation activities will be presented to the different communities and their perception will be included. In addition, controls will be set up to ensure implementation activities keep including representatives from all groups of the communities (with a particular focus on vulnerable and marginalized group: see under principle 3 here below).	**Risk: YES** **Probability: positive Significance: medium** **Mitigation measures:** Although the project preparation process has been fully participatory, there can still be a risk of non-equal participation / representation and decision-making during project implementation activities; thus this needs to be avoided. Implementation activities will be presented to the different communities and their perception will be included. In addition, controls will be set up to ensure implementation activities keep including representatives from all groups of the communities (with a particular focus on vulnerable and marginalized group: see under principle 3 here below).	**Risk: YES** **Probability: low** **Significance: medium** Mitigation measures: As for component n1 and 2 of the project, different stakeholders and groups will be mapped. The development of guidelines will be designed talking into account the different groups and needs (as already initialized in the preparation of the project: see annex 4 for consultation). In addition, the organization of trainings will be useful tool to ensure that equity is always put in place. To conclude, Equality and access will be highlighted as aspects in the cross-fertilization and lesson-learned mainstreaming.	YES
3.Vulner able and marginal ized groups	**Risk: YES** **Probability: low** **Significance: medium** Mitigation measures: As mentioned under principle 2, risk of non-equal participation of all groups: inclusion of vulnerable groups must be ensured.	**Risk: YES** **Probability: low** **Significance: medium** Mitigation measures: As mentioned under principle 2, risk of non-equal participation of all groups: inclusion of vulnerable groups must be ensured.	**Risk: YES** **Probability: positive** **Significance: medium** Mitigation measures: In the target communities, women, children/children and elderly and disables represent the most marginalized groups in the target areas. Detailed mapping of the most vulnerable people in the specific area of intervention will	**Risk: YES** **Probability: positive Significance: medium** Mitigation measures: In the target communities, women, children/children and elderly and disables represent the most marginalized groups in the target areas. Detailed mapping of the most vulnerable people in the specific area of intervention will be realized. Final specifications of the subprojects will be presented and	**Risk: YES** **Probability: low** **Significance: medium** Mitigation measures: even though at this level the participation of communities is lower than for components 3 and 4, activities under these components will ensure that the voice of most marginalized and vulnerable groups is included and heard.	YES

	Thus, they will be equally involved in the training and their voice will be included.	Thus, they will be equally involved in the training and their voice will be included.	be realized. Final specifications of the subprojects will be presented and discussed with representatives from the most vulnerable/marginalized categories of people/households (in particular women, youth, elderly and disables). Work plan and indicative timeframe will be presented and discussed in "safe" platforms. Communication channels with vulnerable people/households will be established. To conclude, requirements for employment (for the different positions) will be drafted in consultations with representatives of the women, youth and disables for ensuring equal access to job opportunities.	discussed with representatives from the most vulnerable/marginalized categories of people/households (in particular women, youth, elderly and disables). Work plan and indicative timeframe will be presented and discussed in "safe"' platforms. Communication channels with vulnerable people/households will be established. To conclude, requirements for employment (for the different positions) will be drafted in consultations with representatives of the women, youth and disables for ensuring equal access to job opportunities.	Additionally, the inclusion of most vulnerable and marginalized groups will be highlighted as aspect in the cross-fertilization and lesson-learned mainstreaming.	
4.Human rights	**Risk: NONE** Evidence: it is in the mandate of the UN to ensure that human rights are ensured. All activities have been designed and controlled to support this principle: the project will, in the contrary, increase the quality of life of people and better ensure human rights in the practice. To conclude, compliance with the law (see principle 1) of the countries involved reinforce the compliance with this principle.	**Risk: NONE** Evidence: it is in the mandate of the UN to ensure that human rights are ensured. All activities have been designed and controlled to support this principle: the project will, in the contrary, increase the quality of life of people and better ensure human rights in the practice. To conclude, compliance with the law (see principle 1) of the countries involved reinforce the compliance with this principle.	**Risk: NONE** Evidence: it is in the mandate of the UN to ensure that human rights are ensured. All activities have been designed and controlled to support this principle: the project will, in the contrary, increase the quality of life of people and better ensure human rights in the practice. To conclude, compliance with the law (see principle 1) of the countries involved reinforce the compliance with this principle.	**Risk: NONE** Evidence: it is in the mandate of the UN to ensure that human rights are ensured. All activities have been designed and controlled to support this principle: the project will, in the contrary, increase the quality of life of people and better ensure human rights in the practice. To conclude, compliance with the law (see principle 1) of the countries involved reinforce the compliance with this principle.	**Risk: NONE** Evidence: it is in the mandate of the UN to ensure that human rights are ensured. All activities have been designed and controlled to support this principle: the project will, in the contrary, increase the quality of life of people and better ensure human rights in the practice. To conclude, compliance with the law (see principle 1) of the countries involved reinforce the compliance with this principle.	NONE
5. Gender equality and women's empowerment	**Risk: YES** **Probability: low** **Significance: medium** Mitigation measures: risk of unfair access to trainings due to gender issues does exist: activities under this component will ensure that women are fairly included and represented in the trainings; and their voice considered in the guidelines development.	**Risk: YES** **Probability: low** **Significance: medium** Mitigation measures: risk of unfair access to trainings due to gender issues does exist: activities under this component will ensure that women are fairly included and represented in the trainings; and their voice considered in the guidelines development. In addition, to ensure not only their formal presence, but their real contribution to the projects, community associations and	**Risk: YES** **Probability: low** **Significance: medium** Mitigation measures: In the subprojects implementation, women might not be considered appropriate or discourage women to apply. Community associations and groups leaders will be sensitized on the role of the women in the communities/households and to capture their needs and perceptions. Protective measures, fair salary for the required work positions will be	**Risk: YES** **Probability: low** **Significance: medium** Mitigation measures: In the subprojects implementation, women might not be considered appropriate or discourage women to apply. Community associations and groups leaders will be sensitized on the role of the women in the communities/households and to capture their needs and perceptions. Protective measures, fair salary for the required work positions will be developed and shared to encourage women to apply. During implementation, jobs times table will	**Risk: YES** **Probability: low** **Significance: medium** Mitigation measures: activities under this component will ensure that the voice of women is included and heard. Gender equality will be highlighted as aspect in the cross-fertilization and lesson-learned mainstreaming, and needs of women have to be recorded and considered.	YES

		groups leaders will be sensitized on the role of the women in the communities/households and to capture their needs and perceptions.	developed and shared to encourage women to apply. During implementation, jobs times table will be developed in way to respect (meet) women household responsibilities.	be developed in way to respect (meet) women household responsibilities.		
6. Core labour rights	**Risk: YES** **Probability: low** **Significance: medium** Evidence: Participation to capacity-building activities is voluntary and all activities are provided to beneficiaries free of charge. When contracting is required, national standard clauses will be addressed. For local contracts NOT all the ILO standards and principles are clearly regulated and exercised in the 2 national labour legislations. In agreement with the government and communities, inclusion of minimum social security, occupation safety and health as in the ILO conventions measures when contracting community member and local enterprises. All the employment contracts will be in written documents and registered according to the Countries labour law and conditions in line with other similar work as public works. To conclude, safe spaces for labours complains, dissatisfaction will be established.	**Risk: YES** **Probability: low** **Significance: medium** Evidence: Participation to capacity-building activities is voluntary and all activities are provided to beneficiaries free of charge. When contracting is required, national standard clauses will be addressed. As mentioned under component 1, for local contracts NOT all the ILO standards and principles are clearly regulated and exercised in the 2 national labour legislations. Mitigation measures to be adopted are the same mentioned under component 1.	**Risk: YES** **Probability: positive** **Significance: medium** Mitigation measures: The 2 Countries present a labour law, nevertheless NOT all the ILO standards and principles are clearly regulated and exercised in the 2 labour legislations especially the ones related to social security and occupational safety and health (for 2a and 3a below)	**Risk: YES** **Probability: positive Significance: medium** Mitigation measures: The 2 Countries present a labour law, nevertheless NOT all the ILO standards and principles are clearly regulated and exercised in the 2 labour legislations especially the ones related to social security and occupational safety and health (for details see table 2b and 3b below)	**Risk: YES** **Probability: low** **Significance: medium** Evidence: Participation to cross-fertilization activities is voluntary and all activities are provided to beneficiaries free of charge. When contracting is required, national standard clauses will be addressed. As mentioned under component 1 and 2, for local contracts NOT all the ILO standards and principles are clearly regulated and exercised in the 2 national labour legislations. Mitigation measures to be adopted are the same mentioned under component 1.	YES
7. Indigenous people	**Risk: NONE** Evidence: No indigenous people have been identified in target areas. NGO's, Municipalities, communities have been consulted (see annex 4). No additional measures.	**Risk: NONE** Evidence: No indigenous people have been identified in target areas. NGO's, Municipalities, communities have been consulted (see annex 4). No additional measures.	**Risk: NONE** Evidence: No indigenous people have been identified in target areas. NGO's, Municipalities, communities have been consulted (see annex 4). No additional measures.	**Risk: NONE** Evidence: No indigenous people have been identified in target areas. NGO's, Municipalities, communities have been consulted (see annex 4). No additional measures.	**Risk: NONE** Evidence: No indigenous people have been identified in target areas. NGO's, Municipalities, communities have been consulted (see annex 4). No additional measures.	NONE
8. Involuntary resettlement	**Risk: NONE** Evidence: The activities related to this output do not present any risk of resettlement, since they do	**Risk: NONE** Evidence: The activities related to this output do not present any risk of resettlement, since they do not imply any physical	**Risk: NONE** Evidence: The activities related to this output do not present any risk of resettlement (for details	**Risk: NONE** Evidence: The activities related to this output do not present any risk of resettlement (for details see the table 2b below). No additional measures.	**Risk: NONE** Evidence: The activities related to this output do not present any risk of resettlement, since they do not	NONE

	not imply any physical intervention. No additional measures.	intervention. No additional measures.	see the table 2a below). No additional measures.		imply any physical intervention. No additional measures.	
9. Protection of natural habitats	**Risk: NONE** Evidence: Despite the presence of the critical natural habitats in some of the project areas, the activities related to this output do not present any risk for the natural critical habitats, since they do not imply any physical intervention.	**Risk: NONE** Evidence: Despite the presence of the critical natural habitats in some of the project areas, the activities related to this output do not present any risk for the natural critical habitats, since they do not imply any physical intervention.	**Risk: YES** **Probability: positive** **Significance: medium** Even though the activities are meant to restore and protect habitats, sand-related interventions may un-intentionally trigger minor risks due to organisms present in the sand used. Mitigation measures, organized by group, are presented in tables 3a below.	**Risk: NONE** Evidence: Activities under this component do not have a direct effect on protected areas and habitat (for details see table 2b below)	**Risk: NONE** Evidence: Despite the presence of the critical natural habitats in some of the project areas, the activities related to this output do not present any risk for the natural critical habitats, since they do not imply any physical intervention.	YES
10. Conserving biodiversity	**Risk: NONE** Evidence: Despite the presence of the areas considered relevant for biodiversity in some of the project areas, the activities related to this output do not present any risk for the biodiversity, since they do not imply any physical intervention.	**Risk: NONE** Evidence: Despite the presence of the areas considered relevant for biodiversity in some of the project areas, the activities related to this output do not present any risk for the biodiversity, since they do not imply any physical intervention.	**Risk: YES** **Probability: positive** **Significance: medium** Mitigation measures: As for principle 9, Even though the activities are meant to restore and protect habitats, sand-related interventions may un-intentionally trigger minor risks due to organisms present in the sand used. Mitigation measures, organized by group, are presented in tables 3a below. Mitigation measures, organized by group, are presented in tables 2a and 3a below.	**Risk: NONE** Mitigation measures: there are not species at risk within the project area, and sub-projects will only make use of native species for both pens and crops (see Annex 8 with sub-project sheets for further details).	**Risk: NONE** Evidence: Despite the presence of the areas considered relevant for biodiversity in some of the project areas, the activities related to this output do not present any risk for the biodiversity, since they do not imply any physical intervention.	YES
11. Climate change	**Risk: YES.** Mitigation measure: This component of the project does not imply any physical intervention, hence none of the sectors considered key causes of GHG emissions are involved. However, flights and transportation needed for meetings and missions will result in GHG released. Impact must be considered marginal. However, ecosystem restoration under component 3 (such as mangrove restoration activities) can be considered a mitigation measure.	**Risk: YES.** Mitigation measure: This component of the project does not imply any physical intervention, hence none of the sectors considered key causes of GHG emissions are involved. However, flights and transportation needed for meetings and missions will result in GHG released. Impact must be considered marginal. However, ecosystem restoration under component 3 (such as mangrove restoration activities) can be considered a mitigation measure.	**Risk: NO** According to the IPCC Guidelines for national GHG inventories, relevant sectors to focus on when considering GHG emissions are not involved in the activities comprised by this component.	**Risk: NO** According to the IPCC Guidelines for national GHG inventories, relevant sectors to focus on when considering GHG emissions are not involved in the activities comprised by this component.	**Risk: YES.** Mitigation measure: This component of the project do not imply any physical intervention, hence none of the sectors considered key causes of GHG emissions are involved. However, flights and transportation needed for meetings and missions will result in GHG released. Impact must be considered marginal. However, ecosystem restoration under component 3 (such as mangrove restoration activities) can be considered a mitigation measure.	YES

12. Pollution and resource efficiency	**Risk: NONE** Evidence: The activities related to this output do not present any risk of overuse of resources or pollution, since they do not imply any physical intervention and no polluting activities are put in place. Similarly, no risk of overuse of energy is put in place. To conclude, the only risk related to this principle is related to GHG emission, already addressed under principle 11. Hence, the only risk under this principle is already described under principle 11, as for the mitigation measures.	**Risk: NONE** Evidence: The activities related to this output do not present any risk of overuse of resources or pollution, since they do not imply any physical intervention and no polluting activities are put in place. Similarly, no risk of overuse of energy is put in place. To conclude, the only risk related to this principle is related to GHG emission, already addressed under principle 11. Hence, the only risk under this principle is already described under principle 11, as for the mitigation measures.	**Risk: YES** **Probability: positive** **Significance: medium** Mitigation measures: some of the subprojects (the ones involving sand movements) may trigger the risk of overuse of resources. Description of the risk and mitigation measures, organized by group, are presented in tables 2a and 3a below. No pollution, nor overuse of energy is triggered by the subprojects.	**Risk: NONE** No overuse of resources, pollution, nor overuse of energy is triggered by the subprojects under this component (for details see table 2b below)	**Risk NONE** Evidence: The activities related to this output do not present any risk of overuse of resources or pollution, since they do not imply any physical intervention and no polluting activities are put in place. Similarly, no risk of overuse of energy is put in place. To conclude, the only risk related to this principle is related to GHG emission, already addressed under principle 11. Hence, the only risk under this principle is already described under principle 11, as for the mitigation measures.	YES
13. Public health	**Risk: NONE** Evidence: considering the guides for health assessments provided by WHO (www.who.int/hia/evidence/doh/en/index5.htlm, see tables 2a and 2b below), the activities under these outputs have a positive or neutral effect on the determinants of public health. More specifically, activities will have and indirect positive impact on democracy, employment/ education, physical environment, and living habitats. Activities will have neutral impact on financial security, social network, access to health care, and belief in the future. Hence, no risk for public health.	**Risk: NONE** Evidence: considering the guides for health assessments provided by WHO (www.who.int/hia/evidence/doh/en/index5.htlm, see tables 2a and 2b below), the activities under these outputs have a positive or neutral effect on the determinants of public health. More specifically, activities will have and indirect positive impact on democracy, employment/ education, physical environment, and living habitats. Activities will have neutral impact on financial security, social network, access to health care, and belief in the future. Hence, no risk for public health.	**Risk: NONE** The activities do not impact on any of the determinants of health listed by WHO and listed in the table below. On the contrary, subprojects positively contribute to some dimensions of public health. Description of the risk screening per subproject is presented in table 2a below.	**Risk: NONE** The activities do not impact on any of the determinants of health listed by WHO and listed in the table below. On the contrary, subprojects positively contribute to some dimensions of public health. Description of the risk screening per subproject is presented in table 2b below.	**Risk: NONE** Evidence: considering the guides for health assessments provided by WHO (www.who.int/hia/evidence/doh/en/index5.htlm, see tables 2a and 2b below), the activities under these outputs have a positive or neutral effect on the determinants of public health. More specifically, activities will have and indirect positive impact on democracy, employment/ education, physical environment, and living habitats. Activities will have neutral impact on financial security, social network, access to health care, and belief in the future. Hence, no risk for public health.	NONE
14. Physical and cultural heritage	**Risk: NONE** Evidence: The activities under this component do not present any risk for the heritage, since they do not imply any physical intervention. Hence, no risk.	**Risk: NONE** Evidence: The activities under this component do not present any risk for the heritage, since they do not imply any physical intervention. Hence, no risk.	**Risk: NONE** Evidence: No physical and cultural heritage is present within (or in the immediate surroundings) of the project areas. Hence, no risk.	**Risk: NONE** Evidence: No physical and cultural heritage is present within (or in the immediate surroundings) of the project areas. Hence, no risk.	**Risk: NONE** Evidence: The activities under this component do not present any risk for the heritage, since they do not imply any physical intervention. Hence, no risk.	NONE
15. Land and soil erosion	**Risk: NONE** Evidence: Despite the presence of the valuable lands or degraded land to presence in some of the project areas, the activities under this	**Risk: NONE** Evidence: Despite the presence of the valuable lands or degraded land to presence in some of the project areas, the activities under this component	**Risk: NONE** Evidence: There valuable and fragile lands within the project area. However, sub-projects are design for restoring and protecting such land and soil from	**Risk: NONE** Activities under this component, because of their nature, do not represent a risk for fragile soil. On the contrary, activities related to salt-resilient crops, are meant to decrease the pressure of cultivations on the	**Risk: NONE** Evidence: Despite the presence of the valuable lands or degraded land to presence in some of the project areas, the activities under this component do not present any	NONE

Field Code Changed

Field Code Changed

Field Code Changed

	component do not present any risk or land degradation and no risk for valuable lands, since they do not imply any physical intervention.	do not present any risk or land degradation and no risk for valuable lands, since they do not imply any physical intervention.	erosion (for further details see table 2a below)	environment, compared to existing crops and agricultural practices. More detailed risk screening for the subprojects is presented in table 2b below.	risk or land degradation and no risk for valuable lands, since they do not imply any physical intervention.	

v. Detailed screening and ESMP for Component 3 and 4 (including monitoring)

As mentioned above, all outputs are related sub-projects for Components 3 and 4, are presented in detail in Annex 8). During project preparation some potential risks were identified, however, most are not significant. Project activities are generally small-scale (community scale), with few exceptions. The physical interventions will mostly be managed by trained community groups with the support of local authorities. Thanks to this strong community involvement, environmental and social impacts will be minimised. This means that the potential for direct impacts is small and localised, with non-significant indirect impacts, and that transboundary impacts are highly unlikely. Given this, cumulative impacts are also unlikely. The risk screening for all activities under Components 3 and 4 is presented in Table 2a (Component 3) and 2b (Component 4).

***Table 2a**: Risk screening for project Components*

Component 3	
Principle 1, COMPLIANCE WITH THE LAW. Risk: NO Approach: to assess whether the project will comply with applicable domestic and international law, legal and regulatory frameworks relevant to each sub-project that may require prior permission (such as planning, environmental, construction, water extraction, emissions or production/storage of harmful substances permits) were duly analysed. For each such requirement, the current status, steps already taken and plan to achieve compliance with relevant legislation is outlined in Part II of the proposal, Section F. Based on the detailed evidence for each sub-project, no risk is triggered.	
Principle 2, ACCESS AND EQUITY. Risk: YES. Approach: a risk analysis has been undertaken to assess the provision of: (i) fair and impartial active participation by all groups in all planned activities; (ii) equitable access to benefits from all planned activities, in an inclusive manner that does not impede access to any rights and essential services such as basic health, clean water and sanitation, education, housing, safe and decent working conditions and land rights. The same analysis assessed whether the project exacerbates existing inequities, particularly with respect to marginalised or vulnerable groups. The analysis was carried out through surveys during field missions, collecting information and perceptions from local governments, communities and other stakeholders. In conducting the risk screening surveys, social data and information related to the target communities and vulnerable groups (see Annex 6) was gathered, which served as basis for the assessment. The survey results for Keta, Ada East, Ada West, Grand Bassam, and Jacqueville are presented in Annex 6.	
Outputs	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
3.1.1. **Mangrove restoration** in Keta (G)	**YES.** There is a risk to not sufficiently take into consideration the specific needs and/or to not actively involve specific community groups given traditional habits and stereotypes for women, low-educated people and seasonal migrant families. This may result in: (i) low participation in awareness-raising activities around ecosystem services, climate change and livelihoods; (ii) community conflict around environmental resources usage (wood usage and river fishing); and (iii) exclusion/discrimination of particular community groups (e.g. people living with low incomes, women, older persons, children and persons with disabilities) from designing/benefitting from planting activities. WHY RISK COULD NOT BE AVOIDED: the social composition of the target communities makes the risk of non-compliance to the principle a possibility.
3.2.1 **Coastal lagoon erosion** in Ada East (G) 3.2.2. Coastal lagoon erosion in Ada West (G) 3.2.3. Coastal lagoon erosion in Keta (G)	**YES.** There is a risk to not sufficiently take into consideration the specific needs and/or to not actively involve specific community groups given traditional habits and stereotypes for women, low-educated people and seasonal migrant families. This may result in: (i) low participation in awareness-raising activities around ecosystem services, climate change and livelihoods; (ii) community conflict around environmental resources usage (fishing). WHY RISK COULD NOT BE AVOIDED: the social composition of the target communities makes the risk of non-compliance to the principle a possibility.
3.3.1. **Mangrove restoration along the coast and lagoons** in Grand Bassam (Cdl) 3.3.2. Mangrove restoration along the coast and lagoons in Jacqueville (Cdl)	**YES.** There is a risk to not sufficiently take into consideration the specific needs and/or to not actively involve specific community groups given traditional habits and stereotypes for women, low-educated people and seasonal migrant families. This may result in: (i) low participation in awareness-raising activities around ecosystem services, climate change and livelihoods; (ii) community conflict around environmental resources usage (wood usage and river fishing); and (iii) exclusion/discrimination of particular community groups (e.g. people living with low incomes, women, older persons, children and persons with disabilities) from designing/benefitting from planting activities. WHY RISK COULD NOT BE AVOIDED: the social composition of the target communities makes the risk of non-compliance to the principle a possibility.
3.4.1. **Sand nourishment** along the coast in Grand Bassam (Cdl)	**YES.** There is a risk to not sufficiently take into consideration the specific needs and/or to not actively involve specific community groups given traditional habits and stereotypes for women, low-educated people and seasonal migrant families. This may result in: (i) low participation in awareness-raising activities around ecosystem services, climate change and livelihoods; (ii) community conflict around environmental resources usage (fishing). WHY RISK COULD NOT BE AVOIDED: the social composition of the target communities makes the risk of non-compliance to the principle a possibility.
3.5.1. **Embankment of lagoons** in Jacqueville (Cdl)	**YES.** There is a risk to not sufficiently take into consideration the specific needs and/or to not actively involve specific community groups given traditional habits and stereotypes for women, low-educated people and seasonal migrant families. This may result in: (i) low participation in awareness-raising activities around ecosystem services, climate change and livelihoods; (ii) community conflict around environmental resources usage (fishing). WHY RISK COULD NOT BE AVOIDED: the social composition of the target communities makes the risk of non-compliance to the principle a possibility.
Principle 3, MARGINALIZED AND VULNERABLE GROUPS. Risk: YES. Approach: a risk screening was undertaken to: (i) make sure that the marginalised and vulnerable groups are not excluded from any activities as a consequence of lower motivation, weaker social status, sense of disempowerment and/or lack of skills or knowledge; (ii) to take into consideration their needs/perceptions; and (ii) to avoid imposing any disproportionate adverse impacts on marginalised and vulnerable groups especially children, women and girls, older persons, indigenous people, tribal groups, displaced people, refugees, persons with disabilities, and people living with HIV/AIDS or other vulnerable groups. In conducting the risk screening	

survey, social data and information related to the target communities and, in particular, the vulnerable and marginalised groups within each community (see Annex 6) was gathered, which served as a basis for the assessment. The survey results for Keta, Ada East, Ada West, Grand Bassam, and Jacqueville are presented in Annex 6.	
Outputs	**NO** (No further assessment required for compliance) or **YES** (Potential impacts and risks: further assessment required for compliance)
3.1.1. **Mangrove restoration** in Keta (G)	**YES** Single mothers, female heads of families that are dependent on mangroves for livelihoods may not be adequately: (i) involved in mangroves plantation and maintenance-related works; or (ii) consulted on awareness-raising activities and in identifying sustainable alternative livelihood activities (such as fishing, cooking, heating, etc.). Power relations between local NGO workers (external to the community and employed for mangroves planting) and vulnerable youth, especially young women, may result in social tensions. Children and youth (especially those not attending school) may be excluded from awareness-raising activities on the importance of maintaining the targeted ecosystems. WHY RISK COULD NOT BE AVOIDED: given the exiting dynamics and the social composition of the target communities, the risk of non-compliance to the principle is a possibility. However, measures to manage the risk are presented in table 3a.
3.2.1 **Coastal lagoon erosion** in Ada East (G) 3.2.2. Coastal lagoon erosion in Ada West (G) 3.2.3. Coastal lagoon erosion in Keta (G)	**YES** Single mothers, female heads of families that are dependent on activities nearby the lagoon may not be adequately consulted on awareness-raising activities. Power relations between workers (external to the community and employed for the works to restore the lagoon to prevent erosion) and vulnerable youth, especially young women, may result in social tensions. The interventions may temporarily hamper access to some stretches along the lagoon during construction/rehabilitation works, and may consequently determine a temporary impediment to the urban poor to perform informal economic activities in those locations (e.g. street vendors, etc.), in particular for women and children (see also Principle 5). WHY RISK COULD NOT BE AVOIDED: given the exiting dynamics and the social composition of the target communities, the risk of non-compliance to the principle is a possibility. However, measures to manage the risk are presented in table 3a.
3.3.1. **Mangrove restoration along the coast and lagoons** in Grand Bassam (Cdl) 3.3.2. Mangrove restoration along the coast and lagoons in Jacqueville (Cdl)	**YES** Single mothers, female heads of families that are dependent on mangroves for livelihoods may not be adequately: (i) involved in mangroves plantation and maintenance-related works; or (ii) consulted on awareness-raising activities and in identifying sustainable alternative livelihood activities (such as fishing, cooking, heating, etc.). Power relations between local NGO workers (external to the community and employed for mangroves planting) and vulnerable youth, especially young women, may result in social tensions. Children and youth (especially those not attending school) may be excluded from awareness-raising activities on the importance of maintaining the targeted ecosystems. WHY RISK COULD NOT BE AVOIDED: given the exiting dynamics and the social composition of the target communities, the risk of non-compliance to the principle is a possibility. However, measures to manage the risk are presented in table 3a.
3.4.1. **Sand nourishment** along the coast in Grand Bassam (Cdl)	**YES** Single mothers, female heads of families that are dependent on activities nearby the lagoon may not be adequately consulted on awareness-raising activities. Power relations between workers (external to the community and employed for the works to restore the lagoon to prevent erosion) and vulnerable youth, especially young women, may result in social tensions. The interventions may temporarily hamper access to some stretches along the lagoon during construction/rehabilitation works, and may consequently determine a temporary impediment to the urban poor to perform informal economic activities in those locations (e.g. street vendors, etc.), in particular for women and children (see also Principle 5). WHY RISK COULD NOT BE AVOIDED: given the exiting dynamics and the social composition of the target communities, the risk of non-compliance to the principle is a possibility. However, measures to manage the risk are presented in table 3a.
3.5.1. **Embankment of lagoons** in Jacqueville (Cdl)	**YES** Single mothers, female heads of families that are dependent on activities nearby the lagoon may not be adequately consulted on awareness-raising activities. Power relations between workers (external to the community and employed for the works to restore the lagoon to prevent erosion) and vulnerable youth, especially young women, may result in social tensions. The interventions may temporarily hamper access to some stretches along the lagoon during construction/rehabilitation works, and may consequently determine a temporary impediment to the urban poor to perform informal economic activities in those locations (e.g. street vendors, etc.), in particular for women and children (see also Principle 5). WHY RISK COULD NOT BE AVOIDED: given the exiting dynamics and the social composition of the target communities, the risk of non-compliance to the principle is a possibility. However, measures to manage the risk are presented in table 3a.
Principle 4: HUMAN RIGHTS. Risk: NO Approach: a risk screening was undertaken to assess possible violations of human rights or the raising of human rights issues during sub-projects' implementation. The Human Rights Council special procedures in each target country have been analysed (see Annex 6). The screening resulted in no risks of human rights violation or related issues. On the contrary, their implementation represents an opportunity for promoting and advocating the full respect of human rights of all community members. In conducting the risk screening surveys, social data, information and perceptions related to the exercise of the human rights in the target communities and for the vulnerable and marginalised groups was gathered and analysed. Survey results for the 5 sites (3 in Ghana and 2 in Cote d'Ivoire) are presented in Annex 6.	
Principle 5, GENDER EQUALITY AND WOMEN'S EMPOWERMENT. Risk: YES. Approach: a gender-sensitive risk screening was undertaken to make sure that: (i) both women and men have equal opportunities to participate in the different activities; (ii) both women and men equally benefit from the outputs and outcomes of the different initiatives, and women are not disproportionately affected; and (iii) the initiatives do not maintain or exacerbate existing gender inequalities and, on the contrary, represent an opportunity for women's empowerment (see Annex 6).	
Outputs	**NO** (No further assessment required for compliance) or **YES** (Potential impacts and risks: further assessment required for compliance)
3.1.1. **Mangrove restoration** in Keta (G)	**YES** Women's opinions (including in their role as mothers of children who will benefit from green spaces) may not be considered sufficiently relevant in the design of these interventions. Furthermore, given their perceived role and status, they may not be encouraged to participate in awareness-raising activities and to apply for job opportunities related to the maintenance of the mangrove areas.

	The implementation of the activities may reinforce existing discriminatory practices against women due to their perceived status, role and traditionally unbalanced gender dynamics. This may result in: (i) women not being consulted; (ii) difficulty in taking part in mangroves plantation and maintenance related works; and (iii) not fully benefitting from the outcomes of the activities (fishing/sustainable mangroves management and alternatives livelihood). Ultimately, this would reinforce women's disempowerment. WHY RISK COULD NOT BE AVOIDED: given the exiting dynamics and the social composition of the target communities, the risk of non-compliance to the principle is a possibility. However, measures to manage the risk are presented in table 3a.
3.2.1 **Coastal lagoon erosion** in Ada East (G) 3.2.2. Coastal lagoon erosion in Ada West (G) 3.2.3. Coastal lagoon erosion in Keta (G)	**YES** Women's opinions (including in their role as mothers of children who will benefit from healthy environment) may not be considered sufficiently relevant in the design of the lagoon interventions. Furthermore, given their perceived role and status, they may not be encouraged to participate in awareness-raising activities and to apply for job opportunities related to the maintenance of these areas. The implementation of the activities may reinforce existing discriminatory practices against women due to their perceived status, role and traditionally unbalanced gender dynamics. Ultimately, this would reinforce women's disempowerment. WHY RISK COULD NOT BE AVOIDED: given the exiting dynamics and the social composition of the target communities, the risk of non-compliance to the principle is a possibility. However, measures to manage the risk are presented in table 3a.
3.3.1. **Mangrove restoration along the coast and lagoons** in Grand Bassam (Cdl) 3.3.2. Mangrove restoration along the coast and lagoons in Jacqueville (Cdl)	**YES** Women's opinions (including in their role as mothers of children who will benefit from green spaces) may not be considered sufficiently relevant in the design of these interventions. Furthermore, given their perceived role and status, they may not be encouraged to participate in awareness-raising activities and to apply for job opportunities related to the maintenance of the mangrove areas. The implementation of the activities may reinforce existing discriminatory practices against women due to their perceived status, role and traditionally unbalanced gender dynamics. This may result in: (i) women not being consulted; (ii) difficulty in taking part in mangroves plantation and maintenance related works; and (iii) not fully benefitting from the outcomes of the activities (fishing/sustainable mangroves management and alternatives livelihood). Ultimately, this would reinforce women's disempowerment. WHY RISK COULD NOT BE AVOIDED: given the exiting dynamics and the social composition of the target communities, the risk of non-compliance to the principle is a possibility. However, measures to manage the risk are presented in table 3a.
3.4.1. **Sand nourishment** along the coast in Grand Bassam (Cdl)	**YES** Women's opinions (including in their role as mothers of children who will benefit from healthy environment) may not be considered sufficiently relevant in the design of the lagoon interventions. Furthermore, given their perceived role and status, they may not be encouraged to participate in awareness-raising activities and to apply for job opportunities related to the maintenance of these areas. The implementation of the activities may reinforce existing discriminatory practices against women due to their perceived status, role and traditionally unbalanced gender dynamics. Ultimately, this would reinforce women's disempowerment. WHY RISK COULD NOT BE AVOIDED: given the exiting dynamics and the social composition of the target communities, the risk of non-compliance to the principle is a possibility. However, measures to manage the risk are presented in table 3a.
3.5.1. **Embankment of lagoons** in Jacqueville (Cdl)	**YES** Women's opinions (including in their role as mothers of children who will benefit from healthy environment) may not be considered sufficiently relevant in the design of the lagoon interventions. Furthermore, given their perceived role and status, they may not be encouraged to participate in awareness-raising activities and to apply for job opportunities related to the maintenance of these areas. The implementation of the activities may reinforce existing discriminatory practices against women due to their perceived status, role and traditionally unbalanced gender dynamics. Ultimately, this would reinforce women's disempowerment. WHY RISK COULD NOT BE AVOIDED: given the exiting dynamics and the social composition of the target communities, the risk of non-compliance to the principle is a possibility. However, measures to manage the risk are presented in table 3a.
Principle 6, CORE LABOUR RIGHTS. Risk: YES. Approach: a risk screening was undertaken: (i) to assess the labour laws of each country and evaluate if the minimum ILO standards are reflected; and (ii) to make sure that that minimum ILO standards are taken into account during implementation of the planned activities, as appropriate. Hence, compliance of countries to the ILO Conventions on the fundamental principles and rights at work has been analysed and assessed against the national legislation. Further details about Core Labour rights and National Technical Standards are described in section II.F of the full proposal.	
Outputs	**NO** (No further assessment required for compliance) or **YES** (Potential impacts and risks: further assessment required for compliance)
3.1.1. **Mangrove restoration** in Keta (G)	**YES** Evidence: these initiatives entail intensive labour so contracts will be established in the two countries. Since the above-referred national labour laws do not clearly regulate and enforce the ILO standards and principles -especially those related to social security and occupational safety and health- it may result in unfair treatment concerning compensation (living wage), gender equity, health and security standards in relation to dangerous and unhealthy work. WHY RISK COULD NOT BE AVOIDED: national labour laws do not clearly integrate some of the ILO core principles and rights. Hence there is a potential risk of non- compliance with this principle
3.2.1 **Coastal lagoon erosion** in Ada East (G) 3.2.2. Coastal lagoon erosion in Ada West (G) 3.2.3. Coastal lagoon erosion in Keta (G)	**YES** Evidence: these initiatives entail intensive labour so contracts will be established in the two countries. Since the above-referred national labour laws do not clearly regulate and enforce the ILO standards and principles -especially those related to social security and occupational safety and health- it may result in unfair treatment concerning compensation (living wage), gender equity, health and security standards in relation to dangerous and unhealthy work. WHY RISK COULD NOT BE AVOIDED: national labour laws do not clearly integrate some of the ILO core principles and rights. Hence there is a potential risk of non- compliance with this principle
3.3.1. **Mangrove restoration along the**	**YES**

coast and lagoons in Grand Bassam (Cdl) 3.3.2. Mangrove restoration along the coast and lagoons in Jacqueville (Cdl)	Evidence: these initiatives entail intensive labour so contracts will be established in the two countries. Since the above-referred national labour laws do not clearly regulate and enforce the ILO standards and principles -especially those related to social security and occupational safety and health- it may result in unfair treatment concerning compensation (living wage), gender equity, health and security standards in relation to dangerous and unhealthy work. WHY RISK COULD NOT BE AVOIDED: national labour laws do not clearly integrate some of the ILO core principles and rights. Hence there is a potential risk of non- compliance with this principle
3.4.1. **Sand nourishment** along the coast in Grand Bassam (Cdl)	**YES** Evidence: these initiatives entail intensive labour so contracts will be established in the two countries. Since the above-referred national labour laws do not clearly regulate and enforce the ILO standards and principles -especially those related to social security and occupational safety and health- it may result in unfair treatment concerning compensation (living wage), gender equity, health and security standards in relation to dangerous and unhealthy work. WHY RISK COULD NOT BE AVOIDED: national labour laws do not clearly integrate some of the ILO core principles and rights. Hence there is a potential risk of non- compliance with this principle
3.5.1. **Embankment of lagoons** in Jacqueville (Cdl)	**YES** Evidence: these initiatives entail intensive labour so contracts will be established in the two countries. Since the above-referred national labour laws do not clearly regulate and enforce the ILO standards and principles -especially those related to social security and occupational safety and health- it may result in unfair treatment concerning compensation (living wage), gender equity, health and security standards in relation to dangerous and unhealthy work. WHY RISK COULD NOT BE AVOIDED: national labour laws do not clearly integrate some of the ILO core principles and rights. Hence there is a potential risk of non- compliance with this principle
Principle 7: INDIGENOUS PEOPLE. Risk: NO Approach: a risk assessment was undertaken to determine whether the planned sub-projects bear any risk in relation to indigenous peoples as in the UN Declaration on the Rights of Indigenous Peoples and other applicable international instruments related to indigenous peoples. Through the risk screening, the presence of indigenous people was checked and it was verified that there are no indigenous peoples in the target areas. Hence, no further assessment is required to demonstrate compliance.	
Principle 8: INVOLUNTARY RESETTLEMENTS Risk: NO Approach: a risk assessment was undertaken to determine the risk of physical and/or economic involuntary resettlement as a consequence of the implementation of planned activities. The risk screening was conducted through local consultations, field missions, expert interviews and mapping of the areas of intervention against the location of households and socio-economic activities. It resulted that none of the planned activities in the different sub-projects will determine involuntary resettlement as such. Nevertheless, participatory planning and constant involvement of the local residents, including street vendors, in decision-making, through regular consultations and by insuring that grievance mechanisms work well, will minimise any potential negative impact and/or difficulty caused by the planned sub-projects' activities. Consultations and participatory planning sessions will be organised with the potentially affected community groups under the leadership of the local authorities. Therefore, this cannot be considered a case of involuntary resettlement. No further assessment required for compliance.	
Principle 9, PROTECTION OF NATURAL HABITATS. Risk: YES. Approach: To assess the presence of protected areas at international, national or local level among a set of sources and database, such as: UNESCO Man and the Biosphere programme, the IUCN website, Environmental Ministries in the four countries, departments in charge of the environment at local level and any environment-related stakeholder (NGO, universities, …) in the four cities. The information was cross-checked through community consultation. Based on the definition of critical natural habitat of the Convention of Biological Diversity, some risks were identified, and some critical natural habitats may be harmed. Below, more specifically, possible risks are identified per subproject. Critical natural habitats identified within the project areas are: **Ghana (Keta, Ada East, Ada West):** the critical natural habitats identified within the project areas are two RAMSAR sites, one in Keta and one next to Ada East. **Cote d'Ivoire (Grand Bassam, Jaqueville):** one RAMSAR site was identified in Gran Bassam. No areas of national or international interest were identified in the surrounding of Jaqueville	
Outputs	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
3.1.1. **Mangrove restoration** in Keta (G)	**NO.** Evidence: Despite the presence of the above-mentioned critical natural habitat (RAMSAR site) in the project areas, the activities under this output do not present any risk for the natural critical habitats, since they aim at reinforcing the state of the ecosystem itself
3.2.1 **Coastal lagoon erosion** in Ada East (G) 3.2.2. Coastal lagoon erosion in Ada West (G) 3.2.3. Coastal lagoon erosion in Keta (G)	**YES.** RAMSAR sites are present in the project areas. For the restoration of the lagoon, sand is needed. Sand can always bring some new organisms that may impact on the equilibrium of the habitat. WHY THE RISK COULD NOT BE AVOIDED: the three sites need to undertake measures to contrast soil erosion and problems derived from soil erosion (such as higher impacts of CC-related floods). Restore lgoons, is the less impacting option for the habitats, compared to grey measures to contrast floods and soil erosion. Still, it can imply some risks. However, mitigation measures are presented in this Annex (see table 3a).
3.3.1. **Mangrove restoration along the coast and lagoons** in Grand Bassam (Cdl) 3.3.2. Mangrove restoration along the coast and lagoons in Jacqueville (Cdl)	**NO.** Evidence: Despite the presence of the above-mentioned critical natural habitat (RAMSAR site) in Grand Bassam, the activities under this output do not present any risk for the natural critical habitats, since they aim at reinforcing the state of the ecosystem itself. In the case of Jacqueville, no recognized critical habitat is present, so no risk of adverse impact.
3.4.1. **Sand nourishment** along the coast in Grand Bassam (Cdl)	**YES.** Grand Bassam hosts a RAMSAR site. Sand nourishment is a delicate activity, as sand can always bring some new organisms that may impact on the equilibrium of the habitat.

	WHY THE RISK COULD NOT BE AVOIDED: Grand Bassam needs to undertake measures to contrast soil erosion and problems derived from soil erosion (such as higher impacts of CC-related floods). To restore the coast, grey measures and nature-based measures are the two viable options. Sand nourishment is the less impacting option for the habitats. Still, it can imply some risks. However, mitigation measures are presented in this Annex (see table 3a).
3.5.1. **Embankment of lagoons** in Jacqueville (CdI)	**NO.** Evidence: No RAMSAR sites are present in Jacqueville.
Principle 10, CONSERVING BIODIVERSITY. Risk: YES. Approach: To assess that the activities do not trigger any reduction or loss of biological diversity or introduce invasive species, we assessed presence of species at risks or areas of relevant biological diversity mentioned in the IUCN red list, recognition as a UNESCO Man and the Biosphere reserve programme, mentions in the Ramsar site (Convention on Wetlands of International Importance, called Ramsar Convention). Risks related to introduction of invasive species were also assessed. According to the IUCN red list, there is presence of known biological diversity importance in the macro area (2000 km2), of all 5 sites (Keta, Ada East and Ada West in Ghana; Gran Bassam and Jacqueville in Cote d'Ivore. It is also possible to list two RAMSAR sites in Ghana and one in Cote D'Ivore within the project areas. No UNESCO biosphere reserves are present in Ghana nor in Cote D'Ivoire in the project areas. Overall, some areas are considered relevant for biological diversity and these are taken into consideration in the following risk screening table. The risk of introduction of invasive species was also addressed. The information was cross-checked through community consultation. Below, more specifically, possible risks are identified per subproject.	
Outputs	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
3.1.1. **Mangrove restoration** in Keta (G)	**NO.** Evidence: the sub-projects under this thematic group are meant to improve conditions for biodiversity. Mangroves reforestation. In the project preparation, also to comply with national technical standards and principle 1, it is clearly define that only native species will be used.
3.2.1 **Coastal lagoon erosion** in Ada East (G) 3.2.2. Coastal lagoon erosion in Ada West (G) 3.2.3. Coastal lagoon erosion in Keta (G)	**YES.** RAMSAR sites are present in the project areas. For the restoration of the lagoon, sand is needed. Sand can always bring some new organisms that may impact on the equilibrium of the habitat. WHY THE RISK COULD NOT BE AVOIDED: the three sites need to undertake measures to contrast soil erosion and problems derived from soil erosion (such as higher impacts of CC-related floods). Restore lgoons, is the less impacting option for the habitats, compared to grey measures to contrast floods and soil erosion. Still, it can imply some risks. However, mitigation measures are presented in this Annex (see table 3a).
3.3.1. **Mangrove restoration along the coast and lagoons** in Grand Bassam (CdI) 3.3.2. Mangrove restoration along the coast and lagoons in Jacqueville (CdI)	**NO.** Evidence: the sub-projects under this thematic group are meant to improve conditions for biodiversity. Mangroves reforestation. In the project preparation, also to comply with national technical standards and principle 1, it is clearly define that only native species will be used.
3.4.1. **Sand nourishment** along the coast in Grand Bassam (CdI)	**YES.** The risk is due to the fact that sand nourishment could potentially introduce non-native species along the coast of Grand Bassam. WHY THE RISK COULD NOT BE AVOIDED: The existing coast in Grand Bassam is already deteriorated and is vulnerable to more damage from climate change. Despite the risk, beach nourishment represents a greater long-term environmental management by protecting the coast from further degradation.
3.5.1. **Embankment of lagoons** in Jacqueville (CdI)	**YES.** The risk is due to the fact that sand nourishment could potentially introduce non-native species along the coast of Grand Bassam. WHY THE RISK COULD NOT BE AVOIDED: The existing coast in Grand Bassam is already deteriorated and is vulnerable to more damage from climate change. Despite the risk, beach nourishment represents a greater long-term environmental management by protecting the coast from further degradation.
Principle 11, CLIMATE CHANGE. Risk: NO. Approach: According to the IPCC Guidelines for national GHG inventories, relevant sectors to focus on when considering GHG emissions are: energy; industrial processes (with sub-category 'construction') and product uses; intensive agriculture; and waste. The EU (EU, 2014: GHG emissions from waste disposal) consider road transport as additional sector. Among our outputs for component 3, mangrove restoration in implying no GHG emissions. Sand-related activities, such as sand-nourishment, imply minor and short-term construction activities. Based on this, risks are screened per subproject.	
Outputs:	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
3.1.1. **Mangrove restoration** in Keta (G)	**NO.** Evidence: Mangrove restoration in Keta is primarily a labour intensive activity and does not fall into typical sectors such as commercial, industrial, building, etc., which generate GHGs.
3.2.1 **Coastal lagoon erosion** in Ada East (G) 3.2.2. Coastal lagoon erosion in Ada West (G) 3.2.3. Coastal lagoon erosion in Keta (G)	**NO.** Evidence: As mentioned above, activities belonging to this thematic area are not related to GHG emissions. Combating coastal lagoon erosion in Ada East, Ada West and Keta could involve the temporary use of limited heavy construction equipment. This activity, however, does not fall into typical GHG emitting sectors such as commercial, industrial, building, etc.
3.3.1. **Mangrove restoration along the coast and lagoons** in Grand Bassam (CdI)	**NO.**

3.3.2. Mangrove restoration along the coast and lagoons in Jacqueville (CdI)	Evidence: Mangrove restoration along the coast and lagoons in Grand Bassam and Jacqueville does not fit into typical GHG emitting sectors such as commercial, industrial, building, etc.
3.4.1. **Sand nourishment** along the coast in Grand Bassam (CdI)	**NO.** Evidence: Similar to the other activities above, sand nourishment along the coast of Grand Bassam does not fit into typical GHG emitting sectors such as commercial, industrial, building, etc.
3.5.1. **Embankment of lagoons** in Jacqueville (CdI)	**NO.** Evidence: Embankment of lagoons in Jacqueville does not fit into typical GHG emitting sectors such as commercial, industrial, building, etc.

Principle 12, POLLUTION AND RESOURCE EFFICIENCY. Risk: YES
Approach: Activities under to the project are of low-tech nature and do not imply major use of energy or the production of wastes and pollutants. In addition, all sub-projects comprise activities of small scale at local level. No risk related to massive use of energy or production of waste will occur.
However, some activities that involve a sand nourishment may lead to a risk of non-sustainable use of resources.
Furthermore, no activity will imply the production of pollutant substances.
International standards to minimize use of resources will be followed during the design phase and applied during implementation.

Output	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
3.1.1. **Mangrove restoration** in Keta (G)	**NO.** Evidence: Activities belonging to this output do not imply major use of energy, or production of waste and pollution. No polluting activities are planned under this output. Also, as no construction interventions are included, no risk of overuse of resources is identified.
3.2.1 **Coastal lagoon erosion** in Ada East (G) 3.2.2. Coastal lagoon erosion in Ada West (G) 3.2.3. Coastal lagoon erosion in Keta (G)	**YES.** **Overuse of resources:** The construction phase of activities under this output may trigger overuse of resources. Based on common practice, sand is usually provided through local uncontrolled process. This may harm the beach or some ecosystems. Dedicated solutions to prevent such dynamic need to be undertaken. WHY THE RISK COULD NOT BE AVOIDED: these sub-projects represent a risk of overuse of resources because of local common practices (and lack of policies) in the construction sector that have to be considered. However, mitigation measures are presented in this Annex (see table 3a).
3.3.1. **Mangrove restoration along the coast and lagoons** in Grand Bassam (CdI) 3.3.2. Mangrove restoration along the coast and lagoons in Jacqueville (CdI)	**NO.** Evidence: Activities belonging to this output do not imply major use of energy, or production of waste and pollution. No polluting activities are planned under this output. Also, as no construction interventions are included, no risk of overuse of resources is identified.
3.4.1. **Sand nourishment** along the coast in Grand Bassam (CdI)	**YES.** **Overuse of resources:** The construction phase of activities under this output may trigger overuse of resources. Based on common practice, sand is usually provided through local uncontrolled process. This may harm the beach or some ecosystems. Dedicated solutions to prevent such dynamic need to be undertaken. WHY THE RISK COULD NOT BE AVOIDED: these sub-projects represent a risk of overuse of resources because of local common practices (and lack of policies) in the construction sector that have to be considered. However, mitigation measures are presented in this Annex (see table 3a).
3.5.1. **Embankment of lagoons** in Jacqueville (CdI)	**YES.** **Overuse of resources:** The construction phase of activities under this output may trigger overuse of resources. Based on common practice, sand is usually provided through local uncontrolled process. This may harm the beach or some ecosystems. Dedicated solutions to prevent such dynamic need to be undertaken. WHY THE RISK COULD NOT BE AVOIDED: these sub-projects represent a risk of overuse of resources because of local common practices (and lack of policies) in the construction sector that have to be considered. However, mitigation measures are presented in this Annex (see table 3a).

Principle 13, PUBLIC HEALTH. Risk: NO.
Approach: to assess potential significant impacts on public health of activities, we adopted the short a screening tool present among the "short guides" listed within the WHO website ("focusing on health", Sweden). The tool is based on a matrix considering as determinants of health: democracy, financial security, employment/education, social network, access to health care centres, belief in the future, physical environment, and living habitats (www.who.int/hia/evidence/doh/en/index5.htlm).
Generally speaking, no activity within the project represents any risk for **democracy** or **belief in the future**. This is because key principles of the design are participation and equity (with a specific focus to the inclusion of all vulnerable groups), gender aspects were always considered and freedom of choice pursued.
The project will not harm **employment or education**, but on the contrary provide more opportunities in terms of job creation and capacity building. The activities enhance sustainable financial security as well. Risk related to living habitats are already presented under principle 9 (we considered natural critical habitats equal to the item "**living habitats**" of the list of determinants of public health). The table below presents these aspects in more detail per subproject.

Output	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
3.1.1. **Mangrove restoration** in Keta (G)	**No.** Evidence: This activity is anticipated to have no adverse impacts on the components of public health identified above.
3.2.1 **Coastal lagoon erosion** in Ada East (G)	**NO.**

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3.2.2. Coastal lagoon erosion in Ada West (G) 3.2.3. Coastal lagoon erosion in Keta (G)	Evidence: The activities do not impact on any of the above-mentioned determinants and hence do not represent a threat to public health
3.3.1. **Mangrove restoration along the coast and lagoons** in Grand Bassam (CdI) 3.3.2. Mangrove restoration along the coast and lagoons in Jacqueville (CdI)	**NO.** Evidence: The activities do not impact on any of the above-mentioned determinants and hence do not represent a threat to public health
3.4.1. **Sand nourishment** along the coast in Grand Bassam (CdI)	**NO.** Evidence: This activity does not impact on any of the above-mentioned determinants and hence do not represent a threat to public health.
3.5.1. **Embankment of lagoons** in Jacqueville (CdI)	**NO.** Evidence: This activity does not impact on any of the above-mentioned determinants and hence do not represent a threat to public health.

Principle 14, PHYSICAL AND CULTURAL HERITAGE. Risk: NO.
Approach: To assess possible impacts of each activity on the physical and cultural heritage, the presence of physical and cultural heritage in the five locations (Keta, Ada East, and Ada West in Ghana; Grand Bassam and Jacqueville in Cote d'Ivoire). The UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage was taken as reference for international recognition of physical and cultural heritage, and the list of World Heritage in Danger as well as the List UNESCO World Heritage was adopted.
To conclude, heritage identified within the project areas comprises:

- Ghana: UNESCO Heritage coincides with the built-up area and no interventions occur within any UNESCO heritage site.
- Cote-d'Ivoire: Grand Bassam. However, UNESCO Heritage coincides with the built-up area and no interventions occur within any UNESCO heritage site. Jacqueville presents no UNESCO Heritage sites.

Outputs	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
3.1.1. **Mangrove restoration** in Keta (G)	**NO.** Evidence: As mentioned above, no physical and cultural heritage is present within (or in the immediate surroundings) of the project areas. Hence, no risk.
3.2.1 **Coastal lagoon erosion** in Ada East (G) 3.2.2. Coastal lagoon erosion in Ada West G) 3.2.3. Coastal lagoon erosion in Keta (G)	**NO.** Evidence: As mentioned above, no physical and cultural heritage is present within (or in the immediate surroundings) of the project areas. Hence, no risk.
3.3.1. **Mangrove restoration along the coast and lagoons** in Grand Bassam (CdI) 3.3.2. Mangrove restoration along the coast and lagoons in Jacqueville (CdI)	**NO.** Evidence: As mentioned above, no physical and cultural heritage is present within (or in the immediate surroundings) of the project areas. Hence, no risk.
3.4.1. **Sand nourishment** along the coast in Grand Bassam (CdI)	**NO.** Evidence: As mentioned above, no physical and cultural heritage is present within (or in the immediate surroundings) of the project areas. Hence, no risk.
3.5.1. **Embankment of lagoons** in Jacqueville (CdI)	**NO.** Evidence: As mentioned above, no physical and cultural heritage is present within (or in the immediate surroundings) of the project areas. Hence, no risk.

Principle 15, risk: NO
Approach: To assess possible impacts of each activity on soil conservation, we focused on two aspects: soil conservation (as meant by FAO "avoiding changes in the health status resulting in diminished capacity of the ecosystem services provisioning); and conservation of valuable lands.
For the first aspects, we checked possible fragile soils and identified subproject activities that may diminished the capacity of the soil to provide ES. We based the identification of fragile soils on the knowledge of local experts from the municipality and other soil-related departments. We mainly looked at coastal soil, soil located on steep slopes, rocky areas with very thin soil, areas showing evidence of soil erosion due to lack of water, water erosion during run-off, or deforestation.
In the second case, we mapped the presence of valuable lands, such as agricultural land or ecosystems crucial to the resilience and livelihoods of the city. We also considered as valuable land, areas mentioned under principle 9 and 10 due to their biodiversity or relevance as habitat: we checked possible fragile valuable lands an identified activities included in the subprojects that may convert them or damage them. In this case again, we based the identification of fragile soils on the knowledge of local experts from the municipality and other environmental-related departments.
Fragile soils and valuable lands were identified as follows:
Ghana (Keta, Ada East, and Ada West): for all three sites, the coastal system has to be considered extremely fragile. However, the activities under this component are meant to protect and improve the state of such system.
Cote d'Ivoire (Grand Bassam and Jacqueville): similarly to the case of Ghana, for both sites, the coastal system has to be considered extremely fragile. However, the activities under this component are meant to protect and improve the state of such system.

Outputs	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
3.1.1. **Mangrove restoration** in Keta (G)	**No.** Evidence: While the mangrove system in Keta can be considered extremely fragile, the mangrove restoration subproject is designed to protect and improve the state of such system.
3.2.1 **Coastal lagoon erosion** in Ada East (G) 3.2.2. Coastal lagoon erosion in Ada West (G) 3.2.3. Coastal lagoon erosion in Keta (G)	**No.** Evidence: These activities, occurring in areas characterized by fragile soils, contribute to the protection and restoration of the soil. So no risk is triggered, on the contrary: the activities will support soil protection and improve the state of such system.
3.3.1. **Mangrove restoration along the coast and lagoons** in Grand Bassam (CdI)	**NO.** Evidence: While the coastal system in Grand Bassam and Jacqueville can be considered extremely fragile, the mangrove restoration subproject is designed to protect and improve the state of such system.

3.3.2. Mangrove restoration along the coast and lagoons in Jacqueville (CdI)	
3.4.1. **Sand nourishment** along the coast in Grand Bassam (CdI)	**No.** Evidence: These activities, occurring in areas characterized by fragile soils, contribute to the protection and restoration of the soil. So no risk is triggered, on the contrary: the activities will support soil protection and improve the state of such system.
3.5.1. **Embankment of lagoons** in Jacqueville (CdI)	**No.** Evidence: These activities, occurring in areas characterized by fragile soils, contribute to the protection and restoration of the soil. So no risk is triggered, on the contrary: the activities will support soil protection and improve the state of such system.

Table 2b: Risk screening for project Components 4

Component 4	
Principle 1, COMPLIANCE WITH THE LAW. Risk: NO Approach: to assess whether the project will comply with applicable domestic and international law, legal and regulatory frameworks relevant to each sub-project that may require prior permission (such as planning, environmental, construction, water extraction, emissions or production/storage of harmful substances permits) were duly analysed. For each such requirement, the current status, steps already taken and plan to achieve compliance with relevant legislation is outlined in Part II of the proposal, Section F. Based on the detailed evidence for each sub-project, no risk is triggered.	
Principle 2, ACCESS AND EQUITY. Risk: YES. Approach: a risk analysis has been undertaken to assess the provision of: (i) fair and impartial active participation by all groups in all planned activities; (ii) equitable access to benefits from all planned activities, in an inclusive manner that does not impede access to any rights and essential services such as basic health, clean water and sanitation, education, housing, safe and decent working conditions and land rights. The same analysis assessed whether the project exacerbates existing inequities, particularly with respect to marginalised or vulnerable groups. The analysis was carried out through surveys during field missions, collecting information and perceptions from local governments, communities and other stakeholders. In conducting the risk screening surveys, social data and information related to the target communities and vulnerable groups (see Annex 6) was gathered, which served as basis for the assessment. The survey results for Keta, Ada East, Ada West, Grand Bassam, and Jacqueville are presented in Annex 6.	
Outputs	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
4.1.2. **Pen culture systems** installed and operational in Ada East (G) 4.1.3. Pen culture systems installed and operational in Ada West (G) 4.1.4. Pen culture systems installed and operational in Keta (G)	**YES.** Evidence: there is a risk to not sufficiently take into consideration the specific needs and/or to not actively involve specific community groups given traditional habits and stereotypes for women, low-educated people and seasonal migrant families. This may result in: (i) low participation in awareness-raising activities around ecosystem services, climate change and livelihoods; (ii) community conflict around resources usage; and (iii) exclusion/discrimination of particular community groups (e.g. people living with low incomes, women, older persons, children and persons with disabilities) from designing/benefitting from pen culture activities. WHY RISK COULD NOT BE AVOIDED: the social composition of the target communities makes the risk of non-compliance to the principle a possibility.
4.2.1. **Salt resilient crops** and water infiltration systems installed and operational in Keta (G)	**YES.** Evidence: there is a risk to not sufficiently take into consideration the specific needs and/or to not actively involve specific community groups given traditional habits and stereotypes for women, low-educated people and seasonal migrant families. This may result in: (i) low participation in awareness-raising activities around ecosystem services, climate change and livelihoods; (ii) community conflict around ecosystem resources usage; and (iii) exclusion/discrimination of particular community groups (e.g. people living with low incomes, women, older persons, children and persons with disabilities) from designing/benefitting from agricultural activities. WHY RISK COULD NOT BE AVOIDED: the social composition of the target communities makes the risk of non-compliance to the principle a possibility.
4.3.1. **Pen culture systems** installed and operational in Grand Bassam (CdI)	**YES.** Evidence: there is a risk to not sufficiently take into consideration the specific needs and/or to not actively involve specific community groups given traditional habits and stereotypes for women, low-educated people and seasonal migrant families. This may result in: (i) low participation in awareness-raising activities around ecosystem services,

4.3.2. Pen culture systems installed and operational in Jacqueville (CdI)	climate change and livelihoods; (ii) community conflict around resources usage; and (iii) exclusion/discrimination of particular community groups (e.g. people living with low incomes, women, older persons, children and persons with disabilities) from designing/benefitting from pen culture activities. WHY RISK COULD NOT BE AVOIDED: the social composition of the target communities makes the risk of non-compliance to the principle a possibility.
Principle 3, MARGINALIZED AND VULNERABLE GROUPS. Risk: YES. Approach: a risk screening was undertaken to: (i) make sure that the marginalised and vulnerable groups are not excluded from any activities as a consequence of lower motivation, weaker social status, sense of disempowerment and/or lack of skills or knowledge; (ii) to take into consideration their needs/perceptions; and (ii) to avoid imposing any disproportionate adverse impacts on marginalised and vulnerable groups especially children, women and girls, older persons, indigenous people, tribal groups, displaced people, refugees, persons with disabilities, and people living with HIV/AIDS or other vulnerable groups. In conducting the risk screening survey, social data and information related to the target communities and, in particular, the vulnerable and marginalised groups within each community (see Annex 6) was gathered, which served as a basis for the assessment. The survey results for Keta, Ada East, Ada West, Grand Bassam, and Jacqueville are presented in Annex 6.	
Output	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
4.1.2. **Pen culture systems** installed and operational in Ada East (G) 4.1.3. Pen culture systems installed and operational in Ada West (G) 4.1.4. Pen culture systems installed and operational in Keta (G)	**YES.** Poor women/youth working close to the areas where greening activities will be carried out may be negatively affected. Single mothers, female heads of families that are dependent on mangroves for livelihoods may not be adequately: (i) involved in pen culture activities; or (ii) consulted on awareness-raising activities and in identifying sustainable alternative livelihood activities. Activities may not be easily accessible for older persons and the disabled, and youth still going to school. WHY RISK COULD NOT BE AVOIDED: given the exiting dynamics and the social composition of the target communities, the risk of non-compliance to the principle is a possibility. However, measures to manage the risk are presented in table 3b.
4.2.1. **Salt resilient crops** and water infiltration systems installed and operational in Keta (G)	**YES** Single mothers, female heads of families may not be adequately consulted on awareness-raising activities. Activities may not be easily accessible for older persons and the disabled, and youth still going to school. WHY RISK COULD NOT BE AVOIDED: given the exiting dynamics and the social composition of the target communities, the risk of non-compliance to the principle is a possibility. However, measures to manage the risk are presented in table 3b.
4.3.1. **Pen culture systems** installed and operational in Grand Bassam (CdI) 4.3.2. Pen culture systems installed and operational in Jacqueville (CdI)	**YES.** Poor women/youth working close to the areas where greening activities will be carried out may be negatively affected. Single mothers, female heads of families that are dependent on mangroves for livelihoods may not be adequately: (i) involved in pen culture activities; or (ii) consulted on awareness-raising activities and in identifying sustainable alternative livelihood activities. Activities may not be easily accessible for older persons and the disabled, and youth still going to school. WHY RISK COULD NOT BE AVOIDED: given the exiting dynamics and the social composition of the target communities, the risk of non-compliance to the principle is a possibility. However, measures to manage the risk are presented in table 3b.
Principle 4: HUMAN RIGHTS. Risk: NO Approach: a risk screening was undertaken to assess possible violations of human rights or the raising of human rights issues during sub-projects' implementation. The Human Rights Council special procedures in each target country have been analysed (see Annex 6). The screening resulted in no risks of human rights violation or related issues. On the contrary, their implementation represents an opportunity for promoting and advocating the full respect of human rights of all community members. In conducting the risk screening surveys, social data, information and perceptions related to the exercise of the human rights in the target communities and for the vulnerable and marginalised groups was gathered and analysed. Survey results for the 5 sites (3 in Ghana and 2 in Cote d'Ivoire) are presented in Annex 6.	
Principle 5, GENDER EQUALITY AND WOMEN'S EMPOWERMENT. Risk: YES. Approach: a gender-sensitive risk screening was undertaken to make sure that: (i) both women and men have equal opportunities to participate in the different activities; (ii) both women and men equally benefit from the outputs and outcomes of the different initiatives, and women are not disproportionately affected; and (iii) the initiatives do not maintain or exacerbate existing gender inequalities and, on the contrary, represent an opportunity for women's empowerment (see Annex 6).	
Outputs	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
4.1.2. **Pen culture systems** installed and operational in Ada East (G) 4.1.3. Pen culture systems installed and operational in Ada West (G) 4.1.4. Pen culture systems installed and operational in Keta (G)	**YES** Women's opinions may not be considered sufficiently relevant in the design of these interventions. Furthermore, given their perceived role and status, they may not be encouraged to participate in awareness-raising activities and to apply for job opportunities related to pen culture. The implementation of the activities may reinforce existing discriminatory practices against women due to their perceived status, role and traditionally unbalanced gender dynamics. This may result in: (i) women not being consulted; (ii) difficulty in taking part in pen culture systems; and (iii) not fully benefitting from the outcomes of the activities. Ultimately, this would reinforce women's disempowerment. WHY RISK COULD NOT BE AVOIDED: given the exiting dynamics and the social composition of the target communities, the risk of non-compliance to the principle is a possibility. However, measures to manage the risk are presented in table 3b.

4.2.1. **Salt resilient crops** and water infiltration systems installed and operational in Keta (G)	**YES** Women's opinions may not be considered sufficiently relevant in the design of these interventions. Furthermore, given their perceived role and status, they may not be encouraged to participate in awareness-raising activities and to apply for job opportunities related to salt resilient crops. The implementation of the activities may reinforce existing discriminatory practices against women due to their perceived status, role and traditionally unbalanced gender dynamics. This may result in: (i) women not being consulted; (ii) difficulty in taking part in salt-resilient crop-related activities; and (iii) not fully benefitting from the outcomes of the activities. Ultimately, this would reinforce women's disempowerment. WHY RISK COULD NOT BE AVOIDED: given the exiting dynamics and the social composition of the target communities, the risk of non-compliance to the principle is a possibility. However, measures to manage the risk are presented in table 3b.
4.3.1. **Pen culture systems** installed and operational in Grand Bassam (Cdl) 4.3.2. Pen culture systems installed and operational in Jacqueville (Cdl)	**YES** Women's opinions may not be considered sufficiently relevant in the design of these interventions. Furthermore, given their perceived role and status, they may not be encouraged to participate in awareness-raising activities and to apply for job opportunities related to pen culture. The implementation of the activities may reinforce existing discriminatory practices against women due to their perceived status, role and traditionally unbalanced gender dynamics. This may result in: (i) women not being consulted; (ii) difficulty in taking part in pen culture systems; and (iii) not fully benefitting from the outcomes of the activities. Ultimately, this would reinforce women's disempowerment. WHY RISK COULD NOT BE AVOIDED: given the exiting dynamics and the social composition of the target communities, the risk of non-compliance to the principle is a possibility. However, measures to manage the risk are presented in table 3b..
Principle 6, CORE LABOUR RIGHTS. Risk: YES. Approach: a risk screening was undertaken: (i) to assess the labour laws of each country and evaluate if the minimum ILO standards are reflected; and (ii) to make sure that that minimum ILO standards are taken into account during implementation of the planned activities, as appropriate. Hence, compliance of countries to the ILO Conventions on the fundamental principles and rights at work has been analysed and assessed against the national legislation.	
Outputs	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
4.1.2. **Pen culture systems** installed and operational in Ada East (G) 4.1.3. Pen culture systems installed and operational in Ada West (G) 4.1.4. Pen culture systems installed and operational in Keta (G)	**YES** These initiatives entail intensive labour so contracts will be established in the country. Since the above-referred national labour laws do not clearly regulate and enforce the ILO standards and principles -especially those related to social security and occupational safety and health- it may result in unfair treatment concerning compensation (living wage), gender equity, health and security standards in relation to dangerous and unhealthy work. WHY RISK COULD NOT BE AVOIDED: national labour laws do not clearly integrate some of the ILO core principles and rights. Hence there is a potential risk of non-compliance with this principle
4.2.1. **Salt resilient crops** and water infiltration systems installed and operational in Keta (G)	**YES** These initiatives entail intensive labour so contracts will be established in the country. Since the above-referred national labour laws do not clearly regulate and enforce the ILO standards and principles -especially those related to social security and occupational safety and health- it may result in unfair treatment concerning compensation (living wage), gender equity, health and security standards in relation to dangerous and unhealthy work. WHY RISK COULD NOT BE AVOIDED: national labour laws do not clearly integrate some of the ILO core principles and rights. Hence there is a potential risk of non-compliance with this principle
4.3.1. **Pen culture systems** installed and operational in Grand Bassam (Cdl) 4.3.2. Pen culture systems installed and operational in Jacqueville (Cdl)	**YES** These initiatives entail intensive labour so contracts will be established in the country. Since the above-referred national labour laws do not clearly regulate and enforce the ILO standards and principles -especially those related to social security and occupational safety and health- it may result in unfair treatment concerning compensation (living wage), gender equity, health and security standards in relation to dangerous and unhealthy work. WHY RISK COULD NOT BE AVOIDED: national labour laws do not clearly integrate some of the ILO core principles and rights. Hence there is a potential risk of non-compliance with this principle
Principle 7: INDIGENOUS PEOPLE. Risk: NO Approach: a risk assessment was undertaken to determine whether the planned sub-projects bear any risk in relation to indigenous peoples as in the UN Declaration on the Rights of Indigenous Peoples and other applicable international instruments related to indigenous peoples. Through the risk screening, the presence of indigenous people was checked and it was verified that there are no indigenous peoples in the target areas. Hence, no further assessment is required to demonstrate compliance.	
Principle 8: INVOLUNTARY RESETTLEMENTS Risk: NO Approach: a risk assessment was undertaken to determine the risk of physical and/or economic involuntary resettlement as a consequence of the implementation of planned activities. The risk screening was conducted through local consultations, field missions, expert interviews and mapping of the areas of intervention against the location of households and socio-economic activities. It resulted that none of the planned activities in the different sub-projects will determine involuntary resettlement as such. Nevertheless, participatory planning and constant involvement of the local residents, including street vendors, in decision-making, through regular consultations and by ensuring that grievance mechanisms work well, will minimise any potential negative impact and/or difficulty caused by the planned sub-projects' activities. Consultations and participatory planning sessions will be organised with the potentially affected community groups under the leadership of the local authorities. Therefore, this cannot be considered a case of involuntary resettlement. No further assessment required for compliance.	

Principle 9, PROTECTION OF NATURAL HABITATS. Risk: No Approach: To assess the presence of protected areas at international, national or local level among a set of sources and database, such as: UNESCO Man and the Biosphere programme, the IUCN website, Environmental Ministries in the four countries, departments in charge of the environment at local level and any environment-related stakeholder (NGO, universities, …) in the four cities. The information was cross-checked through community consultation. Based on the definition of critical natural habitat of the Convention of Biological Diversity, some risks were identified and some critical natural habitats may be harmed. Below, more specifically, possible risks are identified per subproject. Critical natural habitats identified within the project areas are: **Ghana (Keta, Ada East, Ada West):** the critical natural habitats identified within the project areas are two RAMSAR sites, one in Keta and one next to Ada East. **Cote d'Ivoire (Grand Bassam, Jaqueville):** one RAMSAR site was identified in Gran Bassam. No areas of national or international interest were identified in the surrounding of Jaqueville.	
Outputs	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
4.1.2. **Pen culture systems** installed and operational in Ada East (G) 4.1.3. Pen culture systems installed and operational in Ada West (G) 4.1.4. Pen culture systems installed and operational in Keta (G)	**NO.** Evidence: Despite the presence of the above-mentioned critical natural habitat (RAMSAR site) in the project areas, the activities under this output do not present any risk for the natural critical habitats, these kind of activity will be located in hotspots identified with local authorities and communities to ensure that they not impact on the protected areas
4.2.1. **Salt resilient crops** and water infiltration systems installed and operational in Keta (G)	**NO.** Evidence: Despite the presence of the above-mentioned critical natural habitats (RAMSAR sites) in some of the project areas, these activities will take place in areas where agricultural activities are already undertaken. This means that they will not impacts protcted areas. On the contrary, they will contribute to decrease environmental pressure, due to a lower water demand by the type of cultures adopted.
4.3.1. **Pen culture systems** installed and operational in Grand Bassam (CdI) 4.3.2. Pen culture systems installed and operational in Jacqueville (CdI)	**NO.** Evidence: Despite the presence of the above-mentioned critical natural habitat (RAMSAR site) in the project areas, the activities under this output do not present any risk for the natural critical habitats, these kind of activity will be located in hotspots identified with local authorities and communities to ensure that they not impact on the protected areas
Principle 10, CONSERVING BIODIVERSITY. Risk: NO. Approach: To assess that the activities do not trigger any reduction or loss of biological diversity or introduce invasive species, we assessed presence of species at risks or areas of relevant biological diversity mentioned in the IUCN red list, recognition as a UNESCO Man and the Biosphere reserve programme, mentions in the Ramsar site (Convention on Wetlands of International Importance, called Ramsar Convention). Risks related to introduction of invasive species were also assessed. According to the IUCN red list, there is presence of known biological diversity importance in the macro area (2000 km2), of all 5 sites (Keta, Ada East and Ada West in Ghana; Gran Bassam and Jacqueville in Cote d'Ivore. It is also possible to list two RAMSAR sites in Ghana and one in Cote D'Ivore within the project areas. No UNESCO biosphere reserves are present in Ghana nor in Cote D'Ivoire in the project areas. Overall, some areas are considered relevant for biological diversity and these are taken into consideration in the following risk screening table. The risk of introduction of invasive species was also addressed. The information was cross-checked through community consultation. Below, more specifically, possible risks are identified per subproject.	
Outputs	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
4.1.2. **Pen culture systems** installed and operational in Ada East (G) 4.1.3. Pen culture systems installed and operational in Ada West (G) 4.1.4. Pen culture systems installed and operational in Keta (G)	**NO.** Evidence: In the project preparation, also to comply with national technical standards (II.F) and principle 1, it is clearly define that only native species will be used. Further details are present in the sub-project sheets: Annex 8
4.2.1. **Salt resilient crops** and water infiltration systems installed and operational in Keta (G)	**NO.** Evidence: In the project preparation, also to comply with national technical standards (II.F) and principle 1, it is clearly define that only native species will be used. Further details are present in the sub-project sheets: Annex 8
4.3.1. **Pen culture systems** installed and operational in Grand Bassam (CdI) 4.3.2. Pen culture systems installed and operational in Jacqueville (CdI)	**NO.** Evidence: In the project preparation, also to comply with national technical standards (II.F) and principle 1, it is clearly define that only native species will be used. Further details are present in the sub-project sheets: Annex 8
Principle 11, CLIMATE CHANGE. Risk: NO.	

Approach: According to the IPCC Guidelines for national GHG inventories, relevant sectors to focus on when considering GHG emissions are: energy; industrial processes (with sub-category 'construction') and product uses; intensive agriculture; and waste. The EU (EU, 2014: GHG emissions from waste disposal) consider road transport as additional sector. Among our outputs for component 4, pen culture and salt resilient crops in implying no GHG emissions. These activities are primarily human labour intensive and would not normally involve the use of GHG emitting machinery.	
Outputs	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
4.1.2. **Pen culture systems** installed and operational in Ada East (G) 4.1.3. Pen culture systems installed and operational in Ada West (G) 4.1.4. Pen culture systems installed and operational in Keta (G)	**NO.** Evidence: These activities are primarily human labour intensive and would not normally involve the use of GHG emitting machinery, nor do they fall into the sectors of focus for which the IPCC Guidelines require GHG inventories. .
4.2.1. **Salt resilient crops** and water infiltration systems installed and operational in Keta (G)	**NO.** Evidence: This activity is primarily human labour intensive and would not normally involve the use of GHG emitting machinery, nor does it fall into the sectors of focus for which the IPCC Guidelines require GHG inventories.
4.3.1. **Pen culture systems** installed and operational in Grand Bassam (CdI) 4.3.2. Pen culture systems installed and operational in Jacqueville (CdI)	**NO.** Evidence: These activities are primarily human labour intensive and would not normally involve the use of GHG emitting machinery, nor do they fall into the sectors of focus for which the IPCC Guidelines require GHG inventories. .
Principle 12, POLLUTION AND RESOURCE EFFICIENCY. Risk: No Approach: Activities under the project are of low-tech nature and do not imply major use of energy or the production of wastes and pollutants. In addition, all sub-projects comprise activities of small scale at local level. No risk related to massive use of energy or production of waste will occur.	
Output	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
4.1.2. **Pen culture systems** installed and operational in Ada East (G) 4.1.3. Pen culture systems installed and operational in Ada West (G) 4.1.4. Pen culture systems installed and operational in Keta (G)	**NO.** Evidence: Activities belonging to this output do not involve major use of energy, or production of waste and pollution. No polluting activities are planned under this output. Also, as no construction interventions are included, no risk of overuse of resources is identified.
4.2.1. **Salt resilient crops** and water infiltration systems installed and operational in Keta (G)	**NO.** Evidence: Activities belonging to this output do not involve major use of energy, or production of waste and pollution. No polluting activities are planned under this output. Also, as no construction interventions are included, no risk of overuse of resources is identified.
4.3.1. **Pen culture systems** installed and operational in Grand Bassam (CdI) 4.3.2. Pen culture systems installed and operational in Jacqueville (CdI)	**NO.** Evidence: Activities belonging to this output do not involve major use of energy, or production of waste and pollution. No polluting activities are planned under this output. Also, as no construction interventions are included, no risk of overuse of resources is identified
Principle 13, PUBLIC HEALTH. Risk: No. Approach: to assess potential significant impacts on public health of activities, we adopted the short a screening tool present among the "short guides" listed within the WHO website ("focusing on health", Sweden). The tool is based on a matrix considering as determinants of health: democracy, financial security, employment/education, social network, access to health care centres, belief in the future, physical environment, and living habitats (www.who.int/hia/evidence/doh/en/index5.htlm). Generally speaking, no activity within the project represents any risk for **democracy** or **belief in the future**. This is because key principles of the design are participation and equity (with a specific focus to the inclusion of all vulnerable groups), gender aspects were always considered and freedom of choice pursued. The project will not harm **employment or education**, but on the contrary provide more opportunities in terms of job creation and capacity building. The activities enhance sustainable financial security as well. Risk related to living habitats are already presented under principle 9 (we considered natural critical habitats equal to the item "**living habitats**" of the list of determinants of public health). The table below presents these aspects in more detail per subproject.	
Output	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
4.1.2. **Pen culture systems** installed and operational in Ada East (G) 4.1.3. Pen culture systems installed and operational in Ada West (G) 4.1.4. Pen culture systems installed and operational in Keta (G)	**No.** Evidence: This activity is anticipated to have no adverse impacts on the components of public health identified above
4.2.1. **Salt resilient crops** and water infiltration systems installed and operational in Keta (G)	**No.** Evidence: This activity is anticipated to have no adverse impacts on the components of public health identified above
4.3.1. **Pen culture systems** installed and operational in Grand Bassam (CdI) 4.3.2. Pen culture systems installed and operational in Jacqueville (CdI)	**No.** Evidence: This activity is anticipated to have no adverse impacts on the components of public health identified above
Principle 14, PHYSISCAL AND CULTURAL HERITAGE. Risk: NO.	

Field Code Changed

Approach: To assess possible impacts of each activity on the physical and cultural heritage, the presence of physical and cultural heritage in the five locations (Keta, Ada East, and Ada West in Ghana; Grand Bassam and Jacqueville in Cote d'Ivoire). The UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage was taken as reference for international recognition of physical and cultural heritage, and the list of World Heritage in Danger as well as the List UNESCO World Heritage was adopted. To conclude, heritage identified within the project areas comprises: - Ghana However, UNESCO Heritage coincides with the built up area and no interventions occur within any UNESCO heritage site. Jacqueville presents no UNESCO Heritage sites - Cote-d'Ivoire: Grand Bassam. However, UNESCO Heritage coincides with the built up area and no interventions occur within any UNESCO heritage site. Jacqueville presents no UNESCO Heritage sites.	
Output	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
4.1.2. **Pen culture systems** installed and operational in Ada East (G) 4.1.3. Pen culture systems installed and operational in Ada West (G) 4.1.4. Pen culture systems installed and operational in Keta (G)	**NO.** Evidence: As mentioned above, no physical and cultural heritage is present within (or in the immediate surroundings) of the project areas. Hence, no risk.
4.2.1. **Salt resilient crops** and water infiltration systems installed and operational in Keta (G)	**NO.** Evidence: As mentioned above, no physical and cultural heritage is present within (or in the immediate surroundings) of the project areas. Hence, no risk.
4.3.1. **Pen culture systems** installed and operational in Grand Bassam (CdI)4.3.2. Pen culture systems installed and operational in Jacqueville (CdI)	**NO.** Evidence: As mentioned above, no physical and cultural heritage is present within (or in the immediate surroundings) of the project areas. Hence, no risk.
Principle 15, LAND AND SOIL EROSION. Risk: No. Approach: To assess possible impacts of each activity on soil conservation, we focused on two aspects: soil conservation (as meant by FAO "avoiding changes in the health status resulting in diminished capacity of the ecosystem services provisioning); and conservation of valuable lands. For the first aspects, we checked possible fragile soils and identified subproject activities that may diminished the capacity of the soil to provide ES. We based the identification of fragile soils on the knowledge of local experts from the municipality and other soil-related departments. We mainly looked at coastal soil, soil located on steep slopes, rocky areas with very thin soil, areas showing evidence of soil erosion due to lack of water, water erosion during run-off, or deforestation. In the second case, we mapped the presence of valuable lands, such as agricultural land or ecosystems crucial to the resilience and livelihoods of the city. We also considered as valuable land, areas mentioned under principle 9 and 10 due to their biodiversity or relevance as habitat: we checked possible fragile valuable lands an identified activities included in the subprojects that may convert them or damage them. In this case again, we based the identification of fragile soils on the knowledge of local experts from the municipality and other environmental-related departments. Fragile soils and valuable lands were identified as follows: **Ghana** (Keta, Ada East, and Ada West): for all three sites, the coastal system has to be considered extremely fragile. However, the activities under this component are meant to protect and improve the state of such system. **Cote d'Ivoire** (Grand Bassam and Jacqueville): similarly to the case of Ghana, for both sites, the coastal system has to be considered extremely fragile. However, the activities under this component are meant to protect and improve the state of such system.	
Output	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
4.1.2. **Pen culture systems** installed and operational in Ada East (G) 4.1.3. Pen culture systems installed and operational in Ada West (G) 4.1.4. Pen culture systems installed and operational in Keta (G)	**No**. Evidence: This activity is not expected to have any adverse impact on soil conservation.
4.2.1. **Salt resilient crops** and water infiltration systems installed and operational in Keta (G)	**No**. Evidence: This activity is not expected to have any adverse impact on soil conservation. On the contrary, it is supposed to lower pressure on water and soil, compared to present agricultural activities and praxis.
4.3.1. **Pen culture systems** installed and operational in Grand Bassam (CdI) 4.3.2. Pen culture systems installed and operational in Jacqueville (CdI)	**No**. Evidence: This activity is not expected to have any adverse impact on soil conservation.

Based on the risks identified in tables 2a and 2b through the screening process, a ESMP is presented the tables below: 3a for Component 3 and 3b for Component 4. Tables 3a and 3b address only cases were risks were identified. The information presented was corroborated with environmental and social experts through desk reseach, field missions, and with key communities representatives.

Table 3a: ESMP for project Components 3

Component 3			
Existing risks (per subproject, organized by principles)	Potential risk impact assessment	Measures to avoid or mitigate potential risks	Monitoring
Principle 2 Subprojects: 3.1.1. **Mangrove restoration** in Keta (G) 3.2.1 **Coastal lagoon erosion** in Ada East (G) 3.2.2. Coastal lagoon erosion in Ada West (G) 3.3.1. Coastal lagoon erosion in Keta (G) **3.3.1. Mangrove restoration along the coast and lagoons** in Grand Bassam (Cdl) 3.3.2. Mangrove restoration along the coast and lagoons in Jacqueville (Cdl) 3.4.1. **Sand nourishment** along the coast in Grand Bassam (Cdl) 3.5.1. **Embankment of lagoons** in Jacqueville (Cdl)	There is a risk to not sufficiently take into consideration the specific needs and/or to not actively involve specific community groups given traditional habits and stereotypes for women, low-educated people, disabled. This may result in: i) low participation in awareness-raising activities around ecosystem services, climate change, and livelihoods; ii) community conflicts around resources; iii) exclusion/discrimination of particular community groups from designing/benefitting (from mangroves activities)	-The detailed design and planning of these sub-projects will be discussed with all concerned community groups, especially the vulnerable and marginalised; -Grievance/reporting mechanisms will be set up to capture complaints, feedback and inputs from the community -The direct involvement of these groups will be encouraged, especially through awareness-raising activities -Job descriptions and vacancies related to these sub-projects will allow women, youth, and older persons to apply -Alternative livelihoods will be identified to reduce potential conflict on the use of target environmental resources (mangrove)	-regular meetings with key local stakeholders -progress reports -Meetings' attendance lists and minutes -Grievance reports
Principle 3 Subprojects: 3.1.1. **Mangrove restoration** in Keta (G) 3.2.1 **Coastal lagoon erosion** in Ada East (G) 3.2.2. Coastal lagoon erosion in Ada West (G) 3.3.1. Coastal lagoon erosion in Keta (G) **3.3.1. Mangrove restoration along the coast and lagoons** in Grand Bassam (Cdl) 3.3.2. Mangrove restoration along the coast and lagoons in Jacqueville (Cdl) 3.4.1. **Sand nourishment** along the coast in Grand Bassam (Cdl) 3.5.1. **Embankment of lagoons** in Jacqueville (Cdl)	Single mothers/female heads of families, youth and vulnerable groups that are dependent on mangrove or on activities related to the lagoons/coast, may not be adequately: i) involved in the implementation works or; ii) consulted on awareness-raising activities and in identifying sustainable alternative livelihoods activities	-Communities representatives, municipal officials, and other local stakeholders, when planning/implementing these activities, will be sensitized on the importance of capturing perceptions, constrains and needs of the marginalized and vulnerable including women, children, older people, people with disabilities; this will be done in a participatory/consultative way, including through training and awareness raising activities, especially to actively involve these groups in the planned activities and identify alternative livelihood options; -Safe grievance/reporting mechanisms will be set up to capture complains, feedback, inputs, and updates from the concerned community groups; -Awareness raising campaigns will be designed/delivered to reach children, youth and marginalized/vulnerable thorugh the use of appropriate platforms, approaches, languages, materials - Restoration activities will be designed in a participatory manner	-regular meetings with key local stakeholders -progress reports -Meetings' attendance lists and minutes -Grievance reports
Principle 5 Subprojects: 3.1.1. **Mangrove restoration** in Keta (G) 3.2.1 **Coastal lagoon erosion** in Ada East (G) 3.2.2. Coastal lagoon erosion in Ada West (G) 3.3.1. Coastal lagoon erosion in Keta (G) **3.3.1. Mangrove restoration along the coast and lagoons** in Grand Bassam (Cdl) 3.3.2. Mangrove restoration along the coast and lagoons in Jacqueville (Cdl) 3.4.1. **Sand nourishment** along the coast in Grand Bassam (Cdl) 3.5.1. **Embankment of lagoons** in Jacqueville (Cdl)	The final design and construction plans may fail to consider women's needs and constraints. During construction, women may consider some difficulties to reach their activities. Women could be considered not to fit any construction/implantation work due to their perceived status Awareness campaigns may not reach women	-Communities will be sensitized on the importance of adopting a gender lens and approach in the design and implementation the activities. -Specific tasks during implementation will be assigned to women -Participatory planning sessions will be organized with women's group under the leadership of local authorities to minimize impacts -Safe grievance/reporting mechanisms will be set up to capture women's complaints, feedback, inputs and updates	-regular meetings with key local stakeholders -progress reports -Meetings' attendance lists and minutes -Grievance reports
Principle 6 Subprojects: 3.1.1. **Mangrove restoration** in Keta (G) 3.2.1 **Coastal lagoon erosion** in Ada East (G) 3.2.2. Coastal lagoon erosion in Ada West (G) 3.3.1. Coastal lagoon erosion in Keta (G)	These initiatives entails construction works, so labour contracts will be established in the two countries.. Since national labour laws do not	-In agreement with the local authorities and concerned communities, minimum social security, occupation safety and health (as per ILO standards and principles) will be included in labour contracts and sub-contracts;	-regular meetings with key local stakeholders -progress reports -Key documents -Grievance reports

3.3.1. Mangrove restoration along the coast and lagoons in Grand Bassam (Cdl) 3.3.2. Mangrove restoration along the coast and lagoons in Jacqueville (Cdl) 3.4.1. **Sand nourishment** along the coast in Grand Bassam (Cdl) 3.5.1. **Embankment of lagoons** in Jacqueville (Cdl)	clearly regulate and enforce ILO standards and principles - especially those related to social security and occupational safety and health- it may result in unfair treatment concerning compensation (living wage), gender equity, health and security standards in relation to dangerous and unhealthy work	- Employment contracts will be written documents and registered according to the country's labour law and conditions; -Safe grievance/reporting mechanisms will be set up to capture local workers' complaints, feedback, inputs, updates	
Principle 9 Subproject: 3.2.1 **Coastal lagoon erosion** in Ada East (G) 3.2.2. Coastal lagoon erosion in Ada West (G) 3.3.1. Coastal lagoon erosion in Keta (G) 3.4.1. **Sand nourishment** along the coast in Grand Bassam (Cdl)	This activity may trigger risks because of the habit to collect sand in an uncontrolled/unsustainable way that may negatively affect protected areas in the surroundings. Connectivity of the ecosystems, however, will not be harmed	The design of the implementation strategy will pay particular attention to ensure that sand is collected from surrounding areas will similar characteristics, in order not to import any new organism that may affect habitat/protected areas. By-laws to ensure proper and sustainable sand-mining will have to be inforced in a stricter manner, including payment of penalties; involving the populations in this process through awareness-raising and surveillance mechanisms.	-Monitoring on the interventions on a regular (weekly) basis during implementation -Monitoring on the state of surrounding protected areas and the mentioned impacts every 4 months -Meetings attendance lists and minutes -progress reports.
Principle 10 Subprojects: 3.2.1 **Coastal lagoon erosion** in Ada East (G) 3.2.2. Coastal lagoon erosion in Ada West (G) 3.3.1. Coastal lagoon erosion in Keta (G) 3.4.1. **Sand nourishment** along the coast in Grand Bassam (Cdl) 3.5.1. **Embankment of lagoons** in Jacqueville (Cdl)	The risk is related to sand provisioning. Even though the risk is minor, as sand is meant to come from surrounding areas, there is still potential to alter the equilibrium.	The design of the implementation strategy will pay particular attention to ensure that sand is collected from proper areas with similar characteristics, in order to minimize the risk to import any kind of new organism in the project area. Activities will be organized in collaboration with local authorities, to take advantage of local knowledge about the existing ecosystem in the project area and in the surrounding areas.	Monitoring on the interventions on a regular (weekly) basis during implementation (specifying the source of mangrove and sand being used) -Monitoring on the state of surrounding protected areas and the mentioned impacts every 4 months -Meetings attendance lists and minutes -progress reports.
Principle 12 Subprojects: 3.2.1 **Coastal lagoon erosion** in Ada East (G) 3.2.2. Coastal lagoon erosion in Ada West (G) 3.3.1. Coastal lagoon erosion in Keta (G) 3.4.1. **Sand nourishment** along the coast in Grand Bassam (Cdl) 3.5.1. **Embankment of lagoons** in Jacqueville (Cdl)	This activity may trigger risks because of the habit to collect sand in an uncontrolled/unsustainable way that may negatively affect protected areas in the surroundings. Connectivity of the ecosystems, however, will not be harmed	The design of the implementation strategy will pay particular attention to ensure that sand is collected from proper areas and in a sustainable way. Activities will be organized in collaboration with local authorities, to protect the surrounding protected areas. By-laws to prevent informal sand-mining will have to be enforced in a stricter manner, including payment of penalties; involving the populations in this process through awareness-raising and surveillance mechanisms.	-Monitoring on the interventions on a regular (weekly) basis during implementation -Monitoring on the state of surrounding protected areas and the mentioned impacts every 4 months -Meetings attendance lists and minutes -progress reports.

Table 3b: ESMP for project Components 4

Component 4			
Existing risks (per subproject, organized by principles)	Potential risk impact assessment	Measures to avoid or mitigate potential risks	Monitoring
Principle 2 Subprojects 4.1.2. **Pen culture systems** installed and operational in Ada East (G) 4.1.3. Pen culture systems installed and operational in Ada West (G) 4.1.4. Pen culture systems installed and operational in Keta (G) 4.2.1. **Salt resilient crops** and water infiltration systems installed and operational in Keta (G)	There is a risk to not sufficiently take into consideration the specific needs and/or to not actively involve specific community groups given tradicional habits and stereotypes for women, low-educated people, disabled. This may result in: i) low participation in	-The detailed design and planning of these sub-projects will be discussed with all concerned community groups, especially the vulnerable and marginalised; -Grievance/reporting mechanisms will be set up to capture complaints, feedback and inputs from the community -The direct involvement of these groups will be encouraged, especially through awareness-raising activities	-regular meetings with key local stakeholders -progress reports -Meetings' attendance lists and minutes -Grievance reports

4.3.1. **Pen culture systems** installed and operational in Grand Bassam (CdI) 4.3.2. Pen culture systems installed and operational in Jacqueville (CdI)	awareness-raising activities around ecosystem services, climate change, and livelihoods; ii) community conflicts around resources; iii) exlusion/discrimination of particular community groups from designing/benefitting from pen culture and agricultural activities	-Job descriptions and vacancies related to these sub-projects will allow women, youth, and older persons to apply -Alternative livelihoods will be identified to reduce potential conflict on the use of target environmental resources	
Principle 3 Subprojects 4.1.2. **Pen culture systems** installed and operational in Ada East (G) 4.1.3. Pen culture systems installed and operational in Ada West (G) 4.1.4. Pen culture systems installed and operational in Keta (G) 4.2.1. **Salt resilient crops** and water infiltration systems installed and operational in Keta (G) 4.3.1. **Pen culture systems** installed and operational in Grand Bassam (CdI) 4.3.2. Pen culture systems installed and operational in Jacqueville (CdI)	Single mothers/female heads of families, youth and vulnerable groups that are dependent on agriculture or that may potentially be involved in pen-culture, may not be adequately: i) involved in the implementation works or; ii) consulted on awareness-raising activities and in identifying sustainable alternative livelihoods activities	-Communities representatives, municipal officials, and other local stakeholders, when planning/implementing these activities, will be sensitized on the importance of capturing perceptions, constrains and needs of the marginalized and vulnerable including women, children, older people, people with disabilities; this will be done in a participatory/consultative way, including through training and awareness raising activities, especially to actively involve these groups in the planned activities and identify alternative livelihood options; -Safe grievance/reporting mechanisms will be set up to capture complains, feedback, inputs, and updates from the concerned community groups; -Awareness raising campaigns will be designed/delivered to reach children, youth and marginalized/vulnerable thorugh the use of appropriate platforms, approaches, languages, materials - Restoration activities will be designed in a participatory manner	-regular meetings with key local stakeholders -progress reports -Meetings' attendance lists and minutes -Grievance reports
Principle 5 Subprojects 4.1.2. **Pen culture systems** installed and operational in Ada East (G) 4.1.3. Pen culture systems installed and operational in Ada West (G) 4.1.4. Pen culture systems installed and operational in Keta (G) 4.2.1. **Salt resilient crops** and water infiltration systems installed and operational in Keta (G) 4.3.1. **Pen culture systems** installed and operational in Grand Bassam (CdI) 4.3.2. Pen culture systems installed and operational in Jacqueville (CdI)	The final design and construction plans may fail to consider women's needs and constraints. Women may be excluded from the job opportunities derived from the activities Women could be considered not to fit any construction/implantation work due to their perceived status Awareness campaigns may not reach women	-Communities will be sensitized on the importance of adopting a gender lens and approach in the design and implementation the activities. -Specific tasks during implementation will be assigned to women -Participatory planning sessions will be organized with women's group under the leadership of local authorities to minimize impacts -Safe grievance/reporting mechanisms will be set up to capture women's complaints, feedback, inputs and updates	-regular meetings with key local stakeholders -progress reports -Meetings' attendance lists and minutes -Grievance reports
Principle 6 Subprojects 4.1.2. **Pen culture systems** installed and operational in Ada East (G) 4.1.3. Pen culture systems installed and operational in Ada West (G) 4.1.4. Pen culture systems installed and operational in Keta (G) 4.2.1. **Salt resilient crops** and water infiltration systems installed and operational in Keta (G) 4.3.1. **Pen culture systems** installed and operational in Grand Bassam (CdI) 4.3.2. Pen culture systems installed and operational in Jacqueville (CdI)	These initiatives entails construction works, so labour contracts will be established in the two countries. Since national labour laws do not clearly regulate and enforce ILO standards and principles -especially those related to social security and occupational safety and health- it may result in unfair treatment concerning compensation (living wage), gender equity, health and security standards in relation to dangerous and unhealthy work	-In agreement with the local authorities and concerned communities, minimum social security, occupation safety and health (as per ILO standards and principles) will be included in labour contracts and sub-contracts; - Employment contracts will be written documents and registered according to the country's labour law and conditions; -Safe grievance/reporting mechanisms will be set up to capture local workers' complaints, feedback, inputs, updates	-regular meetings with key local stakeholders -progress reports -Key documents -Grievance reports

vi. Arrangements for ESMP implementation

Content:

- ☐ Allocated roles and responsibilities environmental and social risk management / implement of the ESMP
- ☐ Opportunities for adaptive management
- ☐ Arrangements to supervise executing entities for implementation of ESMP
- ☐ Budget provision to manage environmental and social risks / implement of the ESMP
- ☐ Measures to avoid, minimize, or mitigate potential risks
- ☐ Risks monitoring system / indicators
- ☐ Grievance mechanism

Allocated roles and responsibilities for environmental and social risk management / implementation of the ESMP

The Regional Project Supervision Unit will be responsibility for environmental and social risks management, including implementation of the Project ESMP. An AF and UN-H policies and reporting compliance expert will be part of the RPSU. This expert will also supervise Project Execution Entities on the implementation of the Project ESMP. Guidelines showing how to comply to the AF ESP and GP will be shared with all execution entities and they will be guided on process, including monitoring. Also, a detailed action plan to comply to ESP and GP will be developed during the project inception phase.

A Safeguarding system compliance expert will also be part of the RPSU. Monitoring staff part of the RPSU will require having expertise in social risk management and be familiar with the AF safeguarding system. The RPSU will be backstopped by UN-Habitat HQ, with experts on climate change, human rights, environmental and social risks managements and gender policies.

In both Ghana and Côte d'Ivoire government stakeholders responsible for compliance to national environmental and social policies and standards will be part of the Regional- and National-level Steering Committees, as well as government gender focal points.

This ESMP will allow country-specific management of the potential risks and impacts identified under in country-specific ESIA and ESMP reports (see link at beginning of this document).

All project-related ToR's and contracts will include clauses stating contractors will need to comply to the AF ESP, especially principle 1 (law), 4 (human rights), 5 (gender) and 6 and 13 (labour and safety) and the AF GP. This includes:

- ☐ Principle 1: References to standards and laws to which the activity will need to comply will be included in all legal agreements with all sub-contractors, including steps and responsibilities for compliance.
- ☐ Principle 4: References to relevant Humans rights declarations will be included in all legal agreements with all sub-contractors.
- ☐ Principle 5: Reference to relevant gender policies
- ☐ Principe 6: Employment and working conditions following ILO standards will be included in legal agreements with all sub-contractors.
- ☐ Principle 13: Ensure that ICSC international health and safety standards are clearly accessible and understood. e.g. by putting clearly visible signs detailing health and safety standards to be located at projects sites and by supplying protective equipment.

Opportunities for adaptive management

When changes in project activities or additional activities are required, these will need to go through a new risks screening and impact assessment process in compliance with AF, UN-Habitat and national policies and standards. When this is required, this will be led by the RPSU and the Regional-level Project Steering Committee would need to approve the changes. As for opportunities, this would be possible following above process. With the Covid-situation, physical meetings may need to be online. Budget savings may be re-allocated through approval of the steering committee and if over 10 percent change, by the AF.

Arrangements to supervise executing entities for implementation of ESMP

Table 4. Capacity of potential executing entities to carry-out gender responsive activities

Potential executing entity	Skills and expertise to provide gender mainstreaming inputs	Specific requirements execution entities for compliance	Capacity building needs
LUSPA	Limited	- Appoint ESP a compliance and gender focal point	- Awareness on requirements

Comp 1 Côte d'Ivoire	(as government entity)	- Capacity to comply to the AF ESP and implementation of the ESMP guided by UN-Habitat - Capacity to comply to the AF GP).	- Share guidelines for execution entities to comply and to ensure 'opportunities' are identified and exploited
Companies / consultancy firms Development Institute NGO in Côte d'Ivoire UCC	Limited (as company)	- Appoint ESP a compliance and gender focal point - Capacity to comply to the AF ESP and implementation of the ESMP guided by UN-Habitat - Capacity to comply to the AF GP	- Awareness on requirements - Share guidelines for execution entities to comply and to ensure 'opportunities' are identified and exploited - Support development baseline and approach before project start + reporting requirements
Abidjan Convention	Yes (UN core value)	- Appoint ESP a compliance and gender focal point - Capacity to comply to the AF ESP and implementation of the ESMP guided by UN-Habitat - Capacity to comply to the AF GP.	

Budget provision to manage environmental and social risks / implement of the ESMP
Dedicated safeguard compliance staff time is allocated under project execution fees for USD 30,000. Also, dedicated AF ESP and GP compliance staff time is allocated under MIE management fee for ROAS of USD 170,000. These persons will ensure compliance and develop ESP and GP compliance guidelines and action plans for execution entities and guide these execution entities through the process, including baselines and reporting requirements. Besides that measures are budgeted, through the execution entities, to supervise and monitoring proposed project activities, including e.g. water sampling, remote monitoring system, etc. Costs for risks mitigation measures are integrated in the budget, including e.g. water quality monitoring.

Measures to avoid, minimize, or mitigate potential risks

See table 1, 3a and 3b. * For more details see country-specific ESIA-ESMP reports

Risks monitoring system / indicators
The environmental and social risks management approach includes monitoring of potential risks and implementation of risks mitigation measures. This monitoring program commensurate with project activities and will report on the monitoring results to the Fund in the mid-term, annual, and terminal performance reports. Monitoring will be done to ensure that actions are taken in a timely manner and to determine if actions are appropriately mitigating the risk / impact or if they need to be modified in order to achieve the intended outcome. Annual reporting will include information about the status of implementation of this ESMP, including those measures required to avoid, minimize, or mitigate environmental and social risks. The reports shall also include, if necessary, a description of any corrective actions that are deemed necessary.

The Regional Project Supervision Unit will be responsibility for environmental and social risks management, including monitoring of the implementation of the Project ESMP. An AF and UN-H policies and reporting compliance expert will be part of the RPSU. A Safeguarding system compliance expert will also be part of the RPSU. Monitoring staff part of the RPSU will require having expertise in social risk management and be familiar with the AF safeguarding system. Gender specific indicators and targets have been developed as shown in the results framework and Annex 6. Specific budgets for risks monitoring are covered by M & E staff time under the execution fee (USD 30,000).

Table 5150. Monitoring arrangements for general risks management

Action	Indicator and method	Responsibility and frequency
Monitoring of capacity execution entities to comply	- Guidelines and action plans shared - Monitoring reports comply to requirements	RPSU; within half a year from inception RPSU; when reports are required
Implementation of grievance mechanism	- Grievance mechanism information is at target locations (buildings, etc.) - Grievance mechanism information is shown on UN-Habitat project website	RPSU in coordination with execution entities; within half a year from inception RPSU in coordination with execution entities; within half a year from inception
Monitoring of measures to avoid or mitigate risks / impacts per output	- See table above	RPSU in coordination with execution entities; when reports are required

Grievance mechanism
UN-Habitat in coordination with the execution entities will implement a grievance mechanism in the target areas, which will allow an accessible, transparent, fair and effective means of communicating if there are any concerns regarding project design and implementation. Project employees, and people benefitting / affected by the project will be made aware of the grievance mechanism for any criticism or complaint of an activity.

This mechanism considers the special needs of different groups as well as gender considerations and potential environmental and social risks, especially human rights (as shown on posters). A combination of mailboxes (at

community / building level) and telephoning options offer an immediate way for employees and people affected by the project to safely express their concerns. The options will allow local languages and offer the opportunity for and people affected by the project to complain or provide suggestions on how to improve project design and implementation, which will be reviewed and taken up by the project implementation team.

Project staff and execution entities will be made aware of the procedures for receiving messages and on the reporting of any grievances. In addition, monitoring activities allow project participants to voice their opinions or complaints as they may see fit.

The address and e-mail address of the Adaptation Fund will also be made public (i.e. project website, Facebook and mailbox) for anyone to raise concerns regarding the project. For country-specifics recommendations regarding the grievance mechanisms, see country specific ESIA-ESMPs.

ANNEX 6: Gender and youth approach and baseline

Purpose

The purpose of this specific 'gender and youth' section is to demonstrate how this project will comply to the AF Gender Policy (GP).

A gender approach and data baseline have been established, which is necessary at the project start against which implementation progress and results can be measured. In line with UN-Habitat's ESSP, the approach includes the identification and of promotion of economic, social and environmental benefits and opportunities for women and youth for each project activity.

During project preparation a 'gender assessment' has been conducted to identify potential project gender equality and women's and youth empowerment issues, but also opportunities. The outcomes are summarized below, as well as arrangements that will be taken during project implementation to comply to the AF GP, including to show how the project contributes to improving gender equality, the empowerment of women and youth and the project interventions' suitability to meet the adaptation needs of targeted women and men and youth.

Methodology

During the project preparation phase, potential gender equality and women's and youth challenges and opportunities have been identified through initial data analysis / desk research, surveys and focus group discussions with women, youth and other vulnerable groups. Through these methods, specific women and youth needs and perceptions were identified, as well as potential gender-related risks and impacts, including possible concerns regarding proposed project activities.

Specific considerations and phases

Determinants for gender-responsive stakeholder consultations

Table 5251. Stakeholders consulted to develop gender approach

Type of stakeholder	Specific stakeholder
National government	Ghana: - Ministry of Environment, Science, Technology and Innovation (MESTI) (UNFCCC gender focal point) Côte d'Ivoire: - Ministry of Environment and Sustainable Development (UNFCCC gender focal point)
UN agencies	- UN Women - UNICEF
Community level	- Community consultations and focus group discussions with women and youth

*See also Part II.I and Annex 4

Initial Gender Assessment

a. Data baseline – overview of disaggregated data (beneficiaries) in target areas.

Table 5352. Data baseline – women and youth

Project outputs	Ghana				Côte d'Ivoire			
	Direct		Indirect		Direct		Indirect	
	Women	Youth	Women	Youth	Women	Youth	Women	Youth
1.1.	50% of 200		52% of 277,963	43% of 277,963	-	-	-	-
1.2.	50% of 150		53% of 218,839	41% of 218,839	-	-	-	-
1.3.	50% of 40		40% of 100		-	-	-	-
1.4.	-	-	-	-	50% of 200		48% of 356,495	31% of 356,495
1.5.	-	-	-	-	50% of 70		49% of 56,308	30% of 56,308
1.6.	-	-	-	-	50% of 40		50% of 100	
2.1.	50% of 300	20% of 300	52% of 74,689	53% of 74,689	-	-	-	-
2.2.	-	-	-	-	50% of 300	20% of 300	47% of 17,556	31% of 17,556
3.1.	51% of 13,082	53% of 13,082	52% of 5,657	51% of 5,657	-	-	-	-
3.2.	52% of 23,480	53% of 23,480	48% of 34,354	58% of 34,354	-	-	-	-
3.3.	-	-	-	-	48% of 8,318	30% of 8,318	50% of 11,214	30% of 11,214
3.4.	-	-	-	-	47% of 4,090	30% of 4,090	48% of 7,263	27% of 7,263
3.5.	-	-	-	-	49% of 2,906	29% of 2,906	46% of 3,305	31% of 3,305
4.1.	52% of 28,849	53% of 28,849	48% of 30,697	58% of 30,697	-	-	-	-
4.2.	53% of 48,346	57% of 48,346	54% of 40,329	59% of 40,329	-	-	-	-
4.3.	-	-	-	-	55% of 12,388	29% of 12,388	53% of 16,560	32% of 16,560
5.1.	Everyone with internet access, esp. planners and development professionals							
5.2.								
5.3.	50% of 240				Same as Ghana			
5.4.	50% of 400				Same as Ghana			

a. Context:

At the regional level, Ghana and Côte d'Ivoire are members of the African Union (AU), which has put gender equality on the agenda through its Agenda 2063, its strategy for Gender Equality and Women's Empowerment (GEWE, 2019), its Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa (2003), and the Solemn Declaration on Gender Equality in Africa (SDGEA, 2004). The AU's Women, Gender and Development Directorate (WGDD) aims to ensure that member states implement the respective policies and strategies, and provides guidance to the country level in this respect. Environment or climate change related topics are integrated into GEWE under the pillar of economic justice and sustainable development, where the strategy document states that "Women are key managers of the environment; bear the brunt of natural disasters and climate change yet are not meaningfully engaged in climate justice initiatives."

In 2010 the AU declared the Decade for Women 2010-2020. Among its objectives is to "identify Women's role in mitigating climate change, as custodians of the environment, making sure they benefit from the new global packages to fight climate change". Adaptation to climate change however is not specifically included.

In addition, Ghana and Côte d'Ivoire are members of ECOWAS. The Supplementary Act on Equality of Rights between Women and Men for Sustainable Development in the ECOWAS Region from 2015 commits all ECOWAS Member states to the promotion of gender equality and equity in all sectors through appropriate policy and legislative formulation and reviews as well as strategy alignment. It includes Article 37 on Environmental Management and Article 38 on Protection against the Negative Impacts of Climate Change.

Table 5453. Analysis of national-level gender-specific legal, cultural / religious and policy context (relevant for this project)

	Analysis of legal status of women	Analysis of cultural/religious status of women	Supporting policies / initiatives
Ghana87 - **SIGI 2019 Category**: medium - **SIGI Value 2019**: 35 percent - **AGEI:** 15 out 52 African countries - **CEDAW**: ratified in 1986	**Household responsibilities**		National Gender Policy (2015) Policy commitments: ✓ Improve women's rights and access to justice ✓ Improve women's empowerment and livelihoods ✓ Improvement to accountable governance structures and women's leadership and participation ✓ Improve women's economic justice and interrogate; and ✓ Improve gender roles and relations. Responsible ministry: Ministry of Gender, Children and Social Protection
	The Head of Family Accountability Act, 1985 does not prohibit women from becoming the heads of households and across Ghana there is a combination of female-headed and male-headed households	Religious and customary practices and norms may require a woman to obey her husband, but the law does not mandate it nor does the law name legal consequences for her failing to do so.	
	Secure access to land and assets		
	Women and men do not enjoy the same legal rights to land and non-land assets in Ghana (Ghana's Intestate Succession Law 1991; CEDAW Shadow Report, 2014). In some communities, women, namely widows and daughters are still not allowed to inherit land (CEDAW Shadow Report, 2014) therefore making in practice, inequitable ownership and use of land	Succession law is not applied consistently across the country and largely depends on whether one's ethnic group is matrilineal or patrilineal in nature	
	Secure access to formal financial resources		
	Though there is no law that prohibits women from opening a bank account in Ghana, there is a paucity in consumer protection legislation and other policies that guarantee equal access regardless of gender	As a result of limited access to formal financial resources, women continuing to dominate positions in the informal sector, low wage jobs and unpaid labour. This impacts the economic position and stability for women and implies that there are social and cultural gendered stereotypes and expectations associated with what is considered as "women's work".	
	Workplace rights		
	All women are covered under the Labour Act, 2003 (Act 651) and are granted the same rights as men to enter an occupation and profession of their choosing	There are some customary practices that impact the kind of work done by women	
Côte d'Ivoire88 - **SIGI 2019 Category**: high - **SIGI Value 2019:** 43 percent - **AGEI:** 43 out 52 African countries - **CEDAW**: ratified in 1995	**Household responsibilities**		***Politique nationale sur l'égalité des chances, l'équité et le genre de Côte d'Ivoire (2009)*** *Does not include a relation between gender and climate change however* ***Programme d'appui du PNUD à la mise en œuvre des Contributions Déterminées au niveau national (CDN) de la Côte d'Ivoire*** *– The Programme defines the objective to elaborate a National Gender and Climate Change Strategy and Action Plan; and includes capacity building for national actors so that they are capable to implement. The Programme also aims at including a gender dimension in the communication strategy about the NDC* Several initiatives have been implemented to increase women's access to credit by the government, such as a "Women and Development Fund" which facilitates women obtaining credit; or a programme to facilitate access to financial resources at a reduced cost for female entrepreneurs (Republic of Côte d'Ivoire, 2014).
	The law on Marriage, art. 58 & 59 provides women with the same rights as men to be recognised as the head of household	The CEDAW Committee (2011) highlights the persistence of "patriarchal attitudes and deep-rooted stereotypes regarding the roles, responsibilities and identities of women and men in the family and society".	
	Secure access to land and assets		
	Married women do not have the same rights as married men to own, use, make decisions and use as collateral land, property and other non-land assets (Law on Marriage, art. 79 & 81). All goods acquired, inherited or earned during the marriage are considered common goods (Law on Marriage, art. 76), and they are administered by the husband (Law on Marriage, art. 79)	Discriminatory customary practices restricting women's access to land continue to be applied (World Bank, 2013). Women may have to negotiate with their families or their in-laws to be granted the right to use a land plot for subsistence farming (World Bank, 2013). Customary norms regarding access to land vary across the 60 ethnic groups composing Côte d'Ivoire, but women are in general marginalised from making decisions, controlling and acquiring land (FAO, n. d.). According to traditions, no land can be registered in the name of a woman (FAO, n. d.).	
	Secure access to formal financial resources		
	The law provides women with the same rights as men to open a bank account at a formal financial institution (Law on Marriage, art. 66) and to obtain credit (no restriction found).	The CEDAW Committee (2011) notes that despite initiatives aiming at increasing women's access to credit, women still face barriers to obtain credit due notably to their inability to use land as collateral.	
	Workplace rights		
	The Labour Code mandates non-discrimination on the basis of sex in employment and specifically covers hiring, terms and conditions, promotions, training, assignments and termination (art. 4). Additionally, the law mandates equal remuneration for work of equal value (Constitution, art. 14 & 15). However, women are prohibited from entering certain professions; a decree fixes a list of professions prohibited to women (Labour Code, art. 23. 1).	The CEDAW Committee (2011) stresses that working women are concentrated in the informal economy and are thus deprived of their right to social protection. Additionally, there is a pronounced horizontal segregation: women are mostly employed in sectors such as hotel and catering, retail business, cleaning and clothing industry (Republic of Côte d'Ivoire, 2014). Women tend to face barriers in accessing senior positions or decision-making positions in the private and public sector (ICCPR, 2015).	

87 https://www.genderindex.org/wp-content/uploads/files/datasheets/2019/GH.pdf
88 https://www.genderindex.org/wp-content/uploads/files/datasheets/2019/CI.pdf

b. Differentiated climate change impacts on men and women and their differentiated capacities do adopt to these, gender division of labour and gender-based power structures.

Women are amongst the most vulnerable to the impacts of coastal hazards due to cultural and social rules, norms, structures and other social arrangements that shape and regulate their status in society, and that affect their access to and control over resources and decision making.

Table 5554. Typical socio-economic activities and division of labour in coastal communities in Ghana and Côte d'Ivoire

Women	*Men*
• *Rice cultivation along the coast* • *Small-scale agriculture (vegetables) and small animal farming (chicken etc.)* • *Small-scale fishing activities* • *Fish smoking and drying* • *Selling of fish and other sea products*	• *Fishing* • *Shrimp farming* • *Livestock production* • *Cash crop production*

In addition, women are usually responsible for collecting water and firewood, cooking and taking care of the household. Coastal risks and hazards have a number of negative consequences for the population and especially women

Table 5655. Differentiated climate change impacts on men and women

Country	*Main sector / Livelihood relevant to the project*	*Climate change impact*	*Gender and youth equality and empowerment issues, incl. specific Vulnerabilities / barriers to adapt*	*Capacity to adapt and opportunities for promoting a 'women' and 'youth' as agents of change*
Ghana	*Small scale agriculture* *Small scale fishing*	*Crop and fisheries loss due to erosion, inundations, salinization and loss of mangroves* *Reduced water quality*	- High dependency on agriculture and fishing sector for income (mostly informal); - Limited access land and financing; - Youth unemployment	- *Build upon women and youth organizations;* - *Promote equal participation of men and women in assessment, planning and decision-making* - *Involve traditional leaders ensuring culturally appropriate understanding of 'gender';* - *Involve women in agriculture and fishing activities*
Côte d'Ivoire	Small scale agriculture Small scale fishing			

c. Capacity gaps affecting GP compliance

Table 5756. Capacity of potential executing entities to carry-out gender responsive activities.

Potential executing entity	Skills and expertise to provide gender mainstreaming inputs	Specific requirements execution entities for compliance	Capacity building needs
LUSPA Comp 1 Côte d'Ivoire	Limited (as government entity)	- Appoint gender focal point - Target women and youth for awareness and capacity building activities - Identity specific women and youth needs in roll-out project activities - Where realistic, use quota targets for women and youth participation in project activities - Highlight specific gender and youth considerations in knowledge management - Have a participatory (women and youth monitoring system)	- Awareness on requirements - Share guidelines for execution entities to comply and to ensure 'opportunities' are identified and exploited - Develop baseline and approach before project start + report
Companies / consultancy firms	Limited (as company)		
Development Institute NGO in Côte d'Ivoire UCC	Some (as NGO / university)		
Abidjan Convention	Yes (UN core value)		- Awareness on requirements - Share guidelines for execution entities to comply

d. Opportunities for promoting a 'women' and 'youth' as agents of change

Through community-level consultations, it was found that women in Ghana and Côte d'Ivoire have considerable knowledge regarding small-scale agriculture (vegetables), Small-scale fishing activities, fish smoking and drying and selling of fish. The project aims to utilizing women's traditional knowledge by targeting women in community level skill building and trainings with a focus to enhance their capacities for applying climate change resilient fishing and agriculture practices. Opportunities include:

- ☐ Have women and youth participate in community assessment and planning processes, including monitoring; Assign a specific gender focal point for coastal risk management
- ☐ Include women and youth considerations / roles in strategies and plans
- ☐ Target and strengthen women and youth organizations
- ☐ Women to be involved with O & M
- ☐ Women to be involved with cc resilient fishing activities
- ☐ Youth to be involved with cc resilient innovative agriculture activities

Project planning and design.

Table 5857. Gender baseline, goals and activities. A detailed action plan will be developed at inception phase

Project outputs	Disaggregated beneficiaries, gender specific issues and needs / baseline	Key gender goals (to improve equality)	Entry points (to integrate gender considerations / empower women / youth)	Suitable interventions to meet specific needs and built on women and youth skills and knowledge	Additional activities needed to ensure gender perspective, incl. potential risk mitigation measures	Specific 'gender' output Indicator	Specific 'gender' targets	Budget required and allocated
1.1. 1.2. 1.3. 1.4 1.5 1.6	Limited participation women and youth and roles are not specified in plans	Women and youth to be involved in assessment and planning; appoint a gender focal point	Women and youth groups	Involve women and youth groups and have specific gender considerations in plans	Use quota if needed Check women and youth considerations in plans	% women and youth participation in assessment and planning Women and youth considerations in plans	Women: 50 % Youth: 20 % Specific mentioning	A dedicated safeguard compliance staff time is allocated under project execution fees Dedicated AF ESP and GP compliance staff time is allocated under MIE management fee for ROAS These persons will ensure compliance and develop ESP and GP compliance guidelines for execution entities (with support from UN-H HQ)
2.1. 2.2.	Women and youth should get a chance to be involved in community planning	Involve women and youth in O & M and replication options; Youth to be involved in awareness	Women and / or youth focus point	Involve women and youth groups and have specific gender considerations in plans	Follow-up on selected focal point	Focal point identified % youth participating in awareness campaigns	Women: 50% Youth: 20 % Specific mentioning	
3.1.	High % women and youth - to be involved in mangrove nursery and planting	Women managing nursery	Women and youth groups	Identify preferences through comp 2	Use quota if needed Check women and youth considerations in plans	% women and youth participation in actual assessment and planning, operation and maintenance	Women: 50% Youth: 20 %	
3.2.	High % women and youth - to be involve in managing lagoons	Women managing mangroves around lagoons						
3.3.	High % women and youth - to be involved in mangrove nursery and planting	Women managing nursery						
3.4.	High % women and youth - to be involve in managing sand barriers	Women to be involved in managing barriers						
3.5.	High % women and youth - to be involve in managing lagoons	Women managing mangroves around lagoons						
4.1.	High % women and youth – women to be involved in pen culture	Women to manage pens						
4.2.	High % women and youth – youth to be involved in innovative agriculture	Youth to be involved in innovative agriculture						
4.3.	High % women and youth – women to be involved in pen culture	Women to manage pens						
5.1. 5.2. 5.3 5.4	Limited involvement women; Women roles and youth are not specified in plans and knowledge management	Women to participate in meetings; Women and youth roles to be identified	Quota / Steering committee; Consider gender and youth issues and needs	Have specific gender considerations in knowledge management	Use quota if needed Check women and youth considerations in plans	Women and youth considerations in plans / KM	Specific mentioning	

Project implementation
UN-Habitat aims to have a gender responsive and adaptable management approach in place which, when needed, allows adjustment based on learning from earlier decisions and interventions and received feedback. This is done through having gender expertise and focal points in place, whom should identify challenges, barriers or restrictions that arise during project/programme implementation, which might hinder the equal participation of men and women in activities.

Capacities of execution entities will be built so they are able to provide gender mainstreaming inputs and identify any challenges that arise during project/programme implementation, which might hinder the equal participation of men and women in activities. This requires appointing a gender focal point and having quota targets for women and youth participation in project activities. Gender focal points from the government will be part of the steering committees.

The project Grievance mechanism established will be capable to accept grievances and complaints specifically related to gender equality and women's empowerment

Performance Monitoring and Evaluation
The gender responsive management approach includes gender responsive monitoring and evaluation, which is participatory and where 'gender disaggregated data' will be collected and analysed. Where possible, women and youth will be encouraged to participate in monitoring activities.

Knowledge Management, Information Sharing and Reporting
UN-Habitat aims to have a gender responsive knowledge management approach in place, where specific gender considerations are highlighted through reporting on the project/programme's commitment to gender equality and women's empowerment in all outreach, communication and information sharing efforts.

ANNEX 7: Detailed project alignment with national and sub-national strategies

Table 5958. Ghana project alignment with National and sub-national priorities

Policy / Document	Year submitted / ratified	Compliance with the project (Relevant priorities)
Ghana		
Climate Change strategies / plans		
National Adaptation Planning (NAP)	2018	- Support goals of the NAP process: o Identify priority climate adaptation actions in the medium and long terms o Facilitate institutional coordination around climate change adaptation o Accelerate the mobilization of funds for climate change adaptation -
Intended Nationally Determined Contribution (INDC)	2015	- Alignment with priority sectors such as sustainable land use including food security, climate proof infrastructure, equitable social development, and sustainable forest management. - Support on achieving the goal "*increase climate resilience and decrease vulnerability for enhanced sustainable development*". - Alignment with priority adaptation policy actions: agriculture and food security, sustainable forest resource management, water resources, gender and the vulnerable.
National Climate Change Policy	2013	- Support the vision of the plan "*ensure a climate-resilient and climate-compatible economy while achieving sustainable development through equitable low-carbon economic growth for Ghana.*" - Alignment on 2 of the main objectives: effective adaptation and social development. - Alignment on main thematic areas: natural resource management, agriculture and food security, disaster preparedness and response.
National Climate Change Adaptation Strategy 2010-2020	2010	- Support the intentions of the plan: o Deepen awareness and sensitisation for the general populace particularly policy makers about the critical role of adaptation in national development efforts, o Strengthen International recognition to facilitate action, o Facilitate the mainstreaming of Climate change and disaster risk reduction into national development. - Alignment with key principles such as o Promotion of sustainable development and poverty reduction are focus areas of the adaptation strategy, o Stakeholder participation is central, - Gender sensitivity and reduction of vulnerability are extensively adopted
Plan of Action on Disaster Risk	2011	- Alignment with strategic goals:

Reduction and Climate Change Adaptation 2011-2015		○ Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation. ○ Identify, assess and monitor disaster risk ○ Use knowledge, innovation and education to build a culture of safety and resilience at all levels. - Reduce the underlying risk factors
National Development strategies / plans		
Long-Term National Development Plan for Ghana, 2018-2057	2017	- Support achieving the long-term goals such as building a resilient economy, and build safe, well-planned and sustainable communities.
National Spatial Development Framework 2015-2035	2015	- Continue efforts of national and local governments on developing Spatial Development Frameworks understood as "roadmap for the future development of a limited geographical area". - Support the pillars of the spatial strategy: ○ Emphasise balanced polycentric development. ○ Improve regional, national, and international connectivity. ○ Ensure sustainable development and protect ecological assets.
Ghana's Shared Growth Development Agenda II (GSGDA II)	2015	- Alignment with prioritised thematics such as accelerated agricultural modernisation and natural resource management; infrastructure and human settlements development; and human development, productivity and employment.
Environmental strategies / plans		
National Environmental Policy (NEP)	2014	- Aligned with policies goals: ○ Reversing the current insufficient commitment to environmental objectives, policies and interventions ○ Reversing rapid population growth, economic expansion, persisting poverty, poor governance and institutional weaknesses and failures ○ Improving quality and flow of information ○ Creating an understanding of the nature and causes of environmental problems ○ Establishing a clear definition of the national environmental agenda and its links to economic growth and poverty reduction and weak legal, regulatory, financial, technical, human and institutional capacity ○ Mainstreaming international relations into the national environmental agenda ○ Improving the current environmental quality control programme by which prior environmental impact assessments of all new investments that would be deemed to affect the quality of the environment are undertaken. -
Environmental Policy and Action Plan	1990	- Alignment with the outcomes of the policy: ○ Maintenance of ecosystems and ecological processes. ○ Sound management of natural resources and the environment. ○ Protection of humans, animals, plants and their habitats. ○ Guidance on healthy environmental practices in the national development effort. ○ Common approach to regional and global environmental issues. - Support on addressing key challenges such as forestry and wildlife, land management, water management, marine and coastal ecosystems, human settlements,
Sectoral strategies / plans		
National Gender Policy	2015	The implementation of the interventions will take all necessary steps to ensure the full integration of men and women into the mainstream operations of the project.
Forest and Wildlife Policy	2012	- Aligned with policy objectives: ○ Manage and enhance ecological integrity of forest, savannahs, wetlands and other ecosystems. ○ Promote rehabilitation and restoration of degraded landscapes. ○ Promote the development of viable forest and wild-life based livelihoods. ○ Promote and develop mechanisms for transparent governance, equity sharing and citizens' participation in forest and wildlife resource management.
Aquaculture Development Plan	2012	- Continue the support of implementing the National Aquaculture Strategic Framework (2006). - Support the implementation of the vision "create an enabling environment that would facilitate and attract public and private investments into aquaculture, on a sustained basis." - Support achieving the goal "improve the practice, management and development of aquaculture as a viable business by all stakeholders." - Support on capacity building through education and trainings.
Ghana Fisheries and Aquaculture Policy,	2011	The proposed Pen Culture sub-project component is in line with the objectives of the Ghana Fisheries and Aquaculture Policy, as the implementation of the Project will help expand the aquaculture sector in the project area, improve the livelihood of the people in and around the beneficiary communities through employment or job creation, increase fish availability and reduce fish imports.
National Wetlands Conservation Strategy,	2007	- The project will follow the recommendations and frameworks necessary to ensure the conservation of Ghana's wetlands and their associated ecosystem goods and services. - Aligned with the objective: promote the use of wetlands for farming, grazing, fishing, timber production and salt-winning, provided that such uses also serve to conserve the ecosystem, biodiversity and sustainable productivity of the wetlands.
National Water Policy (NWP).	2007	- Support on the sustainable development and utilization of Ghana's water resources.
National Land Policy	1999	- Support objectives of the policy: ○ Ensure that every socio-economic activity is consistent with sound land use through sustainable land use planning in the long-term ○ Promote community participation and public awareness at all levels

Coastal Wetlands Management Plan	1991	- Support adequate management of prioritised lagoons and surrounding environments: Songor and Keta lagoons. - Supports continuity of activities to be rolled out such as development of management systems for the coastal zone, protection of selected coastal areas, and set-up of coastal zone data base.
Sub-national plans		
Greater Accra Spatial Development Framework	2017	- Support on the implementation of the Land Use Planning and Management Project through "preparation of improved maps and spatial data for land administration" which includes the preparation of Regional Spatial Development Frameworks". - Alignment with the Manual for the Preparation of Spatial Plans 2011.
Ada West District Medium Term Development Plan (2018-2021)	2017	- Support on identified key challenges: o Over exploitation of fisheries resources. o Increased vulnerabilities of coastal communities. o Weak development control o Lack of alternative livelihoods for coastal communities. o Weak capacity to manage the impacts of natural disasters and climate change. o High levels of youth unemployment. o Incidence of poverty among farmers and fishermen. o Weak citizens engagement in decision making. o Low women representation and participation. - Support the implementation of policy objectives: o Promote seed and planting material development. o Enhance fish production and productivity. o Promote aquaculture development. o Ensure sustainable management of natural resources. o Increase capacities to adapt to climate change impacts. o Enhance capacity to mitigate and reduce the impact of natural disasters, risks, and vulnerability.
Keta District Medium Term Development Plan (2018-2021)	2017	- Support on addressing development priorities: o Build a prosperous society (economic development). Linked to challenges such as inadequate job creation, loss of soil fertility, low agriculture production, coastal area erosion, depletion of mangrove vegetation. o Safeguard the natural environment and ensure a resilient built environment. Linked to challenges such as poor environmental sanitation and hazardous development.
Ada East District Medium Term Development Plan (2018-2021)	2017	- Support on addressing identified key challenges such as provision of planning schemes and improvement in revenue generation. - Support addressing objectives and implementing programmes: o Promote a sustainable spatially integrated, balances and orderly development of human settlements: infrastructure development sub-programme o Enhance climate change resilience: disaster prevention and management sub-programme. o Improve popular participation at the regional and district level: general administration sub-programme. o Promote economic empowerment for women: trade, tourism and industrial development sub-programme.

Table 6059. Côte d'Ivoire project alignment with National and sub-national priorities

Policy / Document	Year submitted / ratified	Relevant priorities
Côte d'Ivoire		
Climate Change strategies / plans		
Programme National Changement Climatique 2015-2020	2014	- The programme aims at establishing by 2020 a framework for sustainable socio-economic development that integrates the challenges of climate change in all sectors in Côte d'Ivoire and that contributes to improving resilience. - This programme emphasizes on vulnerable sectors including coastal resources, with promotion of adaptation actions.
Programme d'appui du PNUD à la mise en œuvre des Contributions Déterminées au niveau national (CDN) de la Côte d'Ivoire	2018	- The Programme defines the objective to elaborate a National Gender and Climate Change Strategy and Action Plan; and includes capacity building for national actors so that they are capable to implement. - The Programme also aims at including a gender dimension in the communication strategy about the NDC
Cadre National des Services Climatiques (CNSC)	2017	- Optimize the management of risks related to climate change and promote adaptation to climate change by producing scientifically-based information and forecasts on climate and taking them into account in planning processes, policies development,
Stratégie Nationale de Gestion des Risques de	2011	- Management of risks and disasters in the face of growing risks - Strengthen disaster preparedness to respond effectively and to 'rebuild better" during the recovery, rehabilitation and reconstruction phase.

Catastrophes (SNGRC) & Plan d'Action		
First intended nationally determined contribution (INDC) Côte d'Ivoire	2016	- Strengthen country's resilience to climate change adaptation - Align sectoral policies and strengthen its mechanism and implementation tools to facilitate the achievement of these objectives - Priority vulnerable sectors; coastal areas, agriculture, aquaculture, water resources, forests, gender, health
National du Developpement durable en Côte d'Ivoire dans la perspective de Rio+20	2012	- Aims at revising the success and gaps at the achievement of SDGs - Provide proposals related to green growth and Sustainable development framework
National Development strategies / plans		
Plan National de Développement 2016-2020	2016	- reinforce governance and institutions capacities - Preserve environment and manage natural resources to attenuate climate change - Promote regional integration
Plan National de Développement 2021-2025		- Consistency with pillar related to - Strengthening social inclusion. - Regional development and support to infrastructure Ministry partners whom follow the 2021-25 NDP in cote d'Ivoire have been involved in the AF project design, thus alignment with national development priorities is ensured
Stratégie nationale de developpement durable	2011	- Aims at establishing harmony between environment, economy and social while ensuring a quality of life throughout the territory and in all sectors of activity. - -Integrate the principles of sustainable development in the management of territorial collectivities - Integrate sustainable development into spatial planning
Territorial Development Policy Framework	2006	- This framework defines the allocation of competences and the empowerment of cities and regions and establishes the principle od concerted development land use plans and local development plans
Environmental strategies / plans		
Code de l'environnement	1996	- Governs all actions related to environmental management. - Consider sustainable development issues, coastal erosion, climate change impacts
Code Forestier	2019	- Supervise national forest management adapted to fight against climate change - Prioritize vulnerable areas and marine ecosystems such as mangrove reforestation
Sectoral strategies / plans		
Code de l'eau	1995	- To preserve marine ecosystems and wetlands - To protect against all forms of pollution and floods - To restore water surface - Protection against inundation - Fisheries - agriculture
Sub-national plans		
Agenda 21 Grand Bassam	2017	- Instrument established for the management of natural resources and the preservation of the environment - Establish environmental actions plan at commune and national level to promote sustainable development
Appui à la préparation de plan d'investissement multisectoriels IDA-17 et du plan d'investissement pour la ville de Grand-Lahou, République de Côte d'Ivoire.	2017	- To strengthen capacity and skills of stakeholders - Promote participatory socio-economic development and blue green development - Organize operational governance for integrated resource management

ANNEX 8: SUBPROJECT SHEETS

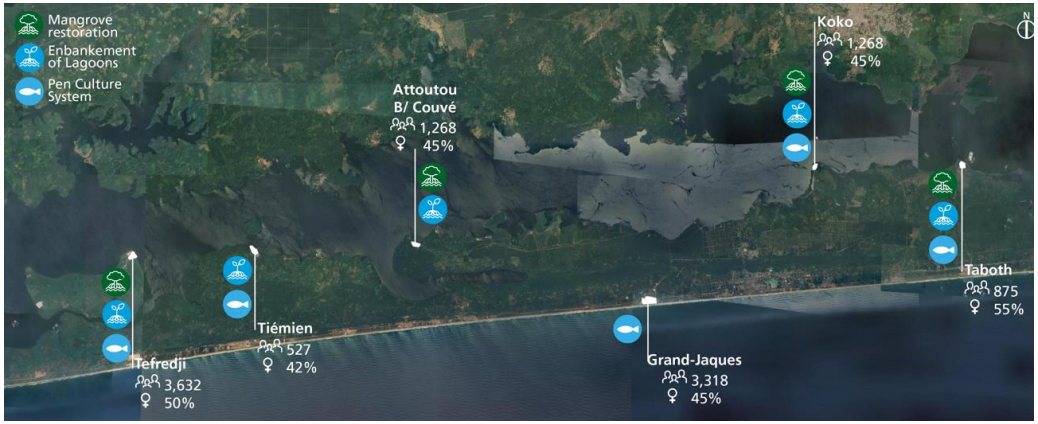
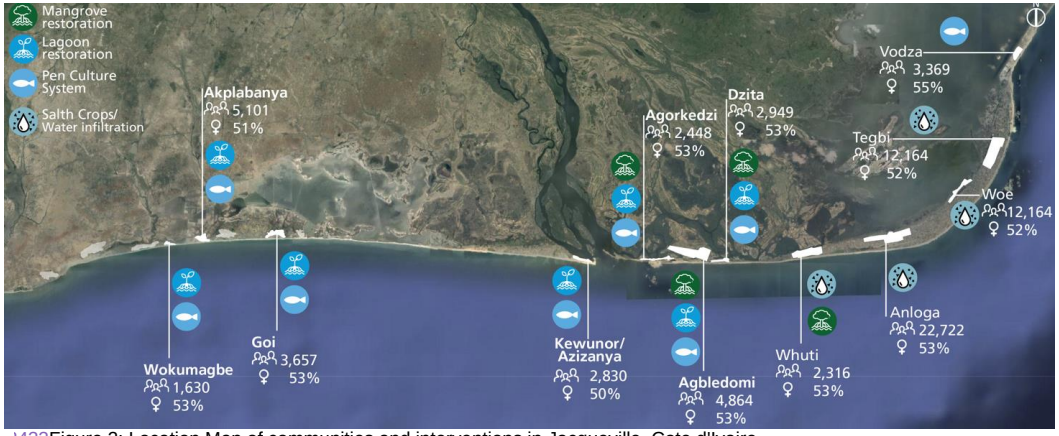


Figure 3231: Location map of communities and interventions in Ghana



3433Figure 2: Location Map of communities and interventions in Jacqueville, Cote d'Ivoire

3332Figure 3: Location map of communities and interventions in ville, Cote d'Ivoire

SUB-PROJECT SHEETS

3.1.1. Mangrove restoration along the Volta estuary in Keta (Ghana)

The communities in Volta estuary are on a narrow land strip between the sea and the Keta lagoon. Climate change, including weather extremes and sea level rise, impacts the coastal region, where mangroves can function as a primary storm surge barrier. **Rising sea levels, erosion from extreme weather and increased storm surge represent a significant and growing thread to mangroves related to climate change**. Rapid population growth, over-reliance of wood as fuel and agricultural expansion also represent main threads. The degraded mangroves have affected livelihoods and reduced the water systems benefits for coastal protection, flood buffering, and stabilizing substrates composed of fine sediments, among other ecological benefits. Additionally, very high salinity levels limit agricultural productivity in Keta.

This intervention focuses on mangrove restoration as a nature-based solution for adaptation to sea level rise, flooding, erosion, and livelihoods loss. This intervention aims to **stabilize the shoreline**, creating **buffer zones for flood risk/ inundation reduction**, and **securing/ increasing livelihood opportunities more in-land** (as pull factor from the shore) as well as the **protection of exposed assets for the most vulnerable communities**.

Under Component 3 (Concrete transformative ecosystem/ natural resource adaptation interventions at sub-regional and district level), the Sub-Project plans to plant **about 250 HA of mangrove**. The strategy is to **build resilience through an ecosystem-based approach**, aiming to leverage the existing natural environment and its ecosystem services as a tool to adapt to climate change and restore natural dynamics. In some locations, mangroves have been able to keep pace with sea level rise, highlighting the adaptive characteristic of this intervention.

The **four communities** selected for the mangrove restoration intervention include **Agorkedzi/Atiteti, Agbledomi, Dzita, and Whuti**. The number of direct **beneficiaries is around 12,577 people** (W: 52%), while the number of indirect beneficiaries is around 5,657 people (W: 52%). The selected sites for the mangrove restoration have conducive ecological conditions for the growth of mangroves. The **main species** of mangroves planted include **Red mangrove** (Rhizophora mangle / Rhizophora racemosa), **White mangrove** (Laguncularia racemosa), and **Black mangrove** (Avecinnia germinans). All these species are suitable for replanting; their capabilities to trap sediment will raise the land that improves protection against higher water levels associated with climate change. **There are no pollution threats** to the growth of mangroves in the targeted communities.

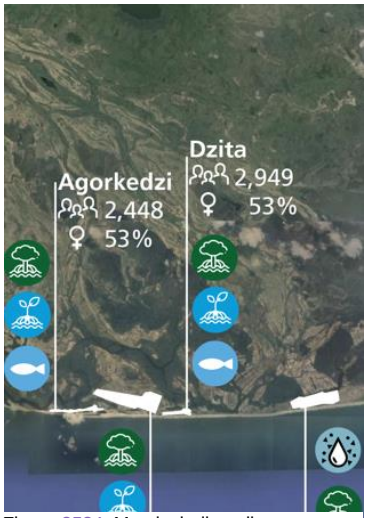


Figure 3534: Map including all communities and interventions in Ghana

Landowners, private or public, have agreed with using their land for project activities and agreement with the Chiefs and Elders for use of their lands have been signed. The land status of this area is public and currently is used for fishing and fuelwood provision. These lagoons in Agbledomi, for instance, used to be overseen by Batɛ clan and the land is private. However, during the consultive process, landowners already agreed with using their lands.

The activities have been designed to minimise potential risks by selecting numerous, small scale and very localised interventions, proposed and managed by the communities themselves (where possible) who have a stake in avoiding environmental and social impacts.

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Map of interventions:

Figure 3635: Map including all communities and interventions in Ghana

Table 1 Overview of mangrove restoration on implementation, benefits and sustainability for all project sites in Ghana and Cote d'Ivoire as described above under 3.1.1, 3.3.1 and 3.3.2.

Implementation strategy and planned activities	**Social, economic, and environmental benefits**	**Sustainability**
TOTAL COSTS: 3.1.1 - $ 1,222,053 . 3.3.1 - $ 247,079; 3.3.2 - $ 367,874 **PREPARATION:** 1. Detailed engineering study and design: detailed design and programming of the intervention will be done by the Executing Entity (site evaluation, seeds survey, final zoning etc.). This will also include further detailed information/data on hydrology and sediment characteristics, as well potential risks during the project implementation. This activity with the support of the community plans under component 2, will result in the intervention Implementation Plan. 2. Buying materials Tools (Mattock, Wellington boots, Cutlasses); Seedlings (Red mangroves; White mangrove and Black mangrove) manual/fertilisers (organic) Mangrove Nursery (wooden planks, thatch, racks) 3. Establishing the nursery: proceed to the site leasing, fencing of the site and construction of small built infrastructure for storing and operationalisation. **OPERATION:** 1. Nursery management: collection of soil to site and transport to the nursery, as well as bed and bag preparation. Daily activities include watering, shading, weeding, hardening, grading, sorting, packaging seedlings, etc. 2. Plant mangroves: as seedlings are ready on the nursery site, the plating will take place including clearing of planting sites. This will be led by the project manager, coordinated on site by a supervisor, and executed by local community hired for this intervention. 3. Transportation: transportation of the seedlings from the nursery to the site will be sub-contracted and managed by the project lead. 4. An implementation plan will be put in place to supervise and coordinate the activity (component 2) as part of the community plan, in which the different stakeholders are provided with training and assigned roles, benefits, and responsibilities. 5. Management: to implement the intervention an office will be set up with time allocated from experts and a project manager. Implementation will be based on the Implementation Plan under the preparation phase. A team of well-trained and dedicated experts and an NGO with previous and relevant experience in the development of mangrove restoration programmes (organizations have been pre-identified (The Development Institute, Hen Mpoano, Salt Doctors, FIRCA, Group Keran) for competitive procurement and will lead the project execution, and community members will replant after they have received training. The NGO in collaboration with the municipality and communities will establish a centre for the training and value chain of the mangroves, based on a model replicated from previous projects on mangrove restoration. **MONITORING AND MAINTENANCE** 1. Field monitoring: visit the plantation on regular basis (daily, weekly, monthly, quarterly) to inspect the entire plantation and specific patches, look out and/or check for encrusting organism, etc. Drone flying to support evaluate seedlings performance. 2. Awareness raising through component 2. 3.Extra seeds: based on the experience of the implementing partner, extra seeds will be included to address potential failures on the first replanting exercise.	Benefits of mangrove restoration will start immediately after realisation but will stand when the climate changes. **ENVIRONMENTAL BENEFITS:** • Soil stabilization and accretion to cope with rising water levels associated with climate change. • Flood reduction. • Suitable conditions for conservation of biodiversity against climate effects, such as drier conditions. • Improved water quality through sedimentation and filtration • Additional carbon sequestration due to an increased mangrove area. • Protection of ecosystem services • Provides nursery habitats for fish and invertebrates **ECONOMIC BENEFITS:** • Livelihood creation and diversification (fisheries, mollusc collection, eco-tourism). • Reduction of loss and damage from natural hazards as predicted under the changing climate (flooding and erosion). **SOCIAL BENEFITS:** • Increased security from severer future floods, waves, and winds and protection of land erosion. • Poverty reduction associated to land loss. • Improved food security under the changing climate. • Capacity building for future climate adaptation.	Sustainability can be achieved within five themes, institutional, social, economic / financial, environmental and technical. **INSTITUTIONAL:** The CREMA (Community Resource Management Areas) will be applied. The community will manage the mangrove areas with equal participation and access. Target beneficiaries will have access to the lagoons with the pre-condition to sustain it within a changing climate framework, as per a signed performance-based agreement. The CREMA will be the responsible entity for sustaining this project over time. This will be achieved by bringing some of the economic benefits of the intervention back to the CREMA. **SOCIAL:** This intervention's sustainability relies on the developed community ownership. They implement the intervention and receive capacity building activities (component 2). Additionally, the project includes continued awareness creation to develop a self-drive and a high sense of responsibility to promote continuous replanting. It is also based on the resource and livelihood management plan, which should be long-term and be reviewed every two years, initially with the NGO experts and progressively transferring the capacity and know-how to the community group. **ECONOMIC / FINANCIAL** Economic/financial sustainability from mollusc selling activities, sustainable wood collection, by-laws enhancement fees, a carbon sequestration market, illegal cutters fine fee to CREMA, and contribution from ecotourism activities in the replanted areas (following the successful example in Kenya, Tanzania, and Mozambique). Hereby improving the local markets in the region and its sustainability for the future. Approaches such as the NRMC (Natural Resource Management Committee in Mozambique) will be pursued during the project's duration in collaboration with the government and an NGO, for a 50% of community entitlement to fees charged from illegal cutters of mangroves reported by the community. Restoration of the mangrove is a cost-efficient building with nature solution that mainly focuses on an initial investment that will be maintained by the CREMA. The CREMA will be responsible, along with the Municipal Assemblies of **replication and upscaling**, meaning that gained knowledge can be used elsewhere. This could be done through community capacity building and based on the lessons learnt from the final intervention report. There is a great opportunity for replication since the mangrove ecosystems are vast in this coastal area. The project will apply the lessons of the *Blue Carbon Financing of Mangrove Conservation in the Abidjan Convention Region: A Feasibility Study* by the Abidjan Convention, executing entity of the project, to establish a blue carbon financing mechanism for the project. **ENVIRONMENTAL:**

4.Maintenance through CREMA. 5. Raising awareness and capacity building (component 2). Resources and livelihoods management plan to be developed (component 2). A monitoring plan to be developed (component 2) which includes replanting areas that have not succeed on the first round. Community Resource Management Areas (CREMA) By-laws enacted by the district assembly for the protection of mangrove which will impose measures such as fines etc. (C1 or C2) Maintenance and sustainability will be ensured through the Community Resource Management Areas (CREMA) mechanism. This is a governance arrangement for natural resource management. This is the Ghana version of the community-based natural resource management (CBNRM), while ensuring it conforms with the traditional conversation practices. The CREMA mechanism is also consistent with the current ideas on socio-ecological landscapes. It therefore seeks to achieve; conservation of the bio-physical, socio-cultural development and livelihoods supports/economic development for a community areas. **INDICATORS:** 1. Check posters physically (at least one in each community) and other activities 2. Ha covered by replanted mangroves (communities and district) 3. By-laws accepted and contracts signed 4. List and map of nesting sites (UN-H and NGO) **KNOWLEDGE PRODUCTS:** - Manual for mangrove restoration (in English and French) - Follow-up publication on the Blue Carbon Financing of mangrove conservation focused on system implementation and institutionalization Portfolio of large-scale effective low-cost interventions appropriate for different 'common' coastal situations / scenarios can be replicated and /or scaled up. Knowledge is gained on community involvement in Mangrove restoration and how it allows communities to adapt to climate change	• Protection of social dynamics and traditions. Specific benefits to vulnerable groups including women and youth. • Women: increased livelihood opportunities. Between 1,000 to 2,000 women are involved in clam and wood collection. • Youth: increased livelihood opportunities linked to capacity building in restoring mangrove ecosystems, as well as on traditional fisheries, or educational/eco-tourism activities. • Elderly: increased security due to flood protection and reduction of loss and damage. • Children: increased food security and access to education by promoting sustainable livelihoods that will improve families' economic capacities.	Improving the mangroves by restoration will protect the coastal environment and habitats from degradation for future climate change. The capabilities of mangroves to adapt against stressors, such as sea level rise and weather conditions, makes them a sustainable solution regarding environmental sustainability. **TECHNICAL:** Technical sustainability of mangrove restoration depends on two main factors. Appropriate species and site selection, done through the engineering study and design in the preparation activity. Additional technical sustainability will be provided through complementary measures such as: - establishing buffer zones between coastal habitats and adjacent development. - identifying and protecting areas where coastal habitats can retreat with sea level rise. - fencing along the intertidal zone to prevent livestock access. Results and experience from previous years will be used as a yardstick for sustaining the intervention. The project includes long-term monitoring of mangrove reforestation activities by the local government and specialized agencies conversant with the project to ensure a successful implementation. Insights on the capabilities of different mangrove types to adapt to climate change will guide future sustainable interventions of mangrove restoration. General sustainability is described on section II. K

3.2.1. and 3.2.2. Coastal lagoon restoration in Ada East, Ada West and Keta (Ghana)

Increased frequency and violence of extreme natural hazards due to climate change result in increased soil erosion, floods and increasingly result in socio-economic and environmental impacts for the communities in Ada East and Ada West. **The settlements on the coast are often located on lagoons' edges**, resulting in risks due to convergence of hazards, exposure, and vulnerabilities.

Lagoon restoration is proposed as a nature-based solution for adaptation to sea level rise, flooding, erosion, and livelihoods loss. This intervention will stabilize the shoreline, creating buffer zones for flood risk / inundation reduction, and securing / increasing livelihood opportunities more in-land (as pull factor from the shore) as well as the protection of exposed assets. Under the Component 3 (Concrete transformative ecosystem/ natural resource adaptation interventions at sub-regional and district level), the Sub-Project plans to **restore 1 coastal lagoon in Ada East and 3 in Ada West,** in communities that are currently already vulnerable to flooding. Prioritization of measures to rejuvenate the lagoon's ecosystem and preserve its natural assets, reduces its vulnerability to erosion and strengthens its ability to adapt to climate change. In Ada East, the Kewunor/Azizanya lagoon is one of the most vulnerable lagoons, and this project will represent an example to provide insights for future climate adaptation and restoration of other lagoons in the region.

Ada East: The community selected for the coastal lagoon restoration intervention in Ada East is Azizanya/Kewunor. The number of direct beneficiaries is around 2,830 people (W: 50%), while the of indirect beneficiaries is around 1,934 people (W: 48%). The sea and the system of lagoons characterise Ada East community. The communities are located on the beach's edges and are enclosed by the sea and the system of lagoons. In addition, all communities lie close to major water bodies, the Volta estuary. Along the coast, there are stretches of coconut trees and patches of coconut groves, while along the lagoons and especially the estuary, large areas of mangroves can be found. These communities' socio-economic and cultural dynamics highly interact and depend on ecosystem services, which will increase with climate change, e.g., weather extremes, crops or vegetation might vanish due to changes in temperature and precipitation.

Ada West: The communities selected for the coastal lagoon restoration intervention in Ada West are Akplabanya, Goi and Wokumagbe. The number of direct beneficiaries is around 10,388 people (W: 52%), while the number of indirect beneficiaries is around 7,100 people (W: 48%). The sea and the system of lagoons characterise Ada West communities. The communities are located on the edges of the beach and are enclosed by the sea and the system of lagoons. In addition, all communities lie close to major water bodies, the Songor lagoon. Along the coast, there are stretches of coconut trees and patches of coconut groves, while along the lagoons and especially the estuary, large areas of mangroves can be found. Increasing manifestations of climate change could harm the interaction and dependence of these on ecosystem services.

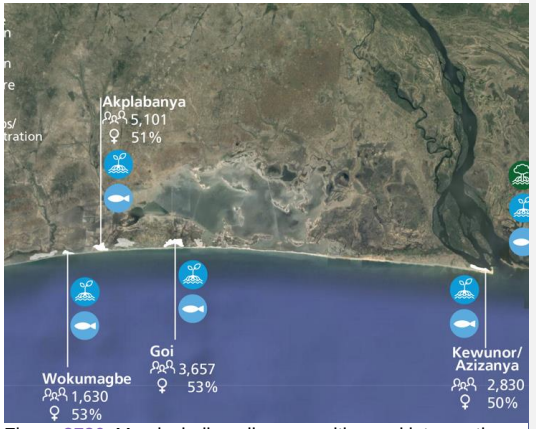


Figure 37~~36~~: Map including all communities and interventions in Ghana

3.2.3. Coastal lagoon restoration in Keta (Ghana)

Coastal erosion rates in Keta are very high, with values of 8m per year, while generally, rates on 1.5m area common in Ghana. More extreme weather hazards, combined with exposure of livelihoods, ecosystems and assets, aggregate to risks that result in socioeconomic impacts such as increased inequality, poverty, food and tenure insecurity and environmental impacts such as ecosystem loss, salinization, erosion and biodiversity loss. Deforestation and unplanned growth in coastal areas is damaging ecosystems and increasing the district's vulnerability to climate change. The settlements on the coast are often located on the lagoon's edges which usually alter water flow dynamics, generate deforestation, and pollution the lagoons reducing their productivity and resilience. Additionally, there is a waste management problem resulting in many polluted lagoons. Part of the development potential linked to coastal ecosystem services may be compromised as they deteriorate.

Under the Component 3 (Concrete transformative ecosystem/ natural resource adaptation interventions at sub-regional and district level), the Sub-Project plans to restore 6 coastal lagoons. This activity will prioritise measures to rejuvenate the lagoons' ecosystems and preserve their natural assets, reducing their vulnerability to erosion and strengthening their response to climate change.

The communities selected for the coastal lagoon restoration intervention in Keta are Agorkedzi/Atiteti, Agbledomi and Dzita. The number of direct beneficiaries is around 10,261 people (W: 52%), while the number of indirect beneficiaries is around 7,013 people (W: 48%). The Keta communities are located in a low-lying coastal plain with the highest point of 53 meters above sea level and the lowest locations are 1 to 3.5 meters below sea level. The low elevation already makes the communities vulnerable to flooding, which will only increase with rising sea levels. Increasing manifestations of climate change could harm the interaction and dependence of these communities on ecosystem services even further.

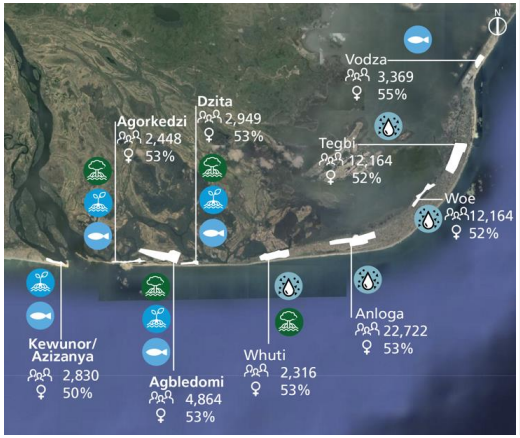


Figure 2: Map including all communities and interventions in Ghana

Figure 3837: Map including all communities and interventions in Ghana

Figure 3: Map including all communities and interventions in Ghana

Implementation strategy and planned activities	Social, economic and environmental benefits	Sustainability
TOTAL COST: **3.2.1 - $ 112,513** **3.2.2 - $ 337,538** **3.2.3 - $ 675,076** **OPERATION:** There is a need of restoring coastal lagoons with the purpose to bring back (in-land livelihood options and protecting settlements from coastal erosion and flooding. This intervention will restore the coastal lagoons and therefore, increasing their water storage capacity, and economic potential, including securing / increasing livelihood opportunities more in-land (as pull factor from the shore).The coastal lagoon restoration intervention involves prioritised measures to rejuvenate and conserve the lagoon ecosystem in selected lagoons. The detailed activities will involve: **ACTIVITIES:** • Detailed engineering study and design • Lagoon assessments • Lagoon cleaning • Waste management and community collection system • Dredging (only when applicable and in alignment with Environmental Impact Assessment) • Replanting mangroves and sea grass • Transport • Coordination support • Maintenance • Field monitoring **EXECUTION:** •Excavate of lagoon basin to a depth of 1.2m and form dyke with excavated material Site 2 (200 x 70)m •Excavate basin to a depth of 1.2m and form dyke with excavated material •Replanting of mangroves around lagoons •Pollution Study- Baseline pollution assessment	Benefits of acting against coastal lagoon erosion will start immediately after realisation and are necessary to adapt to climate change. **ENVIRONMENTAL BENEFITS:** • Soil stabilization through vegetation replanting. Vegetation will increase sedimentation and allow land to rise together with increasing sea level rise. • Flood reduction through increased water retention. • Suitable conditions for conservation of the biodiversity within the area and against climate effects. • Reduced pollution and spreading thereof during extreme weather events associated with climate change. • Protection of ecosystem services.	Sustainability can be achieved within six themes, institutional, social, economic, environmental, financial, and technical. **INSTITUTIONAL:** NGO and private sector company recruited through competitive process to manage institutional sustainability during project duration. The NGO and private sector company will design, build, operate and maintain the lagoon during the project duration. During this period trainings are delivered to CREMA community members to develop and maintain lagoon stabilization solutions. Performance-based contracts will be in place to ensure proper maintenance during the initial years after the project. After the exit strategy from NGO and private sector company the established CREMA will operate the lagoon stabilization initiatives. The principle is that the community will manage the lagoons and replanting and/or plant areas with equal participation and access. Target beneficiaries will have access to the lagoons with the pre-condition to sustain it, as per a signed agreement. The CREMA will be the responsible entity for sustaining this project over time. This will be achieved by bringing some of the economic benefits of the intervention back to the CREMA. **SOCIAL:**

Water quality analysis will be undertaken to establish baseline pollution levels. The following parameters will be analysed:
Parameters
-E. coli (human and animal source)
-Biochemical oxygen demand (organic pollution)
Fish carrying capacity
-Phosphate, Nitrate (Eutrophication. How much food for fish), Ammonia (toxic for fish), Plastic, Polycyclic Aromatic Hydrocarbons PAH, Heavy metals: Lead, Mercury, Copper, Cadmium

MATERIALS REQUIRED:
- Earthmoving machinery (excavators, dozer, tipper trucks etc.)
- Hand working tools (Mattock, Wellington boots, Cutlasses, Watering Cans)
- -Pumping Machines
- -Water quality analysis
- Mangrove nursery and seedlings

A community level waste management plan will be developed and implemented by the community. This plan will ensure that the community is strongly involved in the restoration of the lagoon. Following the consultation process with the communities lagoon restoration has been highlighted as a clear priority given the proximity to communities and the polluted state of several of them.

MAINTENANCE:
Raising awareness and capacity building (as part of component 2) to develop the following activities:
- Avoid solid debris in the lagoon
- Prevention of hazardous materials
- Vegetation management
- Monitoring of water levels and quality
- Repair of lagoon contour and support structures
- Bi-annual maintenance and clean-up

Since participation and involvement of all community members is crucial to maintain the lagoon, the participatory methodology for lagoon management will be conducted as part of component 2, following the next steps:
1- Identify management task
2- Connect to an identified complex issue
3- Develop a "State of the lagoon" report prior to restoration activities
4- Plan stakeholder involvement
5- Conduct workshops
6- Summarize measures and develop a roadmap
Resources and livelihoods management plan to be developed, including waste management (component 2).
A monitoring and maintenance plan is to be developed (component 2) including monitoring water quality parameters and replanting areas that have not succeed in the first round.
CREMA By-laws enacted by the district assembly for the protection of the lagoons which will impose fines etc

SELECTED INTERVENTIONS:
- Preferred by communities and supported by technical experts.
- Builds upon local capacities and traditional livelihoods. Long-term community engagement
- Less cost per beneficiary.
- Addresses not only flooding but also environmental and biodiversity protection.
- Improved water quality through sedimentation and filtration
- Lagoons provide nurseries to fish and invertebrates

ECONOMIC BENEFITS:
- Livelihood diversification (fisheries, mollusc collection, eco-tourism).
- Reduction of loss and damage from natural hazards as predicted to increase under the changing climate (e.g. flooding and erosion).

SOCIAL BENEFITS:
- Increased security from future floods and protection of land erosion.
- Poverty reduction associated to land loss.
- Improved food security under the changing climate.
- Capacity building for future climate adaptation.
- Protection of social dynamics and traditions.

Specific benefits to vulnerable groups including women and youth.
- Women: they will benefit from the ecosystem services, mainly working on processing and market.
- Youth: increased livelihood opportunities linked to capacity building on restoring lagoons ecosystems, as well as on an alternative forms of sustainable fisheries with pen culture, or educational/eco-tourism activities.
- Elderly: increased security due to flood protection and reduction of loss and damage.
- Children: increased food security and access to education by promoting sustainable livelihoods to

The **sustainability** of this intervention relies on the built ownership by the communities through being implementors and receiving capacity building activities (component 2). The CREMA will also be responsible along with the Municipal Assemblies for replication and upscaling. This could be done through the capacity building of the communities and based on the lessons learnt from the final intervention report. There is a great opportunity for replication since the lagoon's ecosystems are vast in this coastal area. It is also based on the resource and livelihood management plan, which should be long-term and reviewed every two years.

ECONOMIC:
Economic sustainability is expected to be obtained from fishing inside the restored lagoon and by-laws enhancement fees, as well as carbon sequestration market, and contribution from ecotourism activities in the restored areas. Upon the initial lagoon restoration, the community by-laws and community ownership will establish the mechanism to maintain the lagoon in adequate state for operation. Community members as part of the CREMA will develop required works for maintenance and conservation based on the tools and techniques provided by NGO and private sector partner.

ENVIRONMENTAL:
Improving the lagoons by prevention of erosion and cleaning the water against pollution has long-term benefits in regard to productivity and protection against floods. This makes the environment suitable for valuable ecological habitats that can adapt to a changing climate.
All relevant local authorities (and national government) have been consulted and they will be engaged during project implementation and workshops. EPA has been consulted and EAI Registration Form completed and submitted. ESM Framework completed and submitted to EPA.

FINANCIAL:
Restoration of the lagoons is a low-cost building with nature solution that mainly focuses on a single investment. The CREMA will be responsible, along with the Municipal Assemblies, for **replication and upscaling**, meaning that gained knowledge can be used elsewhere. This could be done through community capacity building and based on the lessons learnt from the final intervention report. Cleaning the lagoons makes them a valuable environment for economic activities, such as fishing, that results in long-term financial independence of the local communities.

TECHNICAL:

• It provides economic opportunities such as fisheries. • Maintenance linkes to livelihood opportunities, therefore no extra costs. • If well maintained, the intervention has an endless life period. **LEARNING OBJECTIVE:** Understand which interventions are most effective and low-cost with replication and upscaling potential for other regions and countries. **INDICATORS:** The number of interventions focused on coastal protection / management and number of interventions focused on ecosystem restoration and/ or saltation management, including water quality (salinity, e. colli, plastics), animal present (fish for fishing), successful replanted mangroves. • Survival rate of planted mangrove seedlings • Time series Aerial and Satellite imageries • Carbon stock data/Measurement • Indirect Measurement – Time series Fish abundance data from river flowing through the mangrove ecosystem to measure the effectiveness of proposed measure **KNOWLEDGE PRODUCTS:** - Manual for coastal lagoon restoration (in English and French) Portfolio of large-scale effective low-cost interventions appropriate for different 'common' coastal situations / scenarios that can be replicated and /or upscaled.	improve families' economic capacities. Reduce sickness due to waterborne diseases caused by pollution.	Low-cost solutions are proposed and executed for the project. Results and experience from previous years will be used as yardstick for sustaining the intervention. The project includes long-term monitoring of mangroves and pollution measurements by the local government and specialized agencies conversant with the project to ensure a successful implementation. Insights on the capabilities of different mangrove and the cleaning program will guide future sustainable interventions of lagoon restoration.

3.3.1. and 3.3.2 Mangrove restoration along the coast and lagoons in Grand Bassam and Jacqueville (Côte d'Ivoire)

Climate change, urban development and harvesting for fuel are the main reason why the overall number of mangroves in Cote d'Ivoire has dropped from 20,000 hectares in 1990 to 10,000 hectares in 2020. Climate change reasons relate mostly to increased salinity levels, accelerating sea level rise and increased number and increased extreme weather events. This has damaged the coastal lagoon's ecosystems, reduced lagoon's productivity, and increased flood risk, water pollution, and shoreline erosion. This, as part of a vicious circle, makes the region more susceptible to climate change as sea level rises and weather extremes become severer. Estimates indicate that **60 percent of the mangroves have been lost around Abidjan**.

Grand Bassam: The whole area of Grand Bassam is very significant from a cultural and historical point of view as it was the country's old colonial capital. Moreover, a rich natural environment and ecosystems surround the entire area; indeed, mangroves can be found along the lagoon and the Comoé River. In this sub-project, actions will be taken to adapt to climate change, while contributing to reverse the degradation and make the area more resilient.Under Component 3 (Concrete transformative ecosystem/ natural resource adaptation interventions at sub-regional and district level), the Sub-Project plans to plant **about 43 ha of mangrove in Grand Bassam**. The strategy is to **build resilience through an ecosystem-based approach**, aiming to leverage the existing natural environment and its ecosystem services as a tool to adapt to climate change restore natural dynamics.

The community that the project will support in Grand Bassam is **Vitré 2.** The number of direct **beneficiaries is around 1,376 people** (W: 45%), while the number of indirect beneficiaries is around 9,339 people (W: 48%). The selected sites for the mangrove restoration have conducive ecological conditions for the growth of mangroves. The **main species** of mangroves planted include Acrostichum aureum; Avicennia germinans; Conocarpus erectus; Laguncularia racemose; Rhizophora racemose.

Jacqueville:

Jacqueville is a coastal town 40 kilometers from Abidjan which main activities relate to the fishing port, agricultural production and seaside resorts. Jacqueville is virtually an island, separated from most of the country by the Ébrié Lagoon. In 2015 a bridge was opened that currently connects Jacqueville with the mainland.Under Component 3 (Concrete transformative ecosystem/ natural resource adaptation interventions at sub-regional and district level), the Sub-Project plans to plant **about 69 ha of mangrove in Jacqueville**. The strategy is to **build resilience through an ecosystem-based approach**, aiming to leverage the existing natural environment and its ecosystem services as a tool to adapt to climate change and restore natural dynamics.

The communities where the project will work on **Jacqueville commune** are **Tefredji, Taboth, Couve/ Attoutou B and Koko.** All the communities are directly located along the lagoon and some of them fully surrounded by waterbodies. The number of direct **beneficiaries is around 7,914 people** (W: 51%), while the number of indirect beneficiaries is around people (W: 52%). The selected sites for the mangrove restoration have conducive ecological conditions for the growth of mangroves. The **main species** of mangroves planted include Acrostichum aureum; Avicennia germinans; Conocarpus erectus; Laguncularia racemose; Rhizophora racemose.

For Implementation strategy, planned activities, benefits and sustainability refer to Table 1 Overview of mangrove restoration and implementation, benefits and sustainability for all projects in Ghana and Cote d'Ivoire under 3.1.1.

Figure 4: Map including all communities and interventions in Côte d'Ivoire

Map of interventions:

Figure 5: Map including all communities and interventions in Côte d'Ivoire

3.4.1. Sand nourishment along the coast in Grand Bassam (Côte d'Ivoire)

The Ivorian coastline hosts almost 40% of the country's population and 80% of its economic activities.[89] Grand Bassam, a town with many UNESCO heritage sites, is threatened by above impacts. The principal activities include fishing, agriculture, forestry, factories, and tourism. A rich natural environment and ecosystems surround the whole area of Grand Bassam. The coastline, including beaches and mangroves, protects the hinterland from flooding during severe weather conditions.
Climate change-related sea level rise, storms and floods (combined with hard infrastructure, such as groynes, dams and harbours planned without consideration of CC impacts and vulnerabilities) is already resulting in coastal erosion and will result in possible inundation of large parts of target areas as soon as 2030-50. There is a need to protect the coast, including critical infrastructure, settlements, ecosystems and livelihoods from above through nature-based solutions (as hard infrastructure often has a negative impact and is very costly.

[89] *Investor Guide, (GIZ, 2020)* https://www.giz.de/en/downloads/Guide_de_l_ivestisseur_GBN.pdf

Beach nourishment is a flexible method to counteract climate change impacts, and particularly coastal erosion. It can be a relatively low-cost operation, which should be repeated periodically. This measure can be applied in combination with structures such as groynes, although not every physical environment is suitable for such a combination. Sand nourishments utilize natural materials and harness natural forces and processes to protect the coast and is a more nature-based solution compared to hard constructions, such as groynes. While sand nourishments can impact the current ecosystem, it is estimated that the impact is limited in this case because the type of solution resembles the existing coastal/ beach characteristics.

There is a need of protecting Grand Bassam through solutions that are cost-effective with little negative impacts towards the East. This will be done through beach and foreshore sand nourishment, to shift the beach profile in seaward direction. The intervention will stabilize the shoreline, creating buffer zones for flood risk/ inundation reduction.Under Component 3 (Concrete transformative ecosystem/ natural resource adaptation interventions at sub-regional and district level), the Sub-Project plans to add **about 7-11 km of sand nourishment along the coastline**. The strategy is to **build resilience through an ecosystem-based approach**, aiming to leverage the existing natural environment and its ecosystem services as a tool to restore natural dynamics and adapt to climate change.

Map of interventions:
This intervention will take place in Grand-Bassam. Starting from the community of Azuretti till the community of Quartier France on 8 km (Long: 5.200595, Lat :-3.775434). See the map below. For this kind of intervention, common potential sources to borrow sand are:
- Shore sources (right corner of the sand nourishment intervention where sand is accumulated and stored in large artificial dunes and replenished yearly every time the tide closes the lagoon outlet)
- Inland sources assessed through EIA (presented in the map)

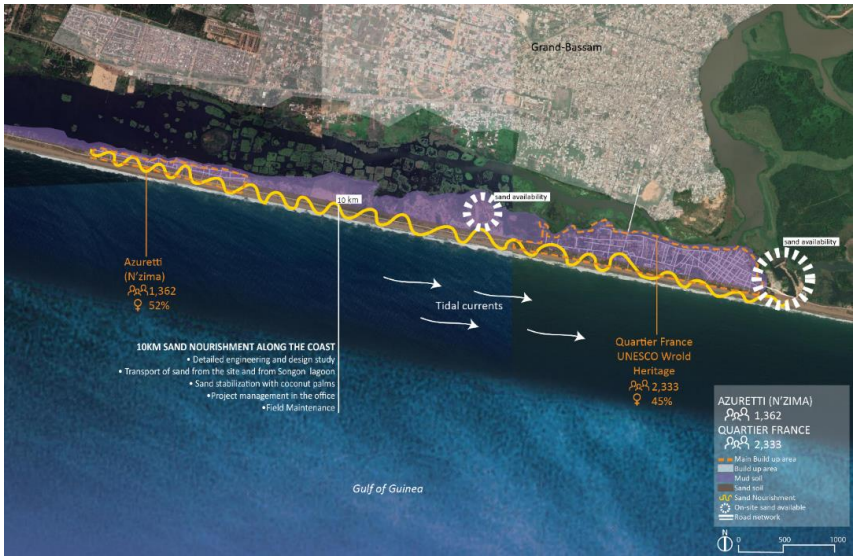


Figure 6: Map including all communities and interventions in Côte d'Ivoire

Implementation strategy and planned activities	Social, economic and environmental benefits	Sustainability
TOTAL COST: $ 1,265,527 **OPERATION:** The proposed sand nourishment is a combination of beach nourishment, in which the sand is spread over the beach where erosion is occurring to compensate shore erosion and backshore nourishment, in which sand is stockpiled on the backshore to strengthen the dunes against erosion and breaching in case of storm. **ACTIVITIES: (From 18 to 24 months)** 1. Assess the size of the beach (width, length) 2. Assess the depth of the sand 3. Identify the sedimentary compartments in order to determine the beach profile zones (nearshore zone, surf zone, swash zone, berm, primary vegetation zone, secondary vegetation zone and tertiary vegetation zone) 4. Assess the closure depth which is an important concept use in coastal engineering. It is a theoretical depth along a beach profile where sediment transport is very small or non-existent 5. Assess beach width for protection of backshore assets in order to determine in a risk-based manner, beach width requirement for coastal protection (stable foundation zone, zone of reduce foundation capacity, erosion scarp, etc.) 6. Assess the amount of sand required 7. Study of the properties of the existing sand on the site (grain size, colour, shape, fall velocity, grading curve and proportion of fine mineral, mineralogy and biogenic fraction) 8. Identify potentials borrow sand sites 9. Implement a study of sand compatibility (grain size, colour, shape, fall velocity, grading curve and proportion of fine mineral, mineralogy and biogenic fraction) 10. Choose the zone of extraction (sand from quarries or sand from dredging at sea) according to the above results 11. Choose the dredging method and the type of dredgers 12. Choose the type of sand transfer (formal sand transfer, small scale informal truck-based operations, truck haulage system, etc.) 13. Sand transfer 14. Choose the geometry placement of the sand (dune, zone, visible beach, swash and wave zone, full profile nourishment, offshore berm bar, subaqueous) 15. Sand placement An implementation plan will be put in place to supervise and coordinate the activity during component 2, which takes place before the initiation of works. A team of experts part of NGO / private sector lead the project design and execution in coordination with and under the supervision of the technical staff of the Ministry and the municipality. Community members will work on the labour-intensive components of the intervention after they receive training. Private sector company and an NGO have been pre-identified as experienced partners for the project, and will be selected following a procurement process. Sand nourishment will mobilize specialized equipment: • Scraping with dozers or excavators	**ENVIRONMENTAL BENEFITS:** • Erosion reduction • Reduce coastal retreat • Soil stabilization. • Flood protection from more extreme weather events and reduced effect of wave overtopping resulting in additional flood reduction. • Ecological development, as the nourishment steadily through physical processes increases elevation at the vulnerable coastline • Protection of ecosystem services • Increase in the available beach area • Minimal negative impact on neighbouring coastal areas **ECONOMIC BENEFITS:** • Reduction of loss and damage from natural hazards (flooding and erosion). • Protection of infrastructure and assets • Increase of subsistence means by resuming seaside activities. • Additional development of economic and commercial opportunities (including tourism) in the protected areas. • Increased beach width **SOCIAL BENEFITS:** • Increased security of populations and assets due to flood and erosion protection.	Sustainability can be achieved within six themes, institutional, social, economic, environmental, financial, and technical. **INSTITUTIONAL:** From the institutional perspective, the sand nourishment activity will be guided by technical experts from the private sector / NGO that will work with local government technical staff and community groups for labour-intensive activities to train them and develop an understanding of how to create small footprint sand nourishment interventions. Once the project activities have been finalized, the local government and community members trained during the process will be able to re-nourish the same section of the beach and eventually design and execute additional sand-nourishment initiatives in vulnerable areas. Performance-based contract with be established with private sector company / NGO to develop an initial sand nourishment and a second sand nourishment according to indicators for renourishment. Expectations to have a functional sand nourishment maintained for 15 to 20 years. During the duration of the project, UN-Habitat and the Abidjan Convention together with additional partners, will work towards establishing an institutional and financial framework that transfers the sand nourishment maintenance and future activities to the national government and the municipalities. **SOCIAL:** Social sustainability of this intervention is created by building local capacity with local governments and community members, so they can arrange future nourishments themselves. There is a great opportunity for replication since the nourishment addresses a part of the vulnerable coast and in the future another nourishment could be applied for further protection of the coast. It is also based on the resource and livelihood management plan, which should be long-term and reviewed every ten years. This intervention provides safety, wellbeing, and builds on the communities' needs. **ECONOMIC:** The **sustainability** of this intervention is based on the resource and livelihood management plan, which should be long-term and reviewed every two years. **Replication and upscaling** will be achieved through: - raising awareness of coastal resilience, sand extraction risks, etc - training stakeholders - creating an information system - using monitoring technics to enhance replication and upscaling: LIDAR, modelling, etc **ENVIRONMENTAL:** Applying sand nourishments is a more nature-based solution of defending the coastline against high water levels that are predicted under climate change, including sea level rise and severe weather conditions. The natural source of the sediment and

• Bypassing and backpassing plants: natural headlands, breakwaters, drive walls, etc. • Conventional excavation: • Trucking : sand transport trucks • Dredging with dredging • Reshaping with dozers **MAINTENANCE** Local government staff from the technical departments will receive training to be able to maintain the intervention once the initial larger bulk of the work has been completed. A monitoring and maintenance plan to be developed (component 2) including partial renourishments with a frequency of approximately 5-10 years. Maintenance activities include: • Monitoring the nature and quality of supplied sediments • Physical monitoring which involve measuring a nourished area to ascertain its physical performance (spatial and temporal specifications) against predictions and any thresholds which may trigger further adaptive actions (monitoring through coastal imagery lidar bathymetric surveys, topographic studies, hydrographic surveys, aerial photos, etc.) [90] • Ecological monitoring including determination of baselines conditions, characterisation of temporal and spatial variability, evaluation of post nourishment change, etc. [91] • Beach maintenance renourishment works (typical renourishment frequencies are 5 to 10 years). Project budget is allocated to the EE for a second sand renourishment. **LEARNING OBJECTIVE:** Understand which interventions are most effective and low cost with replication and scale-up potential in other areas and countries **INDICATORS:** Number of interventions focused on coastal protection / nourishment / management and number of interventions focused on ecosystem restoration and / or saltation management, amount of sand needed, number of residents that are protected by the intervention. Kilometers of coast protected by sand nourishment Number of residens benefited by the project Number of businesses benefited by the project **KNOWLEDGE PRODUCTS:** - Manual of low and medium scale sand nourishment interventions Portfolio of large scale effective low cost interventions appropriate for different 'common' coastal situations / scenarios that can be replicated and /or scaled-up.	• Poverty reduction. • Protection of cultural heritage • Increased beach width Specific benefits to vulnerable groups incl. women and youth. • Women: women empowerment through the protection of key assets they rely on for livelihoods, such as markets. • Youth: employment opportunities. • Elderly: increased security due to flood protection and reduction of loss and damage. • Children: increased food security and access to education by reducing poverty levels.	physical processes will increase coastline elevation, and are working with nature instead of against. **FINANCIAL:** The sand nourishment activity will maintain the profile of the beach with an estimate of 126,500 m3 of sand during two sand nourishment processes. The average cost per 10USD/m3 of sand includes excavation, transport, unload, distribution and stabilization. From the financial perspective, the initial sand nourishment, which represents the largest investment for a period of approximately 10 years will be funded by the project. The second nourishment in 20 years time is considered as part of a performance-based contract established with the EE. The sand nourishment initiative is located in areas where economic, commercial and touristic activities commit to paying a recurrent fee to support long-term maintenance and renourishment of the beach. During the duration of the project, the proposed options will be discussed and the most appropriate selected. The first option aims to fund future sand nourishments through a portion of the occupancy tax to the hospitality industry. The second option is to establish an institutional framework for national and local government to subsidize sand nourishment as part of public works to protect heritage, economic assets and infrastructure. Additionally, the municipality would be able to develop private agreements following the Municipal Service District model (MSD), a special taxing district, imposing a modest raise in ad valorem tax for everyone and an additional tax on properties immediately adjacent to the beach, and that would have an increased benefit from having their property preserved. **TECHNICAL:** The EIA carried out in the locations of the project in Cote d'Ivoire has identified available sources of sand adjacent to the project, as part of a yearly reopening of the lagoon outlet to the ocean and several locations for sand dredging in the lagoon. Technical sustainability is justified as the project follows the following recommendations: - Using sand with a similar composition to the natural sand. - Placing sand up the coast and in the nearshore zone and allow waves to move it onto and along the beach - Ploughing the sand immediately after nourishment to prevent it from becoming so compact that it is inhospitable to beach critters, which play a critical role in the preservation of the system - Executing the nourishment at a time of year when birds and other mobile organisms are less prevalent - Performing several small nourishment projects rather than a single large project to allow some beach animals to survive. Keep the project footprint as small as possible. - Allowing enough time between nourishment projects for the slowest reproducing beach organism to recolonize and reproduce. - Executing the sand nourishments under optimal weather conditions during the dry season, between November and February, avoiding storms, etc.

90 Turner I L, Harley M D. Drummond C D, (2016) "UAVs for coastal surveying", Coastal Engineering, vol. 114, pp. 19 - 24, http://dx.doi.org/10.1016/j.coastaleng.2016.03.011

91 Turner I L, Harley M D. Drummond C D, (2016) "UAVs for coastal surveying", Coastal Engineering, vol. 114, pp. 19 - 24, http://dx.doi.org/10.1016/j.coastaleng.2016.03.011

3.5.1. Embankment of lagoons in Jacqueville (Côte d'Ivoire)

The Ivorian coastline is as well extremely vulnerable to flooding and coastal erosion, which will increase with climate change. Over 1,800km^2 of surface will be flooded following a 1 m sea level rise and the rate of shoreline retreat is estimated to vary from 1 m to 3 m per annum. Embankments are needed to protect the lagoons and to ensure adaptation of these changes. Deforestation and unplanned growth in coastal areas is damaging ecosystems and increasing the district's vulnerability to climate change. The loss of beaches and dunes, that provide natural protection against floods, is aggravates the submersion of cities and villages during severe storms. This threatens the country's economy due to potential impact on tourism and other infrastructure facilities.

Under the Component 3 (Concrete transformative ecosystem/ natural resource adaptation interventions at sub-regional and district level), the Sub-Project plans to **develop 2km of lagoons embankments. An** ecosystem-based construction method with sandbag dikes and wooden embankments will build resilience and adaptation. This approach aims to leverage the existing natural environment and its ecosystems services as a tool to respond to main coastal hazards: flooding and erosion.

The **communities** selected for the lagoons banks intervention are **Tiémien, Tefredi, Taboth, Attoutou B, Couvé, and Koko.** The number of direct **beneficiaries is around 10,690 people** (W: 49%), while the amount of indirect beneficiaries is around 12,158 people (W: 46%). The Keta communities are located in a low-lying coastal plain with the highest point of 53 meters above sea level and the lowest between 1 to 3.5 meters below sea level. The communities are severely susceptible to climate change without embankments and interventions. These communities' socio-economic and cultural dynamics highly interact and depend on ecosystem services.

Figure 7: Map including all communities and interventions in Jacqueville, Côte d'Ivoire

Figure 8: Map including all communities and interventions in Côte d'Ivoire

Implementation strategy and planned activities	Social, economic and environmental benefits	Sustainability
TOTAL COST: $ 900,000 **OPERATION:** An implementation plan will be put in place to supervise and coordinate the activity (component 2). A team of experts will be leading the project design and execution in coordination with and under the supervision of the technical staff of the Ministry and the municipality, and community members will work on the labour-intensive components of the intervention after they receive training. A private sector company and an NGO have been identified as experienced partners for the project, and one will be selected based on open, transparent competitive process. **MAINTENANCE:** Local government staff from the technical departments will receive training to be able to maintain the intervention once the initial larger bulk of the work has been completed. Raising awareness and capacity building (component 2) Resources and livelihoods management plan to be developed (component 2) A monitoring and maintenance plan to be developed (component 2) which includes repairing or replacing damaged bags and maintaining the initial height level of the sandbags dike by gradually recharging	Benefits of acting against coastal lagoon erosion will start immediately after realisation and are necessary to adapt to climate change. **ENVIRONMENTAL BENEFITS:** • Stabilization of land against erosion • Protection of valuable ecosystems against degradation. • Limiting uncontrolled spreading of pollution when land is eroded **SOCIAL-ECONOMIC BENEFITS:**	Sustainability can be achieved within six themes, institutional, social, economic, environmental, financial, and technical. **INSTITUTIONAL:** From the institutional perspective, the embankment stabilization activity will be guided by technical experts from private sector / NGO that will work with local government technical staff to train them and develop the understanding to develop small footprint embankment stabilization. Once the project activities have been finalized, the local government and community members trained during the process will be able to re-stabilize the same sections of the lagoons and eventually design and execute additional stabilization projects in additional lagoons. **SOCIAL:** The inclusion of low-cost embankments that are based on soft-constructions makes them easily adaptable by the local communities. Sandbag dikes and wooden embankments can be provided by local communities after initial instructions. These are not constructions that last forever, so in the future these communities can install new defences when necessary to protect the lagoons. **ECONOMIC:** The **sustainability** of this intervention is based on the resource and livelihood management plan which should be long-term and be reviewed every two years. Replication and upscaling will be achieved through: • raising awareness of coastal resilience, sand extraction risks, etc • training stakeholders

ACTIVITIES: • Detailed engineering and design study • Purchase of loose sand for backfill • Purchase of sand for the dike in sandbags • Purchase of wooden supports for the dike in sandbags • Purchase of bags for the dike in sandbags • Transport of sand in bulk and in bags from Songon to Jacqueville • Unloading of sand on a temporary storage area • Stitching of wooden supports • Sand bagging • Stacking of bags • Project management in the office and in the field • Maintenance **LEARNING OBJECTIVE:** Understand which interventions are most effective and low cost with replication and scale-up potential in other areas and countries in regard of lagoon embankments. **INDICATORS:** Number of interventions focused on lagoon protection / management and number of intervention locations focused on ecosystem restoration. Amount of embankments length needed to protect the most number of citizens. **KNOWLEDGE PRODUCTS:** - Manual of low-cost lagoon embankments interventions Portfolio of large scale effective low cost interventions appropriate for different 'common' lagoon situations / scenarios that can be replicated and /or scaled-up to other locations along the West African coast-lagoon systems.	• Decreases poverty • Increases food security • Limits the destruction of key assets (infrastructure, housing, etc) • Reduces disease outbreaks of pollution waters that flow over land into settlements. Specific benefits to vulnerable groups incl. women and youth. • Women: women empowerment through the protection of key assets they rely on for livelihoods, such as markets. • Youth: employment opportunities. • Elderly: increased security due to flood protection and reduction of loss and damage. • Children: increased food security and access to education by reducing poverty levels.	• creating an information system • using monitoring technics to enhance replication and upscaling: LIDAR, modelling, etc Lessons learnt. **ENVIRONMENTAL:** By applying embankments that are not hard construction that should last for decades, lagoon boundaries can be adapted by replacing/ moving the embankments at better suited locations. This makes it possible to work with the environment than against it, while still protect valuable land. **FINANCIAL:** From the financial perspective, the initial stabilization is funded by the project. The lagoon stabilization is carried out in areas where vulnerable communities and economic activities would commit to paying a recurrent fee to support long-term maintenance and re-stabilization of the lagoon. To concrete complementary options have been discussed to be developed during the duration of the project. The first option aims at funding future stabilization through a portion of the occupancy tax to hospitality industry. Additionally, the municipality would be able to develop private agreements following the Municipal Service District model (MSD), a special taxing district, imposing a modest raise in ad valorem tax for everyone and an additional tax on properties immediately adjacent to the lagoon, and that would have an increased benefit from having their property preserved. Since the stabilization of lagoons represents a less technically complex intervention than the sand nourishment, maintenance and scale-up / replication would be carried out by the community or local government once the best methods and know-how is transferred to them through trainings and learning by doing. **TECHNICAL:** Technically it also relies on: • Using sediments from sustainable sources • Prohibit sand extraction from the lagoons. • Raise awareness and train community members in areas at risk of flooding and how to reduce them by introducing adaptation measures such as the development of lagoon banks • Involve communities and local authorities in the implementation of the intervention on the development of the banks • Sign an agreement between community groups and officials regarding maintenance

4.1.2. Pen culture systems installed and operational in Ada East (Ghana)

The sea and the system of lagoons characterise Ada East communities. These communities' socio-economic and cultural dynamics highly interact and depend on ecosystem services. Ecosystem services play a key role in livelihood creation, and communities in these districts highly rely on their natural environment. Main income activities are agriculture, fishing, clam collection, and to a lesser extent salt mining. From all different livelihoods, fishery is most common. The most vulnerable coastal

groups and low-income communities depend on natural resources such as fisheries. However, climate change reduces the periods when they can fish, increased temperatures in the water altering the fish species (and habitats of the fishes) and the conditions that are suitable for specific fish species. With increasing manifestations of climate change, adequate fishing conditions could decline even further and threaten the communities' livelihoods. The intervention aims to protect and enhance natural assets that support coastal inhabitants and provide a prosperous living habitat as a source of income. It is suitable for these targeted communities because it builds on the existing ecosystems, environmental and socio-economic dynamics.

This intervention focuses on establishing pen culture in lagoons restored as a way to adapt to challenging fishing conditions caused by sea-level rise and more frequest extreme weather events such as storms along the coast. This intervention aims to increase livelihood opportunities more in-land (as pull factor from the shore) as well as introduce sustainable culture methods. Traditional livelihoods are therefore at stake. Inhabitants of the project area have been engaging in subsidence fishery activities using rudimentary methodology for several years. However, sea level rise, storms, and increased erosion are making fishing more difficult and dangerous

Under component 4 (Concrete catalytic climate change adaptation through diversified and strengthened livelihoods at community level), the Sub-Project plans **to install 1 pen and operational pen culture systems in 1 lagoon in the district of Ada East**. The project will be implemented in **Kewunor/ Azizan.** The number of direct beneficiaries is around 2,830 people (W: 50%), while the number of indirect beneficiaries is around **5896** people (W: 48%).

Penculture has shown to be a widespread and successful income generating activity in the region. Prosperous initiatives have started to take place. By providing the enabling environment through interventions 1 and 2, there will be more opportunities for expanding this economic activity linked to the social heritage of the communities. This intervention will increase communities' adaptive capacities. Indigenous fish species (Brackish tilapia – Sarotheroden melanotheron) will be considered for pond stocking because it has high economic benefits and high consumption rates in these communities. The species is able to grow well in changing salinities of brackish waters. Despite the changes in tidal height and salinity the environment offers advantages in enclosure culture, especially in terms of protected sites.

The pen aquaculture will be introduced in areas where the lagoons have been restored under this project. Consultation and interaction with project beneficiaries showed that the land where both interventions will take place is either individual or clan/family based. This land ownership has been mapped out. General land use activities in the area include fishing and crabbing

The landowners have showed consent with the lagoon restoration intervention. This has been verified through an approximate acreage and consent agreement with the District Assembly and/or the Traditional Authority which is inserted below. During project implementation this will be verified again. There is no risk of relocation for this intervention.

Figure 9: Map including all communities and interventions in Ada East, Ghana

Table X Overview of pen culture systems on implementation, benefits and sustainability for all project sites in Ghana and Cote d'Ivoire as described above under 4.1.2, 4.1.3, 4.1.4, 4.3.1, 4.3.2.

Implementation strategy and planned activities	**Social, economic and environmental benefits**	**Sustainability**
TOTAL COST: **4.1.2 - $ 101,262 ; 4.1.3 - $ 354,418 ; 4.1.4 - $ 354,418 ; 4.3.1 - $ 389,139 ;** 4.3.2 - **$ 562,090** **PREPARATION:** 1. Detailed engineering study and design: detailed design and programming of the intervention will be done by the EE. This will also include further detailed information/data on hydrology, sediment characteristics, and fisheries stock assessment. This activity with the support of the community plans under component 2, will result in the intervention Implementation Plan. 2. Buy materials: • Pen (10mx10mx3m, net, ropes, wood etc.). Local materials such as borassus palm and bamboo to construct the fish holding system. • Tilapia fingerlings - Brackish tilapia – Sarotheroden melanotheron • Fish food/meal • Canoe • Scoop nets • Buckets • Feed and equipment storage structure • Weighing scale 3. Prepare storage structure: This will involve designing and planning of a suitable site (taking into consideration accessibility and distance to lagoon) for installation. Implementing partners will do this with the district assemblies and community chiefs. **IMPLEMENTATION** 4. Pens installation: Site selection of pen and then proceed to Preparation of net materials into required sizes. Poles or woods will be installed as supporters to hold the netting materials in the lagoons. Appropriate supporting ropes will be put in place as well. All these will be done by EE. Site selection will assess good water flow following Hem formula at 0.7m depth. The following factors will be taken into account for site selection: water current, erosion, siltation, well-spaced, salinity, type of bottom, temperature, topography, vegetation, plankton , parasites, pollutants, proximity to market, frequency of navigation and other social aspects. **OPERATIONALIZATION** 5. Fisheries: The production cycle will be twice in a year. Restocking will be done after harvesting. For sustainability, access to the fish will be regulated. Semi intensive culture with low protein and less than 10% feed, since tilapias feed on natural macrophyte, plankton and low protein agricultural by-products will be used to improve production. Harvesting will be done under some form of regulations (License, catch quota, - to generate some revenues) that will be spelt out in the management plan. By products generated from farm during post-harvest activities will be put into usable forms such as fertilizers and fish meal in fish feed. 6. Management: to implement the intervention an office will be set up with time allocated from experts and a project manager. Implementation will be based on the Implementation Plan under the preparation phase. An implementation plan will be put in place to supervise and coordinate the activity (component 2). Identified NGOs with relevant experience and previous projects in pen culture in the same region will	Benefits of implementing a pen culture will start immediately after realisation and are necessary to adapt to future climate change. **ENVIRONMENTAL BENEFITS:** • Restoration of lagoon and continuous monitoring of water quality • The environment outside the pens remains undisturbed. • Fish stocks will be able to replenish • Environmental protection including biodiversity conservation and minimized pollution outside the pens. • Presence of pen-culture to contribute to a replenishment of fish population in the area **ECONOMIC BENEFITS:** • Livelihood creation (fisheries). • Adaptable to climate change. • Flexibility of size and economy • Ease of harvest **SOCIAL BENEFITS:**	Sustainability can be achieved within six themes, institutional, social, economic, environmental, financial, and technical. **INSTITUTIONAL:** The community will manage the pen areas with equal participation and access. Target beneficiaries will have access to the pens with the pre-condition to sustain them within a changing climate framework and limit the number of pens to avoid water quality issues (numbers will be based on monitoring outcomes). Local NGO / private company to prepare, operate and maintain the pens during project duration and through performance-based contracts until community CREMA has been trained and acquired experience in operating the system. Local governments will have an overview of pen activities within the lagoons and provide performance-based contracts for setting up additional pens. **SOCIAL:** The social sustainability of this intervention relies on the built ownership by the communities through being implementors and receiving capacity building activities (component 2). The CREMA will be applied. The principle is that the community will manage the pens with equal participation and access. Target beneficiaries will have access to the pens with the pre-condition to sustain it, as per a signed agreement. This intervention is also suitable for the targeted communities because it builds on the existing ecosystems, and environmental and socio-economic dynamics. It aims at protecting and enhancing lagoons ecosystems which support coastal inhabitants, and at providing a prosperous living habitat as a source of income (pen culture). **ECONOMIC:** Penculture projects have been successful in the region, while the IE has a track record of pen culture project execution. The CREMA will be the responsible entity for sustaining this project over time. This will be achieved by bringing some of the economic benefits of the intervention back to

execute the component. The NGO will provide training and support the development of institutional arrangements inside the communities for the installation and operation of the pen culture systems. The funding for the initial 4 years is included as part of the project; after that, the project will receive income from the operation of the pen culture systems as well as the training of additional communities with an interest to develop similar low-impact solutions complementary to fishing practices. The intervention is designed as a complementary activity to regular fishing, to provide for complementary income in times where communities experience revenue reduction due to impacts related to climate change, such as weather events, floods, increased coastal erosion due to sea level rise that damage fishing infrastructure and hinder sea access. **MONITORING AND MAINTENANCE:** 7. Field monitoring: Water quality monitoring, Fish stock assessment, look out for general wellbeing of landscaping and sand barriers. 8. Awareness raising through component 2. 9. Maintenance through CREMA, This is a governance arrangement for natural resource management. This is the Ghana version of the community-based natural resource management (CBNRM), while ensuring it conforms with the traditional conversation practices. The CREMA mechanism is also consistent with the current ideas on socio-ecological landscapes. It therefore seeks to achieve; conservation of the bio-physical, socio-cultural development and livelihoods supports/economic development for a community areas. **REPLICATION AND EXIT STRATEGY** 10. Maintenance during the project duration will be done by the NGO in collaboration with the local community. The NGO will progressively phase out its role as community members become more proficient in the maintenance and operation of the pen culture systems. Maintenance trainings are budgeted in the project and will be conducted by the NGO with the different community groups part of the pen culture initiatives. A monitoring and maintenance plan will be developed (component 2), including water quality parameters monitoring and fish stock assessment. CREMA By-laws enacted by the district assembly for the protection of the lagoons and installed systems which will impose fines etc **LEARNING OBJECTIVE:** Understand which interventions are most effective and low cost with replication and scale-up potential in other areas and countries **INDICATORS:** Number of community-level interventions that enhance livelihood options locally. Specific indicators regarding pen culture include the number of fish species, fish population maintenance, fishers employed, access to markets, economic investment for pen setup, and water quality, etc. **KNOWLEDGE PRODUCTS:** Portfolio of community level effective low-cost interventions appropriate for different 'common' coastal situations / scenarios that can be replicated and /or scaled-up.	• Poverty reduction. • Improved food security. • Capacity building. • Protection of social dynamics and traditions. Specific benefits to vulnerable groups incl. women and youth. • Women: increased livelihood opportunities. Between 1,000 to 3,000 women are involved in fishing. • Youth: increased livelihood opportunities linked to capacity built on sustainable fisheries, or educational/eco-tourism activities. • Elderly: increased food security and nutrition due to improvements in fishing. • Children: increased food security and access to education by promoting sustainable livelihoods that will improve families' economic capacities.	the CREMA. Economic sustainability is expected to be obtained from fishing over longer periods than before. It is also based on the resource and livelihood management plan, which should be long-term and reviewed every two years. **ENVIRONMENTAL:** By applying pen culture, communities are partly protected against pollutions in the water that prevents them from fishing in the lagoons. The controlled conditions of the pens limits the activities in the rest of the lagoon and protects its environment. Water quality close to the pens will be monitored on a weekly basis to identify any variation in the lagoon conditions. **FINANCIAL:** Pen culture systems are being successfully operated in the region. A production plan will be developed by the IE including capital costs, operational costs, production costs and expected net income. The CREMA will also be responsible along with the Municipal Assemblies, for replication and upscaling. This could be done through the capacity built in the communities and based on the lessons learnt from the final intervention report. There is a great opportunity for replication since the lagoons' ecosystems are vast in this coastal area. Earning the initial investment back can come through taxes on sales of fish and the livelihood opportunities for the communities **TECHNICAL:** The project will be operated during 3.5 years by the IE and afterwards maintained through a performance-based contract. Community through CREMA will be trained as part of the exit strategy of the project to operate and maintain the pen, as well as for replication. Results and experience from previous years will be used as a yardstick for sustaining the intervention. Improvements can be advised based on the monitoring results, such as pen locations, depth of the pens, and the number of pens within the lagoon.

4.1.3. Pen culture systems installed and operational in Ada West (Ghana)

The sea and the system of lagoons characterise Ada West communities. These communities' socio-economic and cultural dynamics highly interact and depend on ecosystem services. Ecosystem services play a key role in livelihood creation, and communities in these districts highly rely on their natural environment.

Main income activities are agriculture, fishing, clam collection, and to a lesser extent salt mining. Fishery is the most common livelihood form. The most vulnerable coastal groups and low-income communities depend on natural resources such as fisheries. However, **climate change reduces the periods when they can fish and affects suitable conditions for specific fish species**. With increasing manifestations of climate change, fishing moments could decline even further and threaten the communities' livelihoods. The intervention aims to protect and enhance natural assets that support coastal inhabitants and provide a prosperous living habitat as a source of income. It is suitable for these targeted communities because it builds on the existing ecosystems, environmental and socio-economic dynamics.Under component 4 (Concrete catalytic climate change adaptation through diversified and strengthened livelihoods at com munity level), the Sub-Project plans **to install 7 pens and operational pen culture systems in 3 lagoons in the district of Ada West**. The project will be implemented in **Akplabanya, Goi and Wokumagbe.** The number of direct beneficiaries is around 10,388 people (W: 52%), while the indirect beneficiaries is around 21,672 people (W: 48%).

Map of interventions:

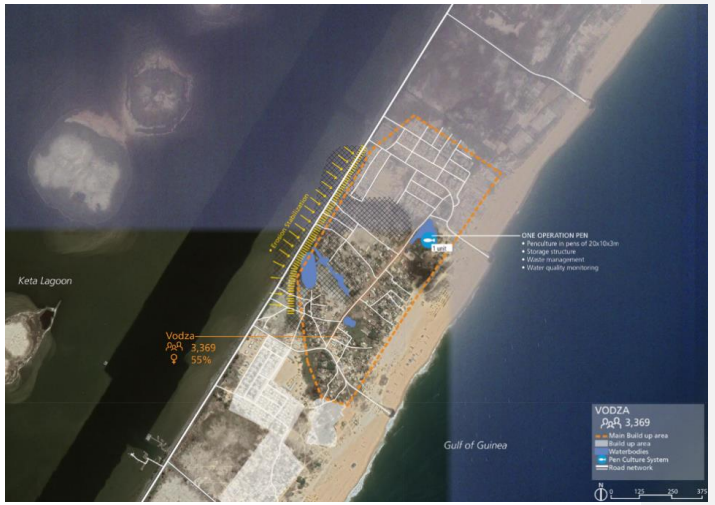
Figure 3938~~38~~0: Map including all communities and interventions in Ada West, Ghana

4.1.4. Pen culture systems installed and operational in Keta (Ghana)

The **Keta communities are located in a low-lying coastal plain** with the highest point of 53 m above sea level and the lowest between 1 to 3.5 m below sea level. Ecosystem services play a key role in livelihood creation, and communities in these districts highly rely on their natural environment.

Main income activities are agriculture, fishing, clam collection, and to less extent salt mining. Fishery is the most common livelihood form. The most vulnerable coastal groups and low-income communities depend on natural resources such as fisheries. However, **climate change reduces the periods when they can fish and affects suitable conditions for specific fish species**. With increasing manifestations of climate change, fishing moments could decline even further and threaten the communities' livelihoods. The intervention aims to protect and enhance natural assets that support coastal inhabitants and provide a prosperous living habitat as a source of income. It is suitable for these targeted communities because it builds on the existing ecosystems, environmental and socio-economic dynamics.

Under component 4 (Concrete catalytic climate change adaptation through diversified and strengthened livelihoods at community level), the Sub-Project plans **to install 7 pens and operational pen culture systems in 7 lagoons in four different districts in Keta**. The project will be implemented in **Agorkedzi/Atiteti, Agbledomi, Dzita, Lagbati and Vodza.** The number of direct beneficiaries is around 10,261 people (W: 52%), while the number of indirect beneficiaries is around 21,377 people (W: 48%).



Map of interventions

Figure 4039~~1~~1: Map including all communities and interventions in Keta,


Agbledomi
4,864
53%
Agorkedzi
2,448
53%
Gulf of Guinea
1 unit
1 unit
ONE OPERATION PEN
• Pencultures in pens of 20x10x3m
• Storage structure
• Waste management
• Water quality monitoring
AGORKEDZI
2,448
Main Build up area
Build up area
Waterbodies
Pen Culture System
Road network
N
0 125 250 375 500


Agbledomi
4,864
53%
Agorkedzi
2,448
53%
Gulf of Guinea
1 unit
1 unit
ONE OPERATION PEN
• Pencultures in pens of 20x10x3m
• Storage structure
• Waste management
• Water quality monitoring
AGORKEDZI
2,448
Main Build up area
Build up area
Waterbodies
Pen Culture System
Road network
N
0 125 250 375 500

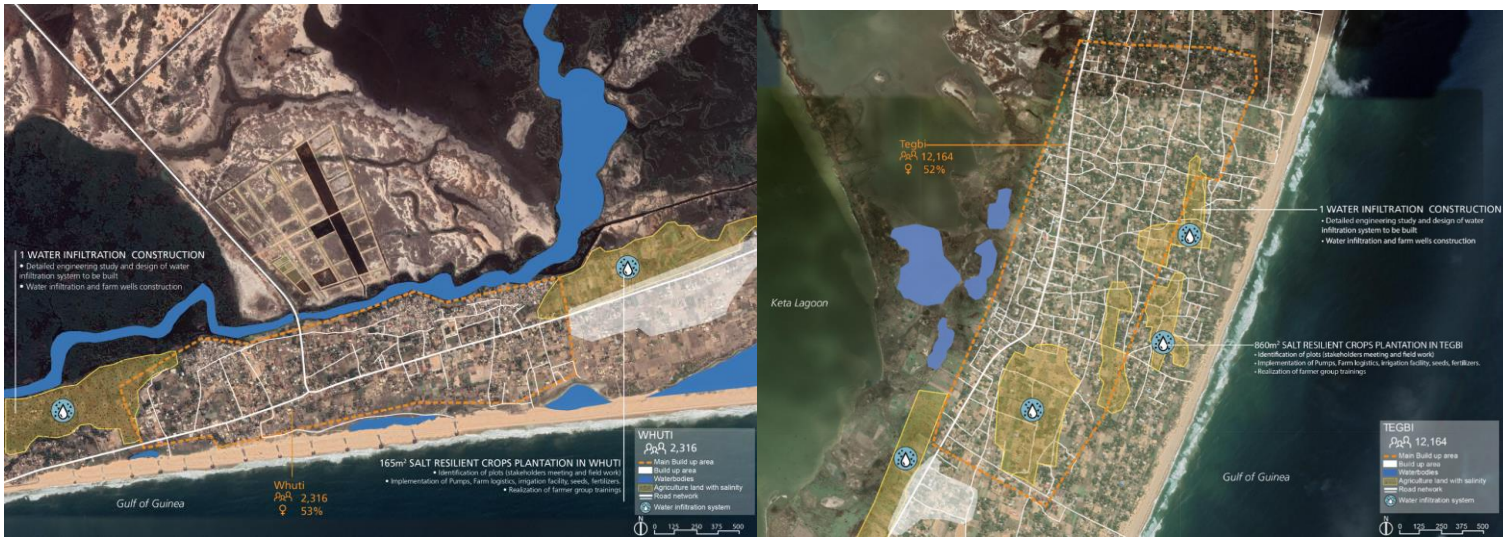
4.2.1. Salt resilient crops and water infiltration systems installed and operational in Keta (Ghana)

The Keta communities are located in a low-lying coastal plain with the highest point of 53 meters above sea level and the lowest between 1 to 3.5 meters below sea level. In **Keta agriculture** there are extremely high salinity levels limiting the communities' agricultural productivity and resilience. Ecosystem services play a key role in livelihood creation, and communities in these districts highly rely on their natural environment. Parts of their development are linked to coastal ecosystem services that may be compromised as they deteriorate. With increasing manifestations of climate change, salt intrusion is likely to increase due to sea level rise and alterations in precipitation patterns, reducing freshwater availability allowing saline water to move to agricultural grounds. Climate-smart agriculture practices can be applied to protect communities from high yield losses.

Under the component 4 (Catalytic concrete livelihood diversification and strengthening adaptation interventions at community level), the Sub-Project plans to introduce **3,500m² of salty resilient crops** to will support sustainable livelihoods. Introducing salt resilient crops allows the communities to build on their traditional livelihoods and skills, while adapting to climate change.

The **four communities** selected for the intervention are **Whuti, Tegbi, Woe and Lagbati/Kashibi (Anloga)**. The number of direct **beneficiaries is around 49,366 people** (W: 53%), while the number of indirect beneficiaries is around 40,329 people (W: 55%).

Map of interventions: Figure 4140 2: Map including all communities and interventions in Keta,



Implementation strategy and planned activities	Social, economic and environmental benefits	Sustainability
TOTAL COST: $ 1,068,325 **OPERATION:** An implementation plan will be put in place to supervise and coordinate the activity (component 2). Identified NGO's with relevant experience and previous projects in salt resilent crops and water infiltration in the same region will execute the component. The NGO will provide training and support the development of institutional arrangements inside the communities for the installation and operation systems Additionally, technical expertise has been secured from development partners (The Salt Doctors) during the design of the initiatives and for the technical support to the NGO staff. The funding for the initial 4 years is included as part of the project, and after that the project will receive income from the operation of the systems as well as the training of additional communities with interest to develop similar solutions for agriculture and water infiltration. **MAINTENANCE:** Maintenance during the project duration will be done by the NGO in collaboration with the local community. The NGO will progressively phase out its role as community members become more proficient in the maintenance and operation of the systems. Maintenance trainings are	Benefits of implementing salt resilient crops will start immediately after realisation and are necessary to adapt for future climate change and increasing saltwater intrusion by rising sea levels. **ENVIRONMENTAL BENEFITS:** • Reduced freshwater uptake, thereby allowing environmental base flows to continue • Currently used agricultural land can be used instead of creating new agricultural land in the environment • Environmental protection by reducing salinity levels induced by climate change. **ECONOMIC BENEFITS:** • Livelihood creation/diversification (climate-smart resilient agriculture). **SOCIAL BENEFITS:** • Poverty reduction	Sustainability can be achieved within six themes, institutional, social, economic, environmental, financial, and technical. **INSTITUTIONAL:** From the institutional and social perspective, the sustainability of this intervention relies on the built ownership by the communities through being implementors and capacity building activities (component 2). **ECONOMIC:** The CREMA will be the responsible entity for sustaining this project over time. This will be achieved by bringing some of the economic benefits of the intervention back to the CREMA. Economic sustainability is expected to be obtained from crop production. The CREMA will also be responsible, along with the Municipal Assemblies, for replication and upscaling. This could be done through capacity building in the communities and based on the lessons learnt from the final intervention report. There is a great opportunity for replication since there are large agricultural areas with the same problem. **ENVIRONMENTAL:**

budgeted in the project and will be conducted by the NGO with the different community groups part of the initiatives. Raising awareness and capacity building (component 2) Resources and livelihoods management plan to be developed (component 2) A monitoring and maintenance plan will be developed (component 2) which including soil monitoring and water infiltration system that may need servicing and salt resilient crops that have not succeeded in the first round. CREMA By-laws enacted by the district assembly for the protection of the installed systems and pilot structures which will impose fines etc. **ACTIVITIES:** • Detailed engineering study and design • Identification of plots (stakeholders meeting and field work) • Water infiltration construction • Realization of training centre for salt resilient crops • Training costs • Travel cost • Coordination support • Water infiltration and salty crops maintenance **SELLECTED INTERVENTIONS:** • Selected by communities and supported by technical experts. • Builds upon local capacities and on-going livelihoods diversification practices. • Long-term communities' engagement • Local communities as executers. • Low maintenance. **LEARNING OBJECTIVE:** To understand which interventions are most effective and low cost with replication and scale-up potential in other areas and countries **INDICATORS:** Number of community-level interventions that enhance coastal protection and livelihood options locally. **KNOWLEDGE PRODUCTS:** Portfolio of large scale effective low cost interventions appropriate for different 'common' coastal situations / scenarios that can be replicated and /or scaled-up.	• Improved food security • Capacity building • Protection of social dynamics and traditions. Specific benefits to vulnerable groups incl. women and youth. • Women: increased livelihood opportunities. Between 2,000 and 4,000 women are involved in farming and agro industrial related processing activities and marketing of agric products. • Youth: increased livelihood opportunities linked to capacity built on improving agriculture as well other traditional fisheries, or educational/eco-tourism activities. • Elderly: increased food security and nutrition due to improvement in agriculture. • Children: increased food security and access to education by promoting sustainable livelihoods that will improve families' economic capacities	From the environmental perspective, this initiative represents one of the most crucial adaptation innovations for the region and the communities. Climate change impacts reduce water availability and increase saltwater intrusion in coastal areas, threatening agricultural dependence on the environment. An opportunity offers the adaptation to climate change through climate-smart agriculture, agroecology, and crop-based management. **FINANCIAL:** From the financial perspective, the project will continue after the initial funding through revenue created and know-how generated for the selection of the salt resilient crop as well as the development of water infiltration systems. Additionally, communities could identify marginal soils and reclaim them using salt resilient crops. **TECHNICAL:** The project's resources will identify and verify the feasibility of recent advancements in salt resilient crops such as oil seeds, legumes, cereals, medicinal, lignocellulose, and fruit crops. It is also based on the resource and livelihood management plan, which should be long-term and be reviewed every two years. Results and experience from previous years will be used as yardstick for sustaining the intervention

SUB-PROJECT SHEET 4.3.1 Pen culture systems installed and operational in Grand Bassam (Cote d'Ivoire)

The Ivoirian coastline is the principal economic national resource. The diverse habitats that characterize the littoral constitute an asset with important cultural and touristic value. The principal activities in the coastal area include fishing, agriculture, forestry, factories and tourism. Also, the Ebrie Lagoon is an important socio-economic location at a countrywide scale.

Fishery is the most common livelihood form. The most vulnerable coastal groups and low-income communities depend on natural resources such as fisheries. However, **climate change reduces the periods when they can fish and affects suitable conditions for specific fish species**. With increasing manifestations of climate change, fishing moments could decline even further and threaten the communities' livelihoods. The intervention aims to protect and enhance natural assets that support coastal inhabitants and provide a prosperous living habitat as a source of income. It is suitable for these targeted communities because it builds on the existing ecosystems, environmental and socio-economic dynamics.

Under component 4 (Concrete catalytic climate change adaptation through diversified and strengthened livelihoods at community level), the Sub-Project plans **to install 6 pens and operational pen culture systems in three different districts in Grand Bassam**. The communities that the project will support in Grand Bassam are Azuretti, Mondoukou and Vitré 2. The number of direct beneficiaries is around 6,866 people (W: 55%), while the number of indirect beneficiaries is around 6,476 people (W: 53%).

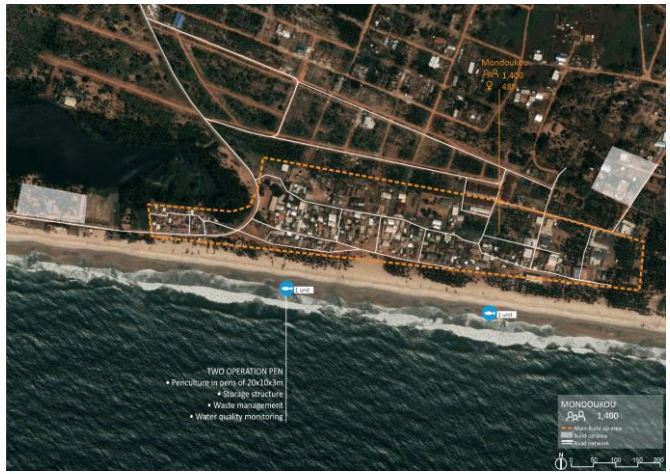


Figure 4241: Map including all communities and interventions in Grand Bassam, Cotê d'Ivoire

SUB-PROJECT SHEET 4.3.2 Pen culture systems installed and operational in Jacqueville (Cote d'Ivoire)

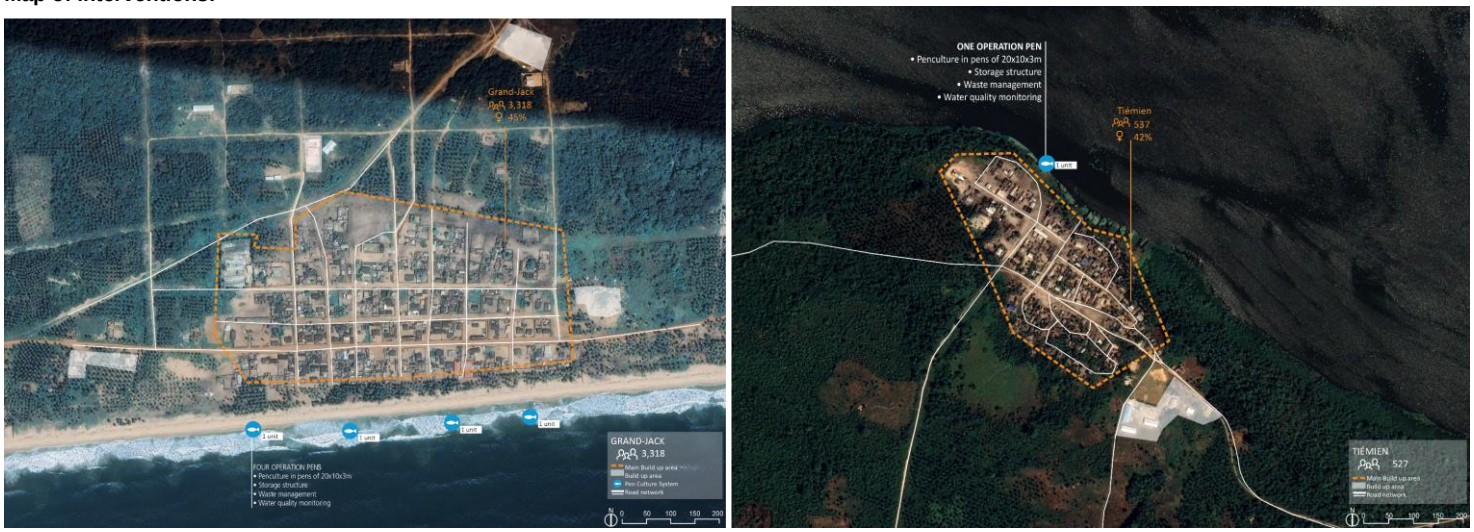
The Ivoirian coastline is the principal economic national resource. The diverse habitats that characterize the littoral constitute an asset with important cultural and touristic value. The principal activities in the coastal area include fishing, agriculture, forestry, factories and tourism. Also, the Ebrie Lagoon is an important socio-economic location at a countrywide scale.

Fishery is the most common livelihood form. The most vulnerable coastal groups and low-income communities depend on natural resources such as fisheries. However, **climate change reduces the periods when they can fish and affects suitable conditions for specific fish species**. With increasing manifestations of climate change, fishing moments could decline even further and threaten the communities' livelihoods. The intervention aims to protect and enhance natural assets that support coastal inhabitants and provide a prosperous living habitat as a source of income. It is suitable for these targeted communities because it builds on the existing ecosystems, environmental and socio-economic dynamics.

Under component 4 (Concrete catalytic climate change adaptation through diversified and strengthened livelihoods at community level), the Sub-Project plans to **install 10 pens and operational pen culture systems** in Ebrie lagoon in five different districts in Jacqueville. The communities where the project will work on Jacqueville commune are **Grand-Jack, Tefredji, Tiémien, Taboth and Koko**. The number of direct beneficiaries is around 10,690 people (W: 55%), while the number of indirect beneficiaries is around 10,084 people (W: 53%).

Map of interventions:

Figure 43423: Map including all communities and interventions in Grand Bassam, Cotê d'Ivoire




Ébrié Lagoon
Tefredji
3,632
50%
1 unit
1 unit
1 unit
THREE OPERATION PEN
• Penculture in pens of 20x10x3m
• Storage structure
• Waste management
• Water quality monitoring
TEFREDJI
3,632
Main Build up area
Build up area
Road network
0 25 50 75 100


Koko
762
47%
Ébrié Lagoon
1 unit
KOKO
762
Main Build up area
Build up area
Road network
0 50 100 150 200