ADAPTATION FUND

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

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PROJECT BACKGROUND AND CONTEXT

I. Problem statement

Coastal cities and communities in West Africa are facing the combined challenges of rapid urbanisation and climate change, especially sea level rise and related increased risks of erosion, inundation and floods. For cities and communities in West Africa not to be flooded or submerged, and critically exposed to rising seas and storm surges in the next decade(s), they urgently need to increase the protection of their coastline and infrastructure, adapt to create alternative livelihoods in the inland and promote a climate change resilient urban development path. This can be done by using a combination of climate change sensitive spatial planning strategies and innovative and ecosystem-based solutions to protect land, people and assets, by implementing nature-based solutions and 'living shorelines,' which redirect the forces of nature rather than oppose them.

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he 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 1. Jacqueville community flooded by lagoon in Côte d'Ivoire (2017)

Figure 2. Fuvemeh small village flooding during high tides in Ghana (2016)

This is of high relevance given that settlements in the West African coast are growing at unprecedented rates. World Bank data shows that 25 to 80 percent of each country's population lives in coastal zones, totalling more than 88 million people.[1] Specifically in Ghana and Côte d'Ivoire, it is estimated that already 40 percent of the people are settled in coastal zones, totalling more than 20 million people. This coastal development is generally uncontrolled and unplanned, deriving in rapid development and precarious human settlements. Climate change coupled with these growth trends are making communities and ecosystems increasingly vulnerable.

[1] *World Bank. 2012. Country Fact Sheets prepared for West Africa Coastal Climate Change National Adaptation Planning Workshop*

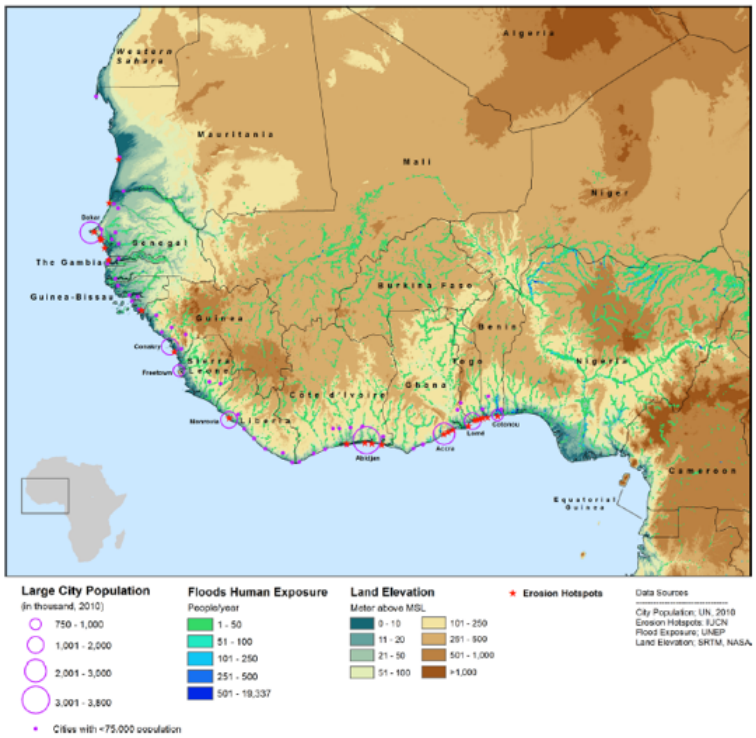


Figure 3. Vulnerable urban coastal areas in Western Africa. Source: WB WACA project 2017 (with identified large urban populations, flood exposure, land elevation and erosion hotspots).

To respond to these challenges, national and local governments and communities need to better (i) (spatially) plan coastal development considering climate change risks, (ii) better protect the coastal ecosystem and related livelihoods from climate change risks and impacts, (iii) invest in infrastructure to strengthen resilience and environmental protection, and (iv) strengthen their capacities to shift to a more sustainable and resilient development pattern and governing system of the coastal areas.

Given the regional similarity of the natural hazards and vulnerabilities, as well as the transboundary character of the existing challenges and their interdependencies, the project proposes to work at regional scale. This will allow addressing the micro, meso and macro dynamics of climate change impacts and proposing solutions that solve climate change related challenges locally without producing negative externalities along other areas of the coastline. The regional scope will also ensure the cost effectiveness of the technical and institutional solutions as well as the future and coherent replication of successful solutions in other coastal countries in West Africa (i.e Senegal, Guinea-Bissau, Guinea, Sierra Leone, Liberia, Togo, Benin and Nigeria).

II. West African context

i. 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[2]. Coastal areas account for 30% of this total. The real GDP growth for West Africa was estimated at 3.3% in 2018, slightly below the continental average of 4%.[3] However,

[2] *"World Population prospects – Population division"*. population.un.org. *United Nations Department of Economic and Social Affairs, Population Division. Retrieved November 9, 2019.*

[3] *African Economic outlook, African Development Bank Group, 2018*

economic growth disparities do exist among the countries of the region. Some countries are experiencing higher economic growth while others are expected to decline.

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, (in 11 coastal countries from Senegal to Nigeria), 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.[4]

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[5] consider this coastal urban corridor to be the engine of West Africa's regional economy. Prevention of 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.

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)[6]. 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.

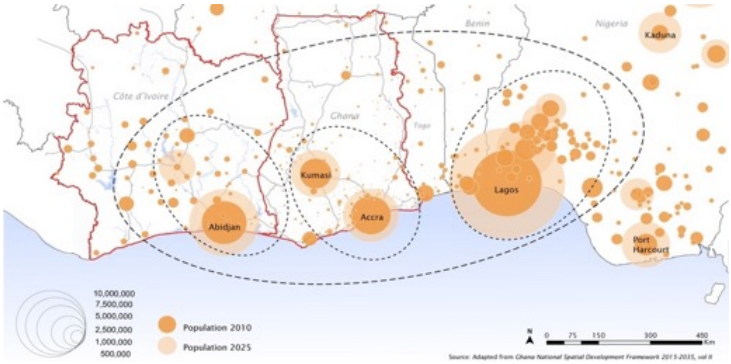


Figure 4. Abidjan-Lagos corredor mega region. UN-Habitat

Environmental context

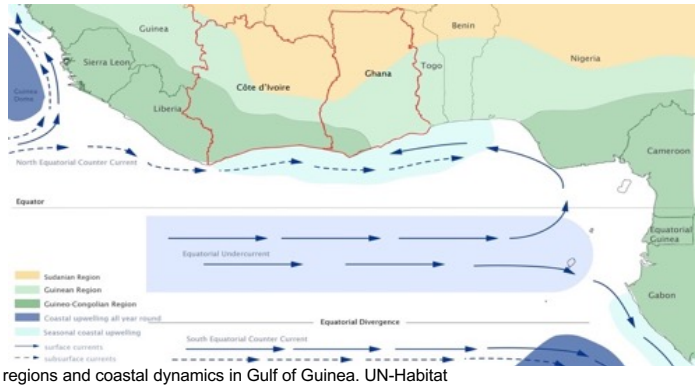
West Africa has a total land area of 6,140,000 km^2, or approximately one-fifth of Africa. The region is around 300 meters above sea level with only a few mountainous areas. The land consists of contrasting kinds of physical environment, among which we find forests, savannas, mountainous areas, flat 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.[7] For example:

- Self-maintenance services: constitution of habitats, maintaining of energy flows and nutritional cycles through primary production, inter- and intra-ecosystem services and functions, reproduction, nourishment, etc.

[4] http://www.visualcapitalist.com/animated-map-worlds-populous-cities-2100/
[5] https://www.uneca.org/sites/default/files/PublicationFiles/int_progr_ri_inceptionecowaseng.pdf
[6] *West Africa Economic outlook, African Development Bank Group, 2019*
[7] *West African Coastal Areas Challenges, Coastal Ecosystems Group of the Commission on Ecosystem Management, IUCN, 2014*

- Provisioning services: fisheries (artisanal, commercial), agriculture, firewood, aquaculture, freshwater, and medicines etc.
- Regulation services: climate regulation, sediment trapping and coastal protection against marine erosion, wastewater management and purification, etc
- Cultural services: recreation and ecotourism, religious heritage, and educational.



Map 1. Bioclimatic regions and coastal dynamics in Gulf of Guinea. UN-Habitat

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.[8]

As shown in Map 1 , 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. For example, deforestation, land degradation, and flooding result in major assets loss such as large areas of arable land, infrastructure, and biodiversity.

ii. Côte d'Ivoire

Social Context

Côte d'Ivoire's population has grown drastically since the independence. Population was estimated at 21.6 million in 2010 and continued to increase by half a million people per year, at a rate of around 2.5% annually. Based on the World Bank data from 2018, Côte d'Ivoire has reached a total population of around 25 million people in 2018.[9]

The Ivorian coastline hosts most of the country's population and a significant part of its economy. Indeed, coastal areas have a population of almost 7.5 million, 30% of the Ivorian population and shelter nearly 80% of the country's economic activities.[10] 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.[11] 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.

In terms of demographic structure, Côte d'Ivoire's population according the RGPH 2014[12] is still very young. Children under 14 years old represent around 40% of the population while young population, ranging from 15 to 34 years old, represent 35%. Thus 78% of the total population is young, while 2.5% of population is 60 and above. Gender wise, the population presents a slightly masculine majority with a 52% of male and 48% female. Other relevant parameters

[8] *Human interventions and CC in West African sediment budget, 2017*
[9] *World Bank Data Portal http://www.worldbank.org/en/country/cotedivoire/overview*
[10] *World Bank Data Portal http://www.worldbank.org/en/country/cotedivoire/overview*
[11] *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.*
[12] *Recensement General de la Population et de l'Habitat (RGPH) 2014*

defining social structure are ethnicity and immigration. 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.[13] The migrant population tends to reside in rural areas. Even though migration to Côte d'Ivoire has decreased over the years, the country remains an important destination country for citizens of other West African regions.

Regarding education, Côte d'Ivoire still has a low completion rate of lower secondary education 35.5%, and high disparities in learning between boys and girls. Illiteracy remains relatively high according to the RGPH 2014, with a rate of 56% of population from 15 and above who do not know how to read or write.

Between 1985 and 2011, the depth and severity of poverty increased considerably, moving from approximately 10% to 51% of the population. However, the 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 %.[14]

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.

Economic context

Côte d'Ivoire plays a key role in the West African region as it functions as transit trade for neighboring, 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 2018.15 Nevertheless, GDP growth has gradually declined from 10.1% in 2012, but is still estimated to remain above 7%.

The country is the world's largest exporter of cocoa beans, and 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[16]. 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.[17] The fisheries and aquaculture sector contribute about 3.2% of the agricultural GDP, its contribution to the total GDP is 0,8%, 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).[18]

The Ebrie 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.[19] Economic growth must be better redistributed and more inclusive to ensure social stability, equality, and maintain a sustainable economic growth.

Environmental context

Côte d'Ivoire lies close to the equator on the Guinea Coast and has a total land area of 322,460 km^2. 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.

[13] *World Bank's Migration and Remittances factbook, World Bank Group, 2016*
[14] *http://www.worldbank.org/en/country/cotedivoire/overview*
[15] *African Development Bank Group Portal, https://www.afdb.org/en/countries/west-africa/cote-d'ivoire/*
[16] *Ibid*
[17] *African Development Bank Group Portal, https://www.afdb.org/en/countries/west-africa/cote-d'ivoire/*
[18] *Fisheries Committee for the West Central Gulf of Guinea - https://fcwc-fish.org/uncategorized/cote-d-ivoire*
[19] *World Bank Data Portal http://www.worldbank.org/en/country/cotedivoire/overview*

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.[20] The national parks are located within parts of all the country's ecological zones. Some of the protected areas have received international recognition for their conservation value in the form of designation as a World Heritage Site, Biosphere Reserve, or Ramsar site.[21] The coastal area has three National Parks, being the Azagny National Park the only protected site. This is located in the Grand-Lahou Lagoon area, and includes 17,000 hectares.

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. Initially connected to the Gulf of Guinea only at the Comoe Estuary, a man-made channel - the Vridi Canal - created a second opening in the littoral. Due to changes in this littoral, the Comoe estuary naturally closed leaving the Canal Vridi as the only linkage between the lagoon and the Gulf of Guinea. The development of the canal Vridi as a main harbor has made the lagoon an epicenter of economic activity in Côte d'Ivoire.
However, 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. Ghana

Social context

The present understanding of the national demographic profile is based on the latest official census from 2010. According to this, 24.78 million people were living in the country[22], and 49% reside in rural areas.[23] More recent data by the World Bank, estimates 29.77 million inhabitants in 2018.[24] This growth has been documented since the 60s, and it shows how population more than tripled by 2010, with an average growth rate of 2.5%. 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 change.[25] Even if there is no 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.

In terms of demographic structure, Ghana is characterised by having youthful population. Data shows how 38.3% of the population are children under 15 years old, and 20% range between 15 and 24 years old. Other relevant dynamic is how population aged 60 and above has increased from 4.6% to 6.7% between 1960 and 2010, due to national life expectancy increase. 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.[26]

Regarding social welfare, Ghana has made major improvements both in education and health. For example, primary school enrollment has increased from 62% in 2000 to 86% by 2016. Over the same period, secondary enrollment increased from 32% to 57%.[27] As for health services, it has been identified how Ghanaians are using them more since access has improved both geographically and financially.[28] These structural improvements have led to a reduction of extreme poverty from 36% in 1992 to 8.4% in 2012-13. Despite this, indications demonstrate how inequality is still growing as benefits from economic growth and poverty reduction are not equally distributed across the territory, women

[20] *United Nations Environment Programme, Côte d'Ivoire Post-Conflict Environmental Assessment, 2015*
[21] *United Nations Environment Programme, Côte d'Ivoire Post-Conflict Environmental Assessment, 2015*
[22] *Ghana Statistical Services. 2013. 2010 Population and Housing Census.*
[23] *Ministry of Environment, Science, Technology and Innovation, Town and Country Planning Department, National Development Planning Comission.2015.Ghana National Spatial Development Framework (2015-2035)*
[24] *World Bank Data Portal. https://data.worldbank.org/country/ghana*
[25] *Ministry of Environment, Science, Technology and Innovation. 2015. Third National Communication to UNFCCC.*
[26] *Ghana Statistical Services. 2013. 2010 Population and Housing census.*
[27] *World Bank Data Portal. https://data.worldbank.org/country/ghana*
[28] *The World Bank, author. 2012. A Health Sector in Transition to Universal Coverage in Ghana.*

and men, and different economic status.[29] 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.

Economic context

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".[30] To give a sense of scale, within the ECOWAS region, its economy is the second largest,[31] and on 2011 the country was one of the six fastest growing economies in the world.[32]

Based on the latest ECOWAS Convergence Report in 2016 Ghana faced a moderate GDP growth of 3.5%. More recent estimates by the World Bank indicate this value has nearly doubled to 6.3% in 2018.[33] Shares of GDP are 19.1%, 24.2% and 56.5%, for primary, secondary, and tertiary sectors, respectively.[34] 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.[35] 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.[36] 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.[37]

However, an important remark is how employment growth has not kept pace with economic prosperity.[38] This means no matching improvements are seeing in terms of job opportunities, inequality reduction, or livelihoods' quality improvement. In addition, most of the generated employment derives in the informal sector which accounted for 83% in 2015. This informality is characterized by low wages and vulnerability, conditions that worsen in rural areas. As per the above, livelihoods provision and improvement emerge as a major development need.

Environmental context

Ghana lies close to the equator on the Guinea Coast, and has a total land area of 239,460km^2.[39] 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.[40] As a coastal resilience project, our proposal focuses on this Coastal Savanna sub-region.

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".[41] This area includes the Volta Delta which has "fanned outward over time, developing sandbars and smaller rivers, and forming numerous large lagoons".[42] This proposal will focus on the Eastern coast, which stretches about 140km from the border with the Republic of Togo to Prampram. This side of the coast is characterized for being highly energetic with wave heights often exceeding 1 m in the surf zone.[43]

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.[44] 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".[45] For example, some well recognized ecosystem services from the coastal zone are:

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[29] *Ministry of Gender, Children and Social Protection. 2015. Ghana National Social Protection Policy.*
[30] *Ministry of Environment, Science, Technology and Innovation. 2012. Ghana National Climate Change Policy.*
[31] *https://countryeconomy.com/countries/groups/economic-community-west-african-states*
[32] *Alagidede,Paul, Baah-Boateng, William, Nketia-Amponsah,Edward .2013The Ghanaian Economy: An Overview.*
[33] *World Bank Data Portal. https://data.worldbank.org/country/ghana*
[34] *ECOWAS. 2016. Convergence Report.*
[35] *Alagidede,Paul, Baah-Boateng, William, Nketia-Amponsah,Edward .2013The Ghanaian Economy: An Overview*
[36] *World Bank Data Portal. https://data.worldbank.org/country/ghana.*
[37] *National Development Planning Comission. 2017. Medium-Term National Development Policy Framework*
[38] *Ibid*
[39] *Ministry of Environment, Science, Technology and Innovation. 2015. Third National Communication to UNFCCC.*
[40] *USAID. 2011. Ghana climate change vulnerability and adaptation assessment.*
[41] *Ibid*
[42] *Ibid.*
[43] *Boateng, Isaac.Jayson-Quashigah, Philip.2016.Mapping Vulnerability and Risk of Ghana's Coastline to Sea Level Rise.*
[44] *Ministry of Environment, Science, Technology, and Innovation. 2015. Third National Communication to UNFCCC.*
[45] *Ministry of Environment, Science, Technology, and Innovation. 2013. Ghana National Climate Change Policy.*

- Provisioning: food (fish, crops, molluscs), raw materials, biomass, freshwater, and medicines.
- Regulating: air quality, climate regulation, water regulation, erosion control, water management, and natural hazards protection.
- Cultural: recreation and ecotourism, spiritual, and educational.

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. Some of these are: fragmented legislation and poor governance, settlements in hazard prone areas, increased pollution, and wetland and marine ecosystems degradation.[46] These coupled with climate change are strongly deteriorating the rich natural environment and consequently risking many of its ecosystem services.

III. Climate change in Côte d'Ivoire and Ghana: drivers, risks, and impacts.

The context section has highlighted how the West African region, and within it, Côte d'Ivoire and Ghana, are hubs of socio-economic and environmental assets in the continent. They are rich territories with huge potential given its consistent growth. However, the region has great development challenges, which compromise its sustainable future. Under this section, the proposal aims at presenting the project's conceptual framework which unpacks the dynamics in both countries. This helps further analyzing the context as to identify the entry points for this proposal.

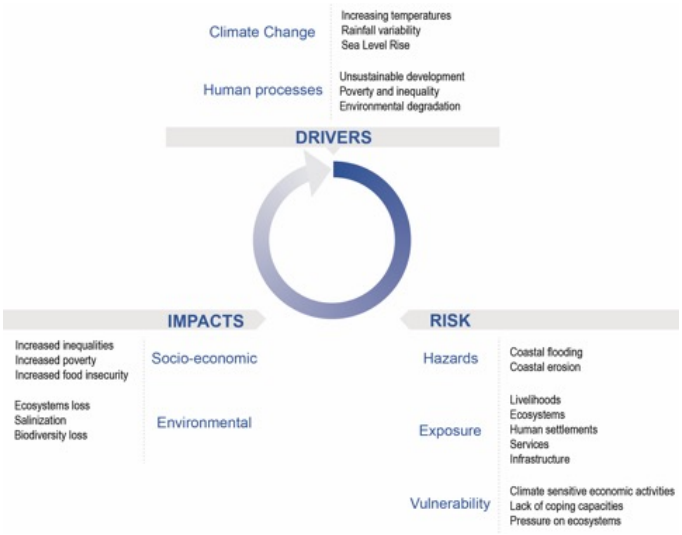

Figure 5. Project analysis conceptual framework. UN-Habitat.

As defined by the IPCC, "in the context of the assessment of climate impacts, the term risk is often used to refer to the potential for adverse consequences of a climate-related hazard […] on lives, livelihoods, health and well-being, ecosystems and species, economic, social and cultural assets, services (including ecosystem services), and infrastructure".[47] Climate change is therefore a root cause of this risk. However, experience shows how there are also other underlying drivers such as human driven processes. These drivers are understood as "processes or conditions, often development-related, that influence the level of disaster risk by increasing levels of exposure and vulnerability or reducing capacity".[48] Taking into account all these drivers is critical to comprehensibly understand the origin of the existing risks. Equally important is to assess how these risks are affecting the environment and its societies. Impacts are understood under this proposal as "the consequences of realized risks on natural and human systems, where risks result from the interactions of climate-related hazards, exposure, and vulnerability".[49] The way in which impacts are addressed is paramount, otherwise they perpetuate and even worsen risk levels. The framework on Figure 5 is specific for the coastal areas in both countries, which will be the focus of this proposal.

[46] *Ibid.*
[47] *Ipcc, 2018: annex i: glossary [matthews, j.b.r. (ed.)]. In: global warming of 1.5°c. An ipcc special report on the impacts of global warming of 1.5°c above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [masson-delmotte, v., p. Zhai, h.-o. Portner, d. Roberts, j. Skea, p.r. Shukla, a. Pirani, w. Moufouma-okia, c. Pean, r. Pidcock, s. Connors, j.b.r. Matthews, y. Chen, x. Zhou, m.i. Gomis, e. Lonnoy, t. Maycock, m. Tignor, and t. Waterfield (eds.)]. In press*
[48] *undrr terminology https://www.undrr.org/terminology/underlying-disaster-risk-drivers*
[49] *49 ipcc, 2018: annex i: glossary [matthews, j.b.r. (ed.)]. In: global warming of 1.5°c. An ipcc special report on the impacts of global warming of 1.5°c above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [masson-delmotte, v., p. Zhai, h.-o. Portner, d. Roberts, j. Skea, p.r. Shukla, a. Pirani, w. Moufouma-okia, c. Pean, r. Pidcock, s. Connors, j.b.r. Matthews, y. Chen, x. Zhou, m.i. Gomis, e. Lonnoy, t. Maycock, m. Tignor, and t. Waterfield (eds.)]. In press*

i. Drivers of risk

Climate change

West Africa

Climate Change in West Africa manifests through (1) rising temperatures, (2) declining total rainfall quantity and its increased variability, (3) rising sea levels and (4) high incidence of weather extremes and disasters.

Observed climate **trends**: [50]

- A general warming trend over the last 50 years between 0.5 and 0.8 ºC.
- Between 1961-2000, the incidence of warm spells has increased, and the incidence of cold days has decreased.
- An overall decrease in annual rainfall since the late 1960s, ranging from 20-40 %, depending on the area.
- Arid zones have experienced more prolonged and frequent droughts since the 1970s.
- In tropical and coastal zones, there has been an increase in the occurrence and frequency of extreme weather events such as storms and severe flooding over the past two decades.

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[51] .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).

The above climate change trends highly **impact** coastal environments as they increase the intensity and occurrence of hazards such as floods and erosion. For example, changing precipitation patterns could decrease the overall rainfall which would further reduce the flow of rivers in the region, thus leading to a decrease in sedimentation deposits.[52] This sediment loss is already disrupting the coast profile generating high erosion rates. Current assessments estimate that 56% of the coastline in Benin, Côte d'Ivoire, Senegal and Togo is subject to an average erosion of 1.8 m per year.[53] Sea level rise would also become a major threat for the West African coastline causing flooding and increasing salinity of water in estuaries and rivers making them unfit for consumption and agriculture.

Côte 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:

Observed **trends** from 1960 to 2000:

- Temperature: Temperature observations between 1970-2000 indicate increasing temperatures by 0.5 -0.8 °C over the country
- Rainfall: An overall rainfall deficit has been observed the past 40 years
- Seal level rise: Sea level rise above 3 mm per year over the last 40 years has been identified.

Estimated **projections:**

- 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.

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

[50] *IPCC AR5 and USAID*
[51] *Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC)*
[52] *WACA and WB knowledge sheet 6 (2016): The effects of climate change on coastal erosion in West Africa*
[53] *World Bank, 2019. The cost of coastal zone degradation in West Africa: Benin, Côte d'Ivoire, Senegal and Togo*

Climate and Disaster Risk Screening Report, [54] the coastal area is the most vulnerable area to climate change, more precisely to sea level rise leading to major flooding and coastal erosion.

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 analysis from the 3rd National Communication to UNFCCC and the National Climate Change Policy, are presented bellow:

Observed **trends** from 1960 to 2000:

- Temperature: An increase of 1°C has been observed over the past 40 years.
- Rainfall**:** From the 40-year dataset, rainfall levels generally have been reducing with the rainfall patterns becoming increasingly erratic in all ecological zones in Ghana.
- Sea Level Rise**:** Sea level rise of 2.1 mm per year over the last 40 years has been identified.

Estimated **projections:**

- 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, as well as an increase in waves' heights. Studies estimate that about 50% of the coastline is vulnerable to sea level rise.[55]

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.

Human driven processes

Along with the above climate change trends, human processes have also proven to have a critical role in exacerbating risks. Below, the most challenging processes are presented for the West African context, focusing on Côte d'Ivoire and Ghana.

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.

Regarding infrastructure development, in West Africa there is evidence that shows how sediment flows are been altered. High erosion rates due to changes in coastal equilibrium, are amid the major consequences. As shown in the study (Giardino, 2017): "the West African coast is a typical example where, nowadays, most fluvial sand is retained behind river dams and/or interrupted at several locations by port jetties. As a result, the sandy coastline is eroding almost everywhere."[56] Main activities related to this process are shown in figure 2, and include construction of river dams, ports, coastal protection works, and sand mining.

[54] *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.*
[55] *Boateng, Isaac.Jayson-Quashigah, Philip. 2016.Mapping Vulnerability and Risk of Ghana's Coastline to Sea Level Rise.*
[56] *Giardino, A., et al. 2017. A quantitative assessment of human interventions and climate change on the West African sediment budget.*

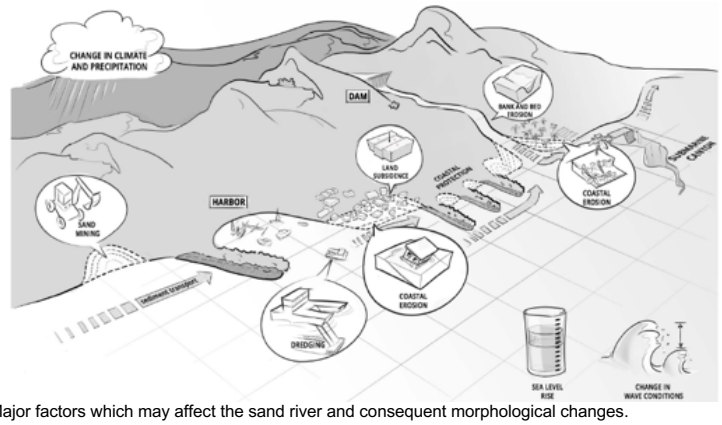

Fig 7. Major factors which may affect the sand river and consequent morphological changes.

Harbour jetties induce accretion at the upstream side of the structure and erosion on the leeside by blocking part of the longshore transport. 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. In Ghana, the Akosombo dam in Volta river is playing a crucial role on coastal dynamics changes. In Côte d'Ivoire, numerous dams have also been built decreasing river flow and sedimentation along the coastline.

Regarding human 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.

As stated in Ghana's Medium-Term National Development Policy Framework, main challenges on this regard in the country are: complicated land tenure system, lack of regional and district development frameworks, insufficient capacity for spatial plan preparation and implementation, and weak enforcement of planning and building regulations.[57] Regarding Côte d'Ivoire, similar challenges are being faced such as the land tenure system and lack of capacities.[58] A revision of urban planning tools and their implementation is necessary in order to improve mechanisms of land management, and to ensure a sustainable growth of the cities and better living conditions for all.

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".[59] 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.

In Ghana, the role poverty plays in building climate resilience has been recognized: "social protection and social safety nets to smooth out inequities and build a more cohesive society are vital for climate resilience."[60] To a large extent, the poverty gap has increased due to lack of spatial planning and development management, which has derived in high levels of informality. Major concerns lie on rural development, given that the "prevailing situation has resulted in low levels of agro-based industrial development, poor and inadequate rural infrastructure and services, […]; over-exploitation of the natural resources of rural communities, and a wide digital divide between urban and rural dwellers".[61]

[57] *National Development Planning Commission. 2017. Medium-Term National Development Policy Framework.*
[58] *Plan National de Developpement 2016-2020, Ministry of Plan and Development*
[59] *Prevention Web: https://www.preventionweb.net/risk/poverty-inequality*
[60] *Ministry of Environment, Science, Technology and Innovation. 2012. Ghana National Climate Change Policy.*
[61] *National Development Planning Commission. 2017. Medium-Term National Development Policy Framework.*

In Côte d'Ivoire, as poverty severity increases it has become a main driver of risk especially in rural areas. Indeed, the gap is mainly due to the lack of access to land where most of the population depends on agriculture for subsistence. This leads rural communities to food insecurity, over-exploitation of natural resources, and higher levels of exposure.

Environmental degradation

Environmental degradation is described as "the reduction of the capacity of the environment to meet social and ecological objectives and needs".[62] 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.

In Africa it is estimated that 52% of the land is degraded.[63] This is linked to both unsustainable development and poverty, as overconsumption and misuse of resources aggravates where there is lack of territorial management and opportunities. Some effects of this degradation relate to food security, such as loss of productivity; environment regulation, such as water management and pollution; or biodiversity conservation, such as wildlife loss.

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".[64] 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.[65]

In Côte d'Ivoire, pressures on coastal ecosystems and degradation are rapidly increasing. Various forests and national parks are increasingly being occupied by farmers and some forests have been completely converted into villages. The Ivorian forest has taken a worrying step backwards from 16 million hectares at the beginning of the century to less than 2 million hectares today. In addition, waterways, particularly those in the Ebrie lagoon, have been affected by pollution as the result of them being turned into dump sites. Main challenges in coastal areas related to environmental degradation are: pollution of rivers and lagoons, mangrove deforestation, and loss of biodiversity and agricultural land due to urbanization.

Hazards, exposure, and vulnerability

The proposal will focus on climate change adaptation and reducing risk of climate change and human induced disasters, by building resilience to the main **hazards** impacting the coastal areas in West Africa:

- Coastal flooding/inundation**:** flooding resulting from higher-than-normal water levels along the coast caused by tidal changes or thunderstorms. [66] Under this proposal we are also including flooding related to other coastal systems, like lagoons and river deltas.
- Coastal erosion: the temporary or permanent loss of sediments or landmass in coastal margins due to the action of waves, winds, tides, or anthropogenic activities.[67]

According to Ghana's National government coastal areas are already extremely vulnerable to flooding and erosion. "Erosion, submergence, and sea water intrusion will lead to the loss of economic, ecological, cultural and subsistence values through loss of land, infrastructure, and coastal habitats. Sea level rise and changes in freshwater inflows could affect the habitats and biodiversity of coastal and marine ecosystems."[68] Studies show that erosion rate is around 1 - 4 m/year.[69]

The Ivorian coastline is as well extremely vulnerable to flooding and coastal erosion. Over 1,800km^2 of surface will be flooded following a 1meter sea level rise and the rate of shoreline retreat is estimated to vary from 1 m to 3 m per annum. The loss of beaches and dunes, that provide natural protection against floods, is aggravating the consequences of submersions that invade the cities and villages during severe storms, threatening the country's economy due to potential impact on tourism and other infrastructure facilities. Indeed, the old colonial city of Grand-Lahou has now completely gone under water and the historic city of Grand-Bassam, classified as world cultural heritage of UNESCO, is also threatened.[70]

The extent to which these hazards impact the local ecosystems and communities highly depends on the levels of exposure and vulnerability. **Exposure** refers to the "presence of people; livelihoods; species or ecosystems; environmental functions, services, and resources; infrastructure; or economic, social, or cultural assets in places and

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[62] *Prevention Web: https://www.preventionweb.net/risk/environmental-degradation*
[63] *Ibid.*
[64] *National Development Planning Commission. 2017. Medium-Term National Development Policy Framework*
[65] *Ibid.*
[66] *Ibid*
[67] *Integrated Research on Disaster Risk. (2014). Peril Classification and Hazard Glossary (IRDR DATA Publication No. 1). Beijing: Integrated Research on Disaster Risk.*
[68] *Ministry of Environment, Science, Technology, and Innovation. 2013. Ghana National Climate Change Policy.*
[69] *Steijn, R. Sea Defence Ada, Ghana (1998), Alkyon report. Reference A208. (only available in hardcopy)*
[70] World Bank Data Portal http://www.worldbank.org/en/country/cotedivoire/overview

settings that could be adversely affected".[71] In the case of West Africa, coastline hosts about 40% of the region's population,[72] as well as major economic activities, around 56% of the region GDP.[73] This concentration of assets is likely to increase as coastal areas continue to experience rapid population growth. Climate change could also exacerbate these trends, as droughts inland - which are expected to become more frequent and intense due to higher temperatures and changing precipitation patterns - drive rural population from the hinterland towards coastal communities in search of economic opportunity.

With a coastline of 539 km long, Ghana's coastal zone has high levels of exposure: "sea level rise will affect many communities within the 30-meter contour of the national coastal zone, where more than 25% of the population lives. Ghana's coastal zone is pivotal to the economy, with five large cities and significant physical infrastructure situated here."[74] In Côte d'Ivoire, the coastline extends to 566km and it is home to more than half of the country's population and a significant part of its economy. Indeed, coastal areas have a population of almost 7.5 million, and shelter near 80% of the country's economic activities[75]. Nowadays, more than 2/3 of Côte d'Ivoire's coastline is affected by coastal erosion phenomena and sea level rise.

Vulnerability refers to the "propensity or predisposition to be adversely affected" [76] by climate change impacts. This includes characteristics determined by physical, social, economic, and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.[77] In West Africa, including Côte d'Ivoire and Ghana, high vulnerability levels stem from: a high regional reliance on climate-sensitive economic activities such as rain-fed agriculture, livestock rearing, fisheries and forestry; the low capacity of region's social and ecological systems to cope with climatic extremes; and existing strains on ecosystem services due to processes such as loss of productivity and deforestation.[78]

ii. Impacts

Based on the analysis of the existing dynamics from regional to local scale, main impacts of coastal areas related to flooding and erosion are presented. It is important to note that these impacts reduce the resilience of ecosystems and communities, making them more vulnerable.

Côte d'Ivoire

Socio-economic

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. Moreover, they have limited access to resources and land in a continent where majority of the population depends on agriculture, and they lack participation in the decision-making process. Women hold only 18% of agricultural lands and 75% of rural women are living below the poverty line.[79] 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"[80] Impact on coastal roads will also have high consequences on the travels between countries. Climate change and human processes are also causing a decrease in fishing stocks putting vulnerable communities at greater risk. Indeed, the rising of water temperatures is provoking the migration of fish towards colder waters. 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. [81]

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[71] *IPCC, 2018: Annex I: Glossary [Matthews, J.B.R. (ed.)]. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Portner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Pean, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press*

[72] UNDP available at https://www.adaptation-undp.org/explore/western-africa

[73] World Bank, 2019. The costo f coastal zone degradation in West Africa: Benin, Côte d'Ivoire, Senegal and Togo

[74] Ministry of Environment, Science, Technology and Innovation. 2012. Ghana National Climate Change Policy.

[75] World Bank Data Portal http://www.worldbank.org/en/country/cotedivoire/overview

[76] *IPCC, 2018: Annex I: Glossary [Matthews, J.B.R. (ed.)]. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Portner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Pean, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press*

[77] UNDRR, 2017, Terminology.

[78] UNDP available at https://www.adaptation-undp.org/explore/western-africa

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

[80] *Ibid.*

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

"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".[82] 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.

Environment

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, changing the hydrological regimes of rivers, and the increase of sedimentary transit and modification of the intertidal zones. 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.

Ghana

Socio-economic

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**. For example, women are mostly left out in decision-making and employment, and they have less access to key resources such as land, credit, technology, and information. Migrants also face similar challenges, being hardly involved in development activities while increasing demand over the existing resources.[83]

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.[84] 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. They also collapsed a bridge to Togo, breaking travel between the countries.[85] Studies are being undertaken and some estimates on three communities at Dansoman near Accra predict a loss of over 200 meters of coastline or about 0.80 km^2 of land by 2100, affecting over 650,000 people and 900 buildings.[86]

Evidence shows how these impacts reach the economy at national scale, more specifically national economic output, and Ghana's long-term development prospects.[87] In the coastal zones this is particularly clear given the impacts on the natural ecosystems' communities rely on, which deeply harms the primary sector. 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.[88]

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.[89] In addition, livelihood related infrastructure such as markets, or equipment such as boats, are being destroyed. Moreover, other infrastructure investments meant for coastal protection, such as groynes, are being lost as infrastructure is damaged.

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[82] *Ibid.*
[83] *Ministry of Environment, Science, Technology, and Innovation. 2013. Ghana National Climate Change Policy.*
[84] *Ministry of Environment, Science, Technology, and Innovation. 2015. Third National Communication to UNFCCC.*
[85] *Ibid.*
[86] *Appeaning et al. 2011. Impacts of coastal inundation due to climate change in a cluster of urban coastal communities in Ghana, West Africa.*
[87] *Ibid.*
[88] *Ministry of Environment, Science, Technology, and Innovation. 2015. Third National Communication to UNFCCC.*
[89] *Ministry of Environment, Science, Technology, and Innovation. 2013. Ghana National Climate Change Policy.*

Environmental

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. Coastal flooding and erosion are inundating wetlands and estuaries, as well as destroying beaches and vegetation such as palm trees and mangroves. These hazards coupled with existing dynamics like deforestation for firewood or overconsumption of resources, are hindering ecosystems' equilibrium. Consequently, nature's resilience capacity and the protection it brings to the communities, is highly compromised.

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.

PROJECT PROPOSAL

I. Regional approach and project approach

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The regional approach provides added value to the project in the following ways:

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.

Specifically, the project also requires 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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The overall objective of this project is to increase resilience to climate change and human-induced hazards in the region, and more specifically in Côte d'Ivoire and Ghana. The proposal will focus on coastal resilience based on governmental requests, importance of coastal areas as socio-economic and environmental hubs, and its highest levels of vulnerabilities and impacts.

The analysis on the previous section helped unpack the exiting dynamics and identify the main hazards and impacts. The project will address these by taking a multi-scalar approach, from regional to local scale, that aims at integrating policy, research, capacities, and concrete adaptation interventions. Different strategies will facilitate this comprehensive approach, while the project and proposed activities target the adverse impacts of climate change through adaptation solutions as follows:

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1. **Long-term spatial planning (project component 1 and 2):** 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-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.

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How regional, local and community level plans address climate change adaptation? 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.

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2. **Capacity building (project components 1 and 2):** raising awareness and increasing capacities related to climate change resilience is key for the sustainable development of coastal areas. 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.

   Capacity building will reduce:

   Inequalities, by ensuring equal participation from most vulnerable groups like women, youth, disabled, and other minorities.
   Poverty and food security, by increasing communities' knowledge on how to sustainably coexist with the ecosystems their livelihoods rely on.
   Ecosystems' and biodiversity loss, by strengthening the understanding of how natural surroundings play a key role as economic and cultural assets.

3. **Concrete adaptation interventions (project components 3 and 4):** the urgency of adapting coastal areas to climate change requires impact on the ground to happen in the short term. The project will achieve this through concrete adaptation interventions at district/department and community level. These will pilot nature-based solutions that can become an example for further resilience investments identified through the spatial planning process.

   Concrete adaptation interventions will reduce:

   Inequalities, by ensuring equal employment for most vulnerable groups like women, youth, disabled, and other minorities, as well as equal access to expected benefits.
   Poverty and food security, by restoring and protecting ecosystems as the enabler environment for sustainable livelihoods, as well as enhancing and diversifying income sources.
   Ecosystems' and biodiversity loss, by restoring ecological assets and maintaining them through their linkage to sustainable livelihoods.
   Salinization, by innovative solutions to reduce salinity levels as well as by introducing salty soil compatible crops.

How transformative ecosystem adaptation interventions such as mangrove restoration, coastal lagoon restoration, sand nourishment and lagoon bank flood prevention address climate change adaptation? By addressing raising temperatures, contributing to reverse declining rainfall and variability of droughts, improving water quality and supply, preventing salt-water intrusion, reduce coastal and lagoon erosion, floods and risk to adjacent infrastructure.

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Catalytic community adaptation projects such as pen aquaculture, salt resilient crops, water infiltration systems address climate change adaptation by providing 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)

4. **Partnerships building (project component 5):** considering the complexity and multi-disciplinarily linked to addressing flooding and erosion in coastal areas, establishing 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.

How coastal dynamics impact prediction and assessment, monitoring sensor system, strengthening of assessment and monitoring capacity and international knowledge management and sharing mechanism address climate change adaptation? Because they develop the institutional and technical capacity of stakeholders to better understand, act and monitor climate change, with the potential to adapt to heat waves, declining rainfall, droughts, sea level rise, higher incidence of weather extremes and disasters, erosion, inundation, risk to infrastructure, floods and threatened livelihoods due to climate change.

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II. 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 1.

i. Côte d'Ivoire

Map 2. 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 1.

Map 3. 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 1. 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.

ii. 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 1.

Map 4. 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 2. 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 labor 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.

III. Conceptual Framework

Table 3. Project conceptual framework

<table>
<tr><th colspan="2">During proposal development phase</th><th colspan="2">During project</th><th>After project</th></tr>
<tr><td>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</td><td>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.</td><td>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</td><td>4

Monitor, evaluate and learn (component 5)</td><td>5

Replicate proven prototype coastal climate change adaptation solutions in West Africa

☐ Component 5: Knowledge sharing and monitoring</td></tr>
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IV. Programme/Project structure

i. Project objectives

The overall objective of the proposed project is to increase the climate change resilience of coastal settlements and communities to climate-related coastal hazards in Ghana and Côte d'Ivoire.

The sub-objectives of the project, which are in line with the project component below and AF outcomes, are:

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. 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. 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. 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. 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 technologies

ii. Project components and financing

Table 4. Project components and financing

Project Components	Expected Outcomes	Expected Outputs	Countries	Amount
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 Jackeville, 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,**
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**
3. Transformative concrete ecosystem / natural resource	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	Ghana Ghana Côte d'Ivoire	1,222,05 1,125,12 614,953

adaptation 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.	3.1.4. Sand nourishment along the coast of Grand Bassam 3.1.5. Development of lagoon banks by sandbag dikes and embankment in Jacqueville For details see table 5 (overview table)	Côte d'Ivoire Côte d'Ivoire	1,265,527 900,000 **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 1,068,325 951,229 **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 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 For details see table 5 (overview table)	Ghana Ghana + Côte d'Ivoire Ghana + Côte d'Ivoire Côte d'Ivoire	125,000 95,000 140,000 326,000 **T: 686,000**
Total components				11,662,611
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. 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.[90] 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

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

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 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. 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 modeling 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 29 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 4and 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 4and 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.

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 aligned with National and Regional coastal management and sectoral development strategies.	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 Jacquevill e		T:70 W: 40%	T:56,308 W: 49% Y: 30%	199,000		
		1.6. Strengthened capacity of Ministère du Plan and municipalities	- Guiding the Ministry of Plan and Municipalities - Alignment with international methods / standards	Côte d'Ivoire		T:40 W: 40%	T:100 W: 40%	143,200	UN-Habitat	

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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	Increased climate change resilience of coastal areas through increased ecosystem /	3.1. Mangrove restoration.	- Detailed engineering study and design - Buying materials - Mangrove nursery - Wildlings/seeds - Mangrove planting - Nursery personnel	Ghana. Keta district along the coast and	These interventions are suitable for the local context because they build on the existing ecosystems, and environmental and	T:13,082 W: 51% Y: 53%	T:5,657 W: 52% Y: 51%	1,222,053	Development Institute	1,500 ha planted

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).	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.		- Nursery management - Transport - Coordination support - Maintenance - Field monitoring	the Volta estuary.	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.					
		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 Jacquevill e.		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 - Maintenance	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

		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. Jacquevill e.		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	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 - Penculture - 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 not only supports the social and cultural heritage in the region, but also generates income opportunities dependent on the protection of the	T:26,849 W:52% Y:53%	T:30,697 W:48% Y: 58%	810,099	Develop ment Institute	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 center for salty crops - Training costs - Travel cost - Coordination support	Ghana. Keta district.		T:48,346 W:53% Y: 57%	T:40,329 W: 54% Y: 59%	1,068,325	Develop ment Institute	3,500m^2 of salty crops

of income are being lost. Due to sea level rise, storms and increased 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.			- Water infiltration and salty crops maintenance		existing ecosystems as well as distributing benefits, which will not also be economic but also social and environmental.					
		4.3. Pen culture systems installed and operational.	- Detailed engineering study and design - Material - Storage structure - Pen installation - Penculture - Transport for fish food - Fish - Coordination support - Maintenance - Field monitoring	Côte d'Ivoire. Grand Bassam and Jacquevill e.		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 cooperat ion AbC and MoLOA	The model will allow for accurate assessment and mapping of coastal risks, esp. erosion, inundation/floodi ng, 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	In line with above model, established evidence-based monitoring sensor system to measure effectiveness	5.2. Monitoring sensor system to assess and monitor the effectiveness and impacts of the proposed concrete adaptation	- Assessment of monitoring needs - Monitoring plan / mechanism, incl. responsibilities - Development of monitoring guidelines	Ghana and CdI project target areas		Everyone with internet access, esp planners and development professionals		95,000	UCC In cooperat ion with ANDE, SODEX AM and	Evidence of effectiveness and impacts of coastal building with nature adaptation interventions will be provided,

measures, also so these can be replicated in West Africa	and impacts of proposed concrete adaptation measures	interventions under component 3 and 4	- Development of sensor system, incl. drone for mapping land use and land cover changes and other (remote) sensing systems					140,000	CRO) in CdI	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

This project promotes new and innovative solutions to climate change adaptation in 3 main areas: technical innovation, integrative innovation and local/social innovation.

1. Technical innovation: 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

More concretely, the project promotes innovation related to climate change adaptation in several of each component, according to the following definition and in the following ways.

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, two types of innovations have been defined in the project:

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.

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.

Sand nourishment in the project area to provide capacity development to local government and communities, as well as the involvement of communities and capacity development of local government by private sector/NGO.

For more detailed info see Table 5 and Annex 3.

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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.

2. 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 which will focus on the urban structure. This methodology will be integrating 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.

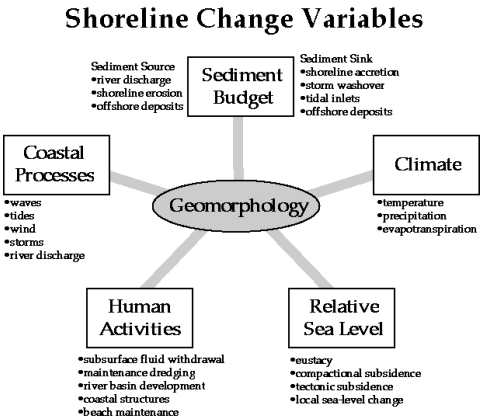

Figure 6. Erosion and flood impact and risk prediction model.

3. 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. diarrhea 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

As mentioned above, the design and implementation of the project focuses on maximizing the size of the 'concrete' interventions under component 3 and 4 to directly benefit the most vulnerable populations; thus, limiting the 'non-concrete' components to those activities required to supporting the appropriate implementation of the 'concrete' interventions (components 3 and 4), to further develop a framework to enhance climate resilience through spatial and land use planning (component 1) and to ensure ownership, sustainability and replication of the whole project (component 2 and 5).

Cost-effective rational - component 1 - Urban and territorial management and planning at National and district / department levels:

Spatial and land use planning is considered to be one of the most cost-effective ways to understand and respond to climate change risks and vulnerability, especially to avoid future development in risk areas (and cost associated with this potential risk, such as 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, with results into economic savings associated to prevention instead of reaction as well as social and environmental benefits.

Cost-effective rational - component 2 - Resilience planning at the community level:

The project aims to maximize the positive impacts of the concrete interventions for communities. To achieve these positive impacts, the supporting role of NGO's, by working directly with communities and vulnerable groups, represents a key aspect of the project. The role of NGO's and will be focused in assessing communities and establishing working relations with them, to ensure that capacity gaps are covered. NGO's will also play a key role to ensure ownership of the project by the communities and to contribute in the operation and maintenance of the projects that due to its specificities cannot be directly run by the community.

Cost-effective rational - component 3 - Transformative concrete coastal resilience building interventions

The project includes the interventions that benefit most communities and people. This has been done by conducting a cost-effectiveness analysis of the different interventions during the full proposal development phase. The selection criteria prioritized the interventions that have the largest social, economic, and environmental impacts with the lowest financial implications.
Besides that, whenever possible, the project seeks to achieve cost-effectiveness through economies of scale in procurement processes and contracts. The regional scale will facilitate that activities can be developed in the two countries to achieve economies of scale. The project also seeks to develop procurement and partnerships with governments and its agencies (e.g. using dredging machines) and the private sector (co-funding from the tourism sector) to minimize project costs.

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. penculture).

Cost-effective rational - component 4 – catalytic concrete coastal resilience building interventions:
Although the project aims to reduce cost of the execution of selected concrete interventions by pursuing economies of scale, the proposed community-level interventions will be scaled down to a size so that the interventions are manageable by communities. This is required to enhance ownership and sustainability of the project and to mitigate potential social and environmental risks. Related to this, a community-based approach, which has been used across multiple cities and sectoral contexts, is found to be the most cost effective compared to larger scale procurement, as it builds on community decision-making, local know-how and networks and facilitation, where the maximum value of each dollar is utilized to the maximum benefit of the community, in a transparent decision-making process.

Cost-effective rational component 5 - institutional and regulatory framework:

Although this component is also required to institutionalize the project, the replication of lessons and interventions focuses on is effective and low-cost options, which will benefit countries and communities in West Africa, also from a cost-effectiveness point of view.

Table 7 below presents the final interventions in comparison with alternative solutions discussed with communities, and local and international technical experts.

Table 7. Cost-effectiveness per project intervention

Output / activity	Total project cost	Beneficiaries		Cost-effectiveness (Total Cost/ Beneficiaries)		Alternative Solutions	Justification
		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	To address lagoons flooding and erosion, alternative solution proposed: Sand bypassing from opening river mouth and using the dredged soil to eroded areas.	Selected intervention: - Selected by communities and supported by technical experts. - Builds upon local capacities and traditional livelihoods. Long-term communities' engagement. - Less cost per beneficiary. - Local communities as executers. - Addresses not only flooding and erosion but environmental and biodiversity protection. - It provides economic potential such as tourism, fisheries and molluscs collection. - No secondary negative effects that are common for grey infrastructure, such as increased erosion in other areas. - Maintenance linked to livelihood opportunities, therefore no extra costs. - If well maintained, the intervention has unlimited life spam. Alternative: - Proposed by technical experts. - No local capacities. Short-term communities' engagement. - Higher costs. - High environmental risks. - Higher maintenance.
3.3 Mangrove Restoration along the coast and lagoon (Grand Bassam & Jacqueville – Côte d'Ivoire)	614,953	8,318	11,214	74	55		
3.2. Coastal lagoon restoration (Ada East, Ada West & Keta district – Ghana)	1,125,126	23,480	34,354	48	33	To address flooding. Alternative solution: Set up a waste management system.	Selected intervention: - Selected by communities and supported by technical experts. - Builds upon local capacities and traditional livelihoods. Long-term communities' engagement - Less cost per beneficiary. - Addresses not only flooding but also environmental and biodiversity protection. - It provides economic potential such as fisheries. - Maintenance linked to livelihood opportunities, therefore no extra costs. - If well maintained, the intervention has endless life period. Alternative: - Not prioritised by communities. - Address reduction of pollution and flooding, but not the restoration of the natural environment and its ecosystem services. - High maintenance. -

Deleted: Groynes construction[91] and other hard infrastructure sea defense costs around USD 90m for each 10km section[92] (Keta example))¶

Deleted: Alternative 2: Non-structural solutions such as relocation or retreat (controls that restrict building and coastal development)

Deleted: Groynes construction[93] and other hard infrastructure sea defense costs around USD 90m for each 10km section[94] (Keta example)¶
¶
Alternative 2: Non-structural solutions such as relocation or retreat (controls that restrict building and coastal development)

Deleted: <#>No secondary negative effects that are common for grey infrastructure, such as changing natural water flow dynamics.¶

3.4. Sand Nourishment along the coast (Grand Bassam – Côte d'Ivoire)	1,265,527	4,090	7,263	309	174	**Groynes construction**[97] and other hard infrastructure sea defense costs around USD 90m for each 10km section[98] (Keta example) **Alternative 2**: Non-structural solutions such as relocation or retreat (controls that restrict building and coastal development)	Selected intervention: - Selected by communities and supported by technical experts. - Less cost per beneficiary. - Less cost per km2 (as sand nourishment is USD 1,2 million for 7-11 km) - Local communities can better support execution. - Less maintenance costs. Alternative - Higher cost per beneficiary. - Lower local capacities. - High risk of increasing erosion downdrift. - Higher maintenance costs.
3.5. River embankment of lagoon (Jacqueville – Ivory Coast)	900,000	2,906	3,305	309	272	To address flooding and erosion, alternative solution proposed: Sand bypassing from opening river mouth and using the dredged soil to eroded areas.	Selected intervention: - Selected by communities and supported by technical experts. - Lower costs. - Local communities can better support execution. - Lower maintenance. Alternative: - Proposed by technical experts. - No local capacities. Short-term communities' engagement. - Higher costs. - High environmental risks. - Higher maintenance. - Less feasible because the lagoon shore is almost non-existent. To increase its width, it would require: o Gaining lagoon shore by nourishing it, which will require a big amount of sand and would be expensive. o Gaining on land and relocate some homes and activities on the lagoon edge which could cause involuntary displacement. - Access for sand nourishment machines is difficult.
4.1. Pen culture systems installed and operational (Ada East, Ada West & Keta district – Ghana)	810,099	26,849	30,697	30	26		Selected intervention - 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.

[97] *idem*
[98] *https://www.bbc.com/news/world-africa-36257360*

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¶
(Grand Bassam & Jacqueville – Côte d'Ivoire)¶
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Deleted: **Groynes construction**[95] and other hard infrastructure sea defense costs around USD 90m for each 10km section[96] (Keta example)¶
¶
Alternative 2: Non-structural solutions such as relocation or retreat (controls that restrict building and coastal development)

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Deleted: <#>Local communities as executers.¶
Addresses not only flooding and erosion but environmental and biodiversity protection.¶
It provides economic potential such as tourism, fisheries and molluscs collection.¶
No secondary negative effects that are common for grey infrastructure, such as increased erosion in other areas.¶
Maintenance linked to livelihood opportunities, therefore no extra costs.¶
If well maintained, the intervention has endless life period.

Deleted: <#>Hard coastal structures have additional costs from erosion that is generated along the downdrift side.¶

Deleted: **Alternative 1**: Lagoon Sand nourishment¶

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4.3. Pen culture systems installed and operational. (Grand Bassam & Jacqueville – Côte d'Ivoire)	951,229	12,388	16,560	76	57	To increase economic resilience through livelihoods. Alternative options: Alternative 1: improved fisheries management Alternative 2: salt mining on lagoon marshes.	- By reactivating productive landscapes, the protection of the lagoons is ensured. - Low initial investment as it is easier compared to other culture systems. - Greater production is assured in a limited space with rich food and oxygen supply. - Easier to harvest. Alternative 1 - Challenges regarding fisheries is not only management, but mainly reduction of fish stocks due to unsustainable practices and climate change impacts. - Less favourable for fish production and riskier for social security and famine reduction. Alternative 2 - Not prioritised by communities. - Does not build on traditional livelihoods and productive landscape heritage. - Large maintenance.
4.2. Salt resilient crops and water infiltration systems installed and operational. (Keta District – Ghana)	1,068,325	48,346	40,329	22	26	To increase economic resilience through livelihoods. Alternative options: **Alternative 1:** improved agriculture management. **Alternative 2:** infrastructure enforce the coast / reduce water intrusion	Selected intervention: - 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. Alternative 1 - Challenges regarding agriculture is not only management, but mainly reduction of production due to unsustainable practices and climate change impacts (salinisation). - Less favourable for crops production and higher risk of famine. Alternative 2 - Not prioritised by communities. - Not building on existing practices from communities. - Higher costs. - Higher maintenance.
							-

Deleted: Aquaculture¶
Comparing our current intervention to the other forms of systems for aquaculture, The cost per ha is $100,000 to 150,000 ¶
Total cost: approx. $ 65.44 to 98.16 per beneficiary¶

Deleted: Conventional agriculture with potential loss of crops….

Deleted: <#>Promoting salt resilient crops is the only cost-effective alternative to grow crops in this area. ¶
It will be acceptable as the type of crops will remain the same¶

Deleted: 4.3. Pen culture systems installed and operational. (Grand Bassam & Jacqueville – Côte d'Ivoire)¶

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Deleted: Alternative 1: fish farm in cage¶
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Alternative 2: Fish farm in tanks¶
¶
Alternative 3: Fish farm in ponds¶
¶
Total cost: a fishpond average 500 CFA francs/m² (not including nursery and operation costs)

Deleted: <#>These solutions are less suited to the context of Grand-Bassam and Jacqueville because they are more complex to implement and less favourable for fish reproduction.¶
Low initial investment as it is easier compared to other culture systems.¶
Greater production is assured in a limited space with rich food and oxygen supply.¶
Easier to harvest.¶
Alternative 2 specifically, requires certain conditions in order to survive and thrive, and therefore the fish tank should be chosen wisely. There are several important aspects to consider, including the shape, the material, the colour, the type of covers and shading

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.
- ☐ 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.[99]

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)

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

- ☐ 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 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.

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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 proposed interventions adhere to all national technical standards in both Ghana and Côte d'Ivoire, particularly the concrete interventions under components 3 and 4. Details for this are presented in Annex 8. In both countries the basic requirement for assessing if an environmental and social impact assessment is required is to present scoping reports of proposed interventions to authorities responsible for EIAs and based on these reports. Then the authorities decided whether EIAs are required. This has been done for full project development phase. Ongoing consultations with the following entities took take place at all stages of project design and will take place during implementation to ensure that all project activities comply with the relevant national technical standards:

Côte d'Ivoire

- ☐ Ministry of Urban Sanitation, Environment and Sustainable Development.
- ☐ Ministry of Construction, Housing, Sanitation and Urban Planning
- ☐ The National Agency of Environment Protection (ANDE)
- ☐ The National Anti-Pollution Centre (CIAPOL)
- ☐ The Laboratory of Building and Publics Works (LBTP)
- ☐ Local planning departments (including BNETD)

Ghana:

- ☐ Ministry of Local Government and Rural Development
- ☐ Ministry of Environment, Science, Technology and Innovation (MESTI);
- ☐ Local planning departments
- ☐ Metropolitan, Municipal, District Assemblies

The necessary safeguards have been incorporated into project design through environmental and social risk screening and assessments and during implementation through monitoring and evaluation. The project will comply to national standards and guidelines. Final approvals related to below in both Ghana and Côte d'Ivoire are expected early 2021. For more info see Annex 5 and 8.

Table 8. ESIA legal framework, applicability and steps in Côte d'Ivoire and Ghana

	Côte d'Ivoire	Ghana
Legal Framework	☐ Law n ° 2016-886 of 8 November 2016 on the constitution of the Ivory Coast ☐ Law n ° 96-766 of October 3, 1996 on the environment code ☐ Decree No. 96-894 of 8 November 1996 determining the rules and procedures applicable to studies relating to the environmental impact of development	☐ Constitution of Ghana ☐ Environmental Protection Agency ("EPA") Act, 1994 (Act 490) ☐ Ghana Environmental Assessment Regulations 1999, LI 1652 ☐ Environmental Impact Assessment Procedures, June 1995
Applicability	Projects likely to have "significant impacts on the environment" required to: ☐ Register with the Ghana EPA ☐ Obtain environmental permits prior to beginning construction and operations Include specific requirements for sectors and types of projects	Projects likely to have "significant impacts on the environment" required to: ☐ Register with the Ghana EPA ☐ Obtain environmental permits prior to beginning construction and operations ☐ Include specific requirements for sectors and types of projects
Steps	1. Registration of the project in ANDE. 2. Assessment on the need of an ESIA. 3. Definition of the TOR for the ESIA. 4. Development of the ESIA. 5. Evaluation of the ESIA for approval. 6. Project authorisation.	1. Registration of potential project with EPA 2. Screening of registration by EPA within 25 days 3. Scoping and Terms of Reference 4. Development of Environmental Impact Statement ("EIS") 5. Provisional Environmental Permit

Part II.G DUPLICATION WITH OTHER FUNDING SOURCES

Table 9. 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)[100] - 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	<u>Complementary</u> ☐ 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 <u>Non-Duplication</u> ☐ 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)	<u>Complementary</u> ☐ Lessons learned and collaboration on their programme objective 2 <u>Non-Duplication</u> ☐ WA-BICC project focuses on Sierra Leone and West coast of Côte d'Ivoire; Not common target areas

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

Mami Wata project[101] - 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

[101] https://mamiwataproject.org/

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
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[102] - 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

[102] http://projects.worldbank.org/P132100?lang=en

		☐ 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[103] - 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[104] - 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 urbanized area inside Ningo-Prampram District	Complementary ☐ 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.	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

[103] https://www.adaptation-fund.org/wp-content/uploads/2017/08/Pre-concept-AF-Volta-Basin-v5-18092017.pdf
[104] https://www.adaptation-fund.org/wp-content/uploads/2015/09/RESUBMISSION_Ghana-AF_proposal_-29-January-2015.pdf

	☐ Effective stakeholder engagements through communication (peer to peer discussion, study tour, focus group discussions) enhance behavioural change communication. ☐ Ownership is key to project success.	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[105] - 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		
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.

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

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[106] Ministry of Environment and Sustainable Development, Autonomous District of Abidjan. 2015 - ongoing	☐ 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 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[107] 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	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.

[106] https://www.thegef.org/project/cities-iap-abidjan-integrated-sustainable-urban-planning-and-management
[107] https://sgp.undp.org/index.php?option=com_docman&view=download&alias=47-mangrove-project&category_slug=fact-sheets&Itemid=257

	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.	☐ 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.

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 10. 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 restoration and / or saltation management	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		

4.1. Pen culture systems installed and operational in Ada East, Ada West, and Keta districts	(Io): 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	(Io): 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 vulnerable groups. An overview of consultations conducted, including objective, outcomes and how inputs have been incorporated in the proposal is available in Annex 4. 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 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 11. 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 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	x	x		x			x	- Private meeting
UN Women	x	x		x			x	- Private meeting
UNEP/Abidjan Convention		x		x		x		- Private meeting
FAO		x		x				- Private meeting -
Development Institute/Ghana Delta Aliance 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)		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 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 in order to address gender equality in the resilience building process. Details are further presented in Annexes 4 and 5.

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 7. Meeting with Jacqueville community, Côte d'Ivoire

Figure 8. 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. penculture). 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 possible concerns). 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.

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

Outcomes/planned activities	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 this component is that climate change resilient coastal development will be 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. The activities related to this outcome will allow the national government and district / department governments to understand what areas are at risk, what needs to be protected and what can't be saved, allowing strategic decisions about socioeconomic and spatial development decisions.	Without relevant threat and hazard information / evidence integrated into plans, no strategic decisions about the future of target areas can be made. Alternatively, the government plans for coastal resilience, possibly with private sector support, but the government lacks the financial resources and the private sector the capacities to develop strategic plans in a cost-effective way while ensuring high quality
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 possible resilience building measures and don't have the capacity and don't own the process to develop, operate and maintain (thus plan) possible interventions.	The expected outcome of this component is that community awareness and capacities to adapt to climate-related coastal hazard and threats through community planning will be strenghtened 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 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 - regional 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 this component is that the target coastal areas will be more resilient to climate change through increased ecosystem / natural environment resilience. The activities related to this outcome will allow more strategic / holistic approach to building coastal resilience through concrete low-cost building with nature interventions, understanding larger needs and impacts	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 this component is that coastal communities will be more resilinet to climate chnage through diversified and strengthened livelihoods. The activities related to this outcome will allow communities and vulnerable groups to respond to climate change impacts concretely with a localized / specific needs focus.	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 regional governments 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 this component is that target 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 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. Alternatively, no 'urban lab' will be set-up, but this will reduce local knowledge production and capacity development, which will also reduce the sustainability and ownership.

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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 outputs is presented in Annex 9.

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

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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.

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Part II.L ENVIRONMENTAL AND SOCIAL IMPACTS AND RISKS

The proposed project seeks to fully align with the Adaptation Fund's Environmental and Social Policy (ESP). 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.

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.

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 below:

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

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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 / mitigation 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 46 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 13. Checklist of environmental and social principles

Checklist of environmental and social principles	No further assessment required for compliance	Further risk management required for compliance

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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

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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.

Figure 9. Management arrangements organigram

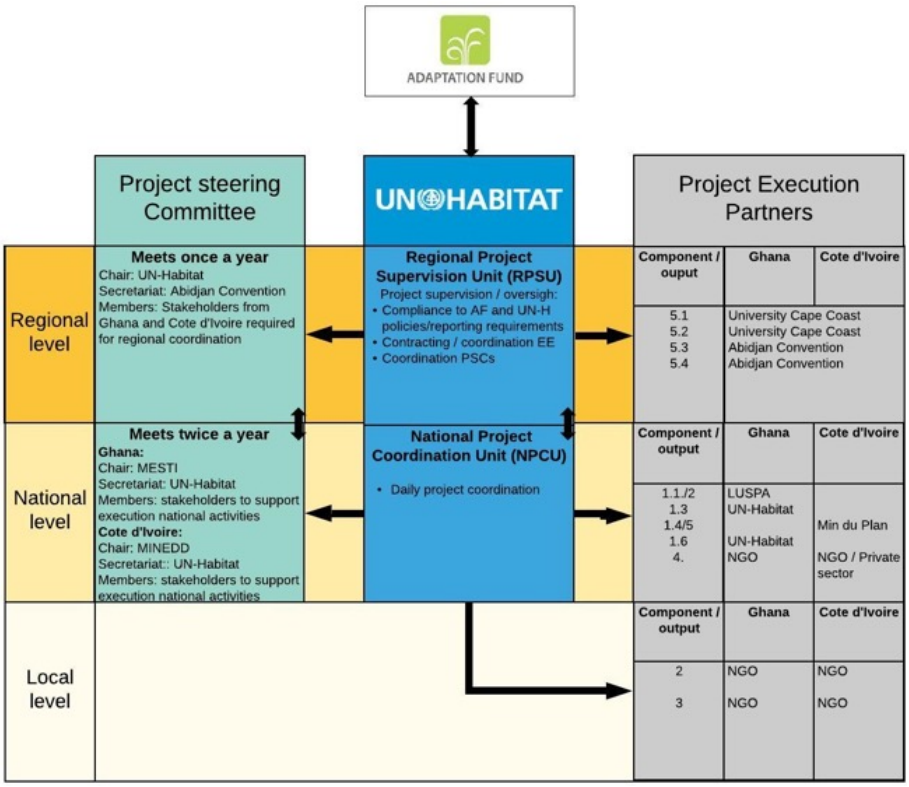

Table 14. Key project organigram stakeholders and roles and responsibilities

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

The organigram above (Figure 9) 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.

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.

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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 15. 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 16. 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

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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.

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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 17. 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 18. 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

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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 19. 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 Direction Générale d'Administration et du Territoire	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 - - 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	Direction Générale de l'Urbanisme et du Foncier (DGUF)	Planning development	- Member PSC at national level

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urban planning – *Ministère de la Construction, du Logement et de l'Urbanisme (MCLU)*	Direction du logement et de la Copropriété		- 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 support of 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.

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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 fulfillment 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 20. 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 contract, incl. with private sector, that they cannot increase the costs during the project duration.	All budgets in US$ Clauses in all contract, incl. with private sector, that they cannot increase the costs during the project duration.
Physical				

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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. 9.2.The project prioritized building with nature solutions which are adaptable to the environment. Besides that, community will be trained and develop operation and maintenance plans, also to protect and recover the interventions from potential storms or floods.	Work plans avoiding critical concrete works being planned in winter Operation and maintenance plans showing how interventions will be protected and reovered 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

Part II.L of this proposal shows the outcome of the environmental and social risks screening and impacts assessment that has been conducted for this project to comply to the AF ESP and GP. Part II.I describes the consultation process conducted to support the development of this proposal, including for this project to comply to the AF ESP and GP. Annex 4 shows what consultations have been conducted to identify potential environmental and social risks and impacts, including with key stakeholders such as UN agencies and beneficiary groups (i.e. potentially vulnerable groups, including women and youth). Part III.A describes the allocated roles and responsibilities for environmental and social risk management, including for the implement of the project ESMP. A designated budget for environmental and social risks management, including the implementation of the ESMP, has been included in Part III.G. In Annex 5, all the details of the risks screening, impact assessment, ESMP, incl. the risks monitoring system and budget, are provided.

Based on the screening against the 15 AF principles, the project has been categorized as a “B” category project in terms of the environmental and social risks it poses.

To comply to the AF requirements, risks screening and impact assessments have been conducted in compliance with the AF ESP and GP.

Table 21. 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 6 (ESP Annex) Annex 6 GP Annex)
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	Part III.A (roles and responsibilities for env. and social risk management)

	- 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	Annex 6 (ESP Annex)
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 6 (ESP Annex)

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 22. 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 (ESMP) 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 23. 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 - District authorities	 0 0 0 0 0 0	 5 40 % 10 40 % 1 2	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 governme nt entities
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 **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	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 governme nt entities
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	 5 40 % 5 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 governme nt entities

		0	1				
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. Sand nourishment of lagoons in Jacqueville (Côte d'Ivoire) *In line with AF output 5	Meter of lagoons banks in target area	0	2000	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
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	 0 0 0	 8 4 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	Calculate number of communities with systems Calculate percentage of target population directly involved in / befitting from activities – identified through	Baseline, mid-term and end	UN-H in cooperation with EE and government

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	- Youth	0 0	40% 20%	Percentage of target population is share of community directly (involved in activities) from pen culture or salt resilient crops	Workshop/training reports and participation lists and photos		
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 baseline	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 cooperation with EE and governnt
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 cooperation with EE and governnt
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	 0 0	 50 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 cooperation with EE and governnt

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	- 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	0 0 0 0	2 50 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 24. 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 overview 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 25. 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	**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

	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 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 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)	143,200
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			1,068,325
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 concrete adaptation interventions under component 3 and 4 (also to guide monitoring activities under comp 2)	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 Target communities using the guidelines			95,000
Output 5.3. Strengthened capacity of national and district-level governments to use above model, assessment method and monitoring systems and to replicate effective	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	**Output 2.1** Strengthened capacity of national and sub-national centers and networks to respond rapidly	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	140,000

and efficient building-with-nature adaptation options	- % 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	to extreme weather events	increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	
		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

Table 26 Overview budget

Project Components	Expected Concrete Outputs	Expected Concrete Outcomes	TOTAL	Year 1 12 m	Year 2 12 m	Year 3 12 m	Year 4 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, CdI		445,800	319,500	126,300	-	-
	Output 1.5. Spatial frameworks dictricts, CdI		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 ownsership	670,600	226,200	200,800	243,600	-
	Output 2.2. Community plans, CdI		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, CdI		614,953	229,522	284,601	68,231	32,600
	Output 3.4. Coastal Sand Nourishment, CdI		1,265,527	60,000	1,100,000	105,527	
	Outout 3.5. Lagoon Sand Nourishment, CdI		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 livelihoods.	810,099	95,000	282,019	285,920	147,160
	Output 4.2. Salt resilinet crops and water infiltr		1,068,325	114,200	328,933	463,670	161,522
	Output 4.3. Penculture, DcI		951,229	95,000	329,669	348,440	178,120
	TOTAL		**2,829,653**	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			**11,662,611**	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**	**3,128,308**	**7,222,913**	**2,633,960**	**965,978**

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Table 27 budget notes

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	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**	**-**	**-**

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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**	**-**	**-**

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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, Ci	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 equipement 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 equipement 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 sensitization	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 areas	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	-	-	-
		Monitoing 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

Table 28. 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

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Part III. H DISBURSEMENT SCHEDULE

Table 29. 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$)	**2,883,234**	**6,657,063**	**2,427,613**	**890,302**	12,858,212
B. Programme Execution (US$)	**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

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

Part IV. A RECORD OF ENDORSEMENT ON BEHALF OF GOVERNMENT

Endorsement from the Ministry of Environment, Science, Technology and Innovation. Ghana.

MINISTRY OF ENVIRONMENT, SCIENCE, TECHNOLOGY & INNOVATION

Our Ref: LA/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.

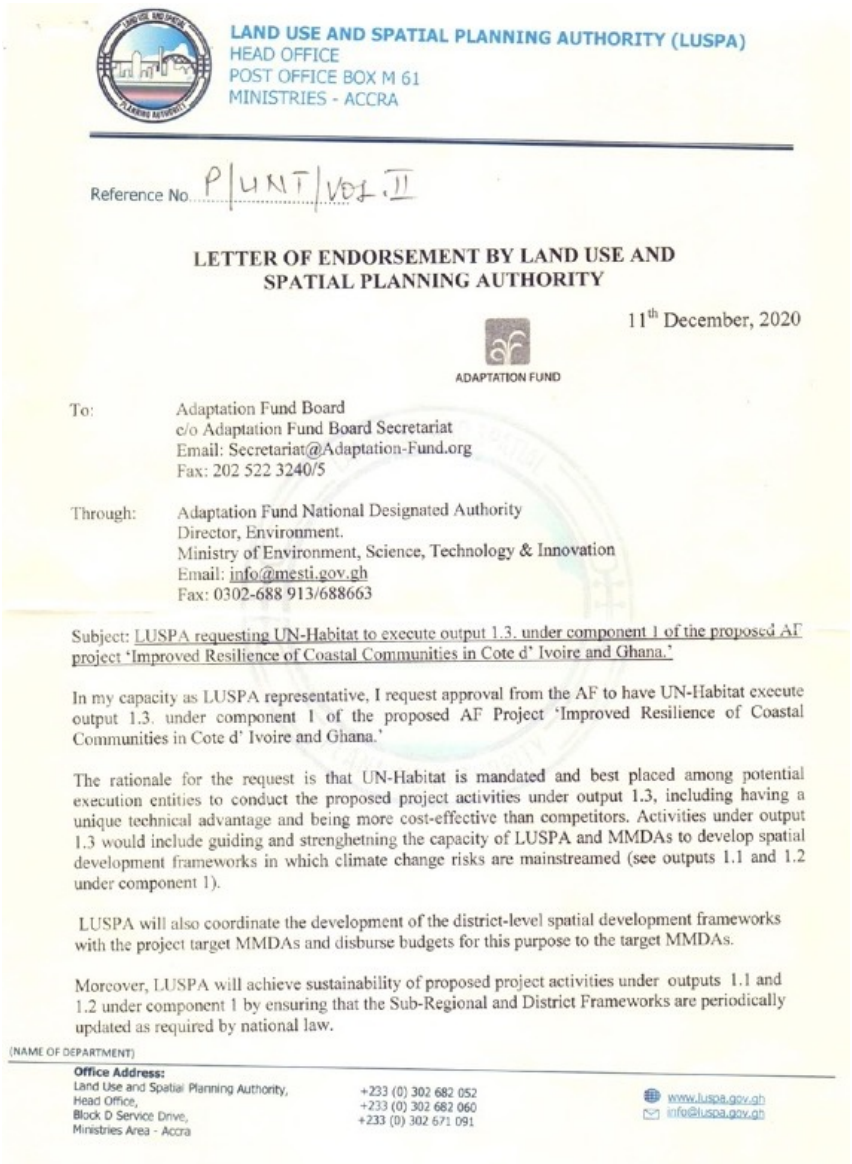
The Ministry of Environment, Science, Technology and Innovation will provide the necessary insight to ensure successful implementation.

Sincerely,

Peter Dery
Adaptation Fund National Designated Authority
Director, Environment.

Figure 10. Endorsement letter from the Ministry of Environment, Science, Technologies 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 11. 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°...4...2...5...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 en 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 12, Endorsement from the Ministry of Environment and Sustainable Development. Côte d'Ivoire

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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 0 0 0 2 / 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 13. Endorsement from the Ministry of Plan and Development. Côte d'Ivoire.

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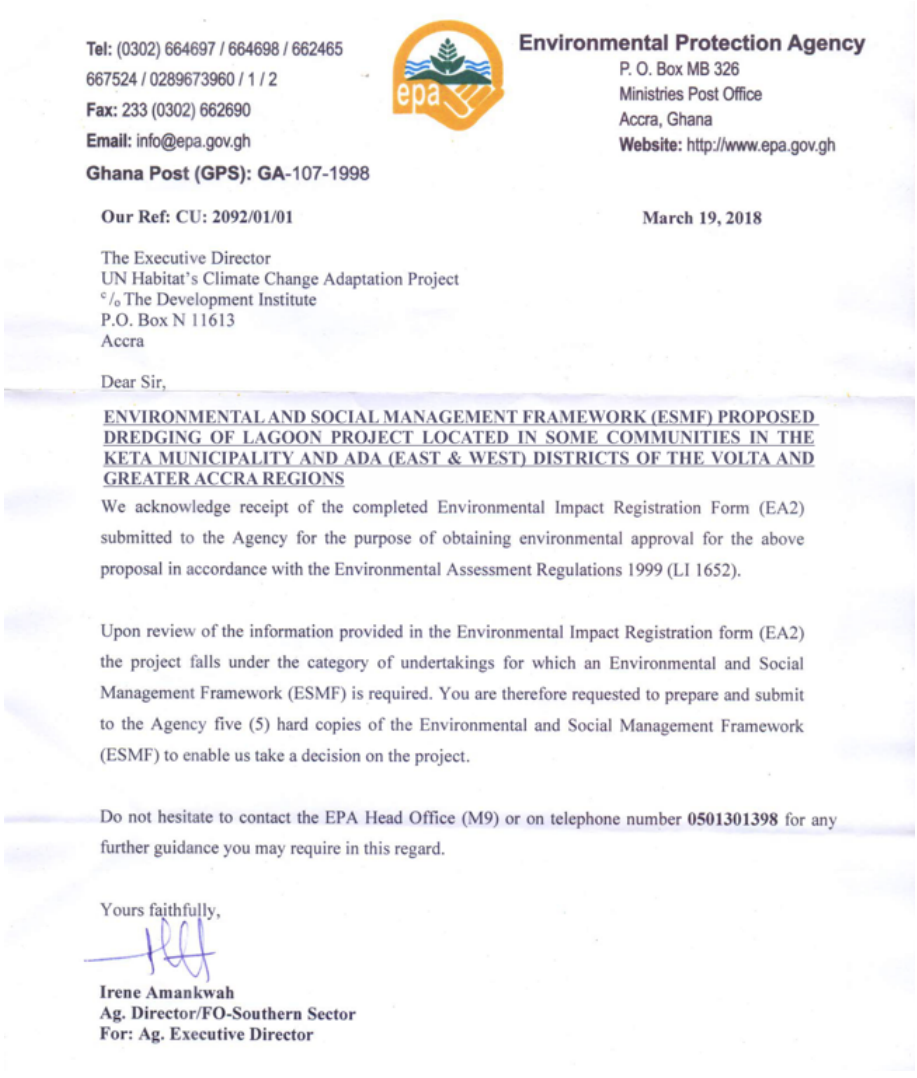
Part IV. B IMPLEMENTING ENTITY CERTIFICATION

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: 14 January 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	

ANNEX 0. Other endorsement letters

Approval from Environmental Protection Agency for the project to develop an ESMF. Ghana. This letter will be replaced with submission letter during resubmission in February 2021.



Tel: (0302) 664697 / 664698 / 662465
667524 / 0289673960 / 1 / 2
Fax: 233 (0302) 662690
Email: info@epa.gov.gh
Ghana Post (GPS): GA-107-1998

Environmental Protection Agency
P. O. Box MB 326
Ministries Post Office
Accra, Ghana
Website: http://www.epa.gov.gh

Our Ref: CU: 2092/01/01 **March 19, 2018**

The Executive Director
UN Habitat's Climate Change Adaptation Project
c/o The Development Institute
P.O. Box N 11613
Accra

Dear Sir,

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF) PROPOSED DREDGING OF LAGOON PROJECT LOCATED IN SOME COMMUNITIES IN THE KETA MUNICIPALITY AND ADA (EAST & WEST) DISTRICTS OF THE VOLTA AND GREATER ACCRA REGIONS

We acknowledge receipt of the completed Environmental Impact Registration Form (EA2) submitted to the Agency for the purpose of obtaining environmental approval for the above proposal in accordance with the Environmental Assessment Regulations 1999 (LI 1652).

Upon review of the information provided in the Environmental Impact Registration form (EA2) the project falls under the category of undertakings for which an Environmental and Social Management Framework (ESMF) is required. You are therefore requested to prepare and submit to the Agency five (5) hard copies of the Environmental and Social Management Framework (ESMF) to enable us take a decision on the project.

Do not hesitate to contact the EPA Head Office (M9) or on telephone number **0501301398** for any further guidance you may require in this regard.

Yours faithfully,

Irene Amankwah
Ag. Director/FO-Southern Sector
For: Ag. Executive Director

Figure 14. Approval from Environmental Protection Agency for the project to develop an ESMF. Ghana.

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Government support letter for EIA's

MINISTERE DE L'ENVIRONNEMENT ET DU DEVELOPPEMENT DURABLE

CABINET

N° 00825 /MINEDD/CAB/DGE/DLCC/FA/aos

REPUBLIQUE DE COTE D'IVOIRE
Union - Discipline - Travail

Abidjan, le 29 JUIN 2020

A
Madame la Directrice de l'Agence Nationale de l'Environnement (ANDE)
ABIDJAN

Objet : Demande d'instruction des TDR relatifs au projet du fonds d'adaptation portant sur l'amélioration de la résilience côtière

Suite au courrier N° 02306/MINEDD/CAB-1/aos du 27 septembre 2019 par lequel j'ai porté à votre aimable connaissance la conduite d'une Etude d'Impact Environnementale et Sociale (EIES) dans le cadre de l'élaboration de la proposition de projet financé par Fonds d'Adaptation (FA), je viens par la présente vous soumettre les 2 projets de Termes de Référence (TdR) des interventions à Bassam et Jacqueville. Ces projets de TdR concernent quatre (4) initiatives que sont :

- Ré-ensablement de la plage ;
- Ré-ensablement du rivage lagunaire ;
- Restauration de mangrove ;
- Aquaculture.

Aussi, voudrais-je solliciter votre bienveillance pour la diligence et l'exonération totale dans la conduite de ces Etudes d'Impact Environnementale et Sociale (EIES) couvrant lesdites zones dans le cadre de l'élaboration de la proposition de projet « Amélioration de la résilience des communautés côtières de la Côte d'Ivoire et du Ghana ».

P/Le Ministre et par délégation
Le Directeur de Cabinet

François KOUABLAN

P.J. :
1- **Projets de TdR (2) ;**
2- **Descriptif du projet (1) ;**
3- **Courrier du 27 sept 2019 (1).**

Ministère de l'Environnement et du Développement Durable – Plateau, CITAD, Tour D, 10e étage
20 BP 650 Abidjan 20 – Tél. : (+225) 20 23 99 10 / 14

Figure 15. Government support letter for EIA's

National and local coordination arrangements in Côte d'Ivoire.

MINISTERE DE L'ENVIRONNEMENT
ET DU DEVELOPPEMENT DURABLE

CABINET

REPUBLIQUE DE COTE D'IVOIRE
Union – Discipline – Travail

EE-N°00498/MINEDD/CAB1/DGE/DLCC/FA/aos

Abidjan, le 08 AVR 2020

/-)
Monsieur le Préfet du
Département de Grand-Bassam

GRAND-BASSAM

OBJET : Information et implication dans la mise en œuvre du Projet « Amélioration de la résilience des communautés côtières en Côte d'Ivoire et au Ghana » financé par le Fonds d'Adaptation (FA).

Monsieur le Préfet,

Dans le but de s'adapter aux changements climatiques et surtout de renforcer sa résilience face à l'érosion côtière, la Côte d'Ivoire bénéficie du projet régional intitulé « **Amélioration de la résilience des communautés côtières en Côte d'Ivoire et au Ghana** » dont j'ai le privilège de porter à votre connaissance.

Le projet est dans sa phase finale de proposition complète du document de projet à soumettre au Fonds d'Adaptation pour son financement. Cette phase est précédée par des études de faisabilité (en cours) suivies des études d'impact environnemental et social. Ces études importantes pour la mise en œuvre du projet demandent l'implication de tous.

Pour aider à la réalisation effective de ce projet, je sollicite votre implication et collaboration à toutes les phases et surtout la création d'un **Comité Technique Préfectoral** pour le suivi dudit projet.

Aussi, voudrais-je vous demander de bien vouloir nous aider dans la mobilisation des parties prenantes dans le cadre des consultations publiques et villageoises que nécessite le processus de préparation du projet.

Persuadé de l'intérêt que vous voudriez bien accorder à la mise œuvre du projet dans votre Département, je vous prie d'agréer, **Monsieur le Préfet**, l'expression de ma considération distinguée.

P/Le Ministre et par délégation
Le Directeur de Cabinet

PJ :
- Une copie du descriptif du projet

François KOUABLAN

MINEDD, Cabinet, Cité Administrative, Tour D, 10ème étage, 20 BP 650 Abidjan 20, Tel : (+225) 20 23 95 00

Figure 16. National and local coordination arrangements in Côte d'Ivoire.

MINISTERE DE L'ENVIRONNEMENT
ET DU DEVELOPPEMENT DURABLE

CABINET

REPUBLIQUE DE COTE D'IVOIRE
Union – Discipline – Travail

N° EE- 00498 /MINEDD/CAB1/DGE/DLCC/FA/aos

Abidjan, le 08 AVR 2020

/-)
Monsieur le Préfet du Département de Jacqueville

JACQUEVILLE

OBJET : Information et implication dans la mise en œuvre du Projet « Amélioration de la résilience des communautés côtières en Côte d'Ivoire et au Ghana » financé par le Fonds d'Adaptation (FA).

Monsieur le Préfet,

Dans le but de s'adapter aux changements climatiques et surtout de renforcer sa résilience face à l'érosion côtière, la Côte d'Ivoire bénéficie du projet régional intitulé « **Amélioration de la résilience des communautés côtières en Côte d'Ivoire et au Ghana** » dont j'ai le privilège de porter à votre connaissance.

Le projet est dans sa phase finale de proposition complète du document de projet à soumettre au Fonds d'Adaptation pour son financement. Cette phase est précédée par des études de faisabilité (en cours) suivies des études d'impact environnemental et social. Ces études importantes pour la mise en œuvre du projet demandent l'implication de tous.

Pour aider à la réalisation effective de ce projet, je sollicite votre implication et collaboration à toutes les phases et surtout la création d'un **Comité Technique Préfectoral** pour le suivi dudit projet.

Aussi, voudrais-je vous demander de bien vouloir nous aider dans la mobilisation des parties prenantes dans le cadre des consultations publiques et villageoises que nécessite le processus de préparation du projet.

Persuadé de l'intérêt que vous voudriez bien accorder à la mise œuvre du projet dans votre Département, je vous prie d'agréer, **Monsieur le Préfet**, l'expression de ma considération distinguée.

P/Le Ministre et par délégation
Le Directeur de Cabinet

François KOUABLAN

PJ :
- Une copie du descriptif du projet

MINEDD, Cabinet, Cité Administrative, Tour D, 10ème étage, 20 BP 650 Abidjan 20, Tel : (+225) 20 23 95 00

Figure 17. National and local coordination arrangements in Côte d'Ivoire.
National and local coordination arrangements in Côte d'Ivoire.

MINISTERE DE L'ENVIRONNEMENT ET DU DEVELOPPEMENT DURABLE

CABINET

EE- 00116

N°_____/MINEDD/CAB/DGE/DLCC/FA/aos

REPUBLIQUE DE COTE D'IVOIRE
Union - Discipline - Travail

Abidjan, le 02 FEV 2021

A
Madame la Directrice de l'Agence Nationale de l'Environnement (ANDE)
ABIDJAN

OBJET : Transmission du rapport provisoire de l'Étude d'Impact Environnemental et Social (EIES) du projet d'amélioration de la résilience des communautés côtières en Côte d'Ivoire par la mise en œuvre des interventions de ré-ensablement de la plage, de restauration de mangrove et d'aquaculture à Grand-Bassam

Je vous prie de trouver ci-joint le rapport provisoire de l'EIES du projet d'amélioration de la résilience des communautés côtières en Côte d'Ivoire par la mise en œuvre des interventions de ré-ensablement de la plage, de ré-ensablement du rivage lagunaire, de restauration de mangrove et d'aquaculture à Grand-Bassam et Jacqueville.

Ce rapport vous est transmis en vingt-cinq (25) versions numériques sur clé USB et trois (3) versions physiques.

Dans l'attente de la programmation de l'enquête publique et la séance d'examen en commission interministériel, recevez mes remerciements pour l'effort consenti par votre structure dans le cadre de l'élaboration de la proposition de projet « Amélioration de la résilience des communautés côtières de la Côte d'Ivoire et du Ghana » à soumettre au Fonds pour l'Adaptation.

P/Le Ministre et par délégation
Le Directeur de Cabinet

François KOUABLAN

P.J. :
1- **Vingt-cinq (25) clés USB contenant le rapport de l'EIES ;**
2- **Trois (3) rapports physiques ;**
3- **Courrier N°00825 MINEDD/CAB/DGE/DLCC/FA/aos du 29 JUIN 2020.**

Approval from the Ministry of the Environment and Sustainable Development for the preparation of the ESIA. Côte d'Ivoire.

MINISTERE DE L'ENVIRONNEMENT ET DU DEVELOPPEMENT DURABLE

REPUBLIQUE DE COTE D'IVOIRE
UNION – DISCIPLINE – TRAVAIL

EE-00039 03 FEV 2020

ARRETE N° .....MINEDD/CAB du ..... portant renouvellement d'agrément au Bureau d'Etudes 2D CONSULTING AFRIQUE pour la réalisation des Etudes d'Evaluation Environnementale Stratégique, des Etudes d'Impact Environnemental et Social et des Audits Environnementaux.

LE MINISTRE DE L'ENVIRONNEMENT ET DU DEVELOPPEMENT DURABLE ;

Vu la Constitution ;

Vu la loi n° 96-766 du 3 octobre 1996 portant Code de l'Environnement ;

Vu la loi 2014-390 du 20 juin 2014 d'orientation sur le Développement Durable ;

Vu le décret n° 96- 894 du 8 novembre 1996 déterminant les règles et procédures applicables aux études relatives à l'impact environnemental des projets de développement ;

Vu le décret n° 97-393 du 9 juillet 1997 portant création et organisation d'un Etablissement Public à caractère Administratif dénommé Agence Nationale De l'Environnement (ANDE) ;

Vu le décret n° 98-43 du 28 janvier 1998 relatif aux installations classées pour la protection de l'environnement ;

Vu le décret n° 2005-03 du 6 janvier 2005 portant Audit Environnemental ;

Vu le décret n° 2013-41 du 30 janvier 2013 relatif à l'Evaluation Environnementale Stratégique des politiques, plans et programmes ;

Vu le décret n° 2018- 614 du 10 juillet 2018 portant nomination du Premier Ministre, Chef du Gouvernement ;

Vu le décret n° 2018- 617 du 10 juillet 2018 portant nomination du Premier Ministre, Chef du Gouvernement, en qualité de Ministre du Budget et du Portefeuille de l'Etat ;

Vu le décret n° 2018-949 du 18 décembre 2018 portant organisation du Ministère de l'Environnement et du Développement Durable ;

Vu le décret n° 2019-726 du 04 Septembre 2019 portant nomination des membres du Gouvernement

Vu le décret n° 2019-755 du 18 septembre 2019 portant attributions des membres du Gouvernement ;

Vu l'arrêté n° 00119 MINEDD /CAB du 16 mai 2019 relatif à la prorogation du délai de validité des arrêtés portant délivrance d'agrément aux Bureaux d'Etudes et Consultants Indépendants pour la réalisation des études en Evaluation Environnementale ;

Vu l'arrêté n° 00302 MINEDD/ANDE du 15 octobre 2019 portant création, composition, attributions et fonctionnement de la Commission Technique d'Agrément des Bureaux d'Etudes et des Consultants Indépendants pour la réalisation des Etudes en Evaluation Environnementale :

Vu l'arrêté n° 00303 MINEDD/ANDE du 15 octobre 2019 fixant les conditions de délivrance d'agréments aux Bureaux d'Etudes et des Consultants Indépendants pour la réalisation des Etudes d'Evaluation Environnementale Stratégique, des Etudes d'Impact Environnemental et Social et des Audits Environnementaux ;

Vu l'avis favorable émis par la Commission technique d'agrément en date du 16 janvier 2020,

Ghana's endorsement by communities.

Declaration:

We understand that our role as members of the Community is significant to the success of the project.

We look forward to working with this project; "Improved Resilienceof Coastal Communities against Impact of Climate Change in Ghana" and like the other districts and communities,

We hereby declare that we will;

1. Support the Mission, Vision and Goals of the "Improved Resilienceof Coastal Communities against Impact of Climate Change in Ghana" project;
2. Offer all the necessary resources such as land, labour and to ensure the safety and success of the various interventions;
3. Contribute significantly to project activities and assist in achieving expected goals;
4. Work with the rest of the partnership to communicate information concerning the project to the communities at large;
5. Attend in person all meetings held in relation to the "Improved Resilienceof Coastal Communities against Impact of Climate Change in Ghana "Project and will continually communicate with the Community and all Partners and the implementers to ensure we understand all affairs related to the it; and
6. Actively participate in all request for our assistance and response.

We have read and fully agree to this Letter of Commitment and look forward to assisting the partnership in this role.

Signed By: **Chief/ Community Leader of Dzita**

Name AGBOTADUA AHEVI Signature

Witness:

Name FRANCIS NORMANYO Signature

Chief/ Community Leader of Agbledomi

Name TORGBI AZAMGII Signature

Witness:

Name HON JASPER AGBANYA TUR Signature

Chief/ Community Leader of Kewunor

Name for Honourable Roselyn Olerkie Signature ----------

Witness:

Name Amos Amesimeku Signature ----------

Chief/ Community Leader of Azizanya

Name Nene Gbu Nartey III Signature ----------

Witness:

Name Amos Amesimeku Signature ----------

Chief/ Community Leader of Agorkedzi/Atiteti

Name Moses Tana Akorli Signature ----------

Name Hon. Raphael Aflowawo Signature ----------

Witness:

Name AKORLI SIMON Signature ----------

Chief/ Community Leader of Wokumagbe

OFFICE OF THE CHIEF
OF WOKUMAGBE
TEL: 02401818815

Name NENE ADJORKEY SIAW VII Signature ----------

Witness:

Name NARTEH FREDERICK DODZI Signature ----------

Chief/ Community Leader of Akplabanya

Name NENE MOSES ANKRAH KOTCHER LABIA VI Signature ----------

Witness:

Name HON FREDERICK LABIA Signature ----------

Chief/ Community Leader of Goi

Name NENE TSAMGMETE OTIPESEKU III Signature ----------

Witness:

Name HON. JOHN AKWAR TSORI Signature ----------

Chief/ Community Leader of Whuti

Name TOR GBU ASIGE IV Signature ----------

Witness:

Name Hon. Joseph Kwiku Ali Signature

Chief/ Community Leader of Lagbati/Lashibi

Name Agbottah Ernest Signature

Witness:

Name Akley Slay Signature

Chief/ Community Leader of Woe

Name Daniel Afortonnyi Signature

Chief/ Community Leader of Tegbi

Name Hon. Noel Kokoroko Signature

Witness:

Name Daniel Asbeda Signature

Chief/ Community Leader of Vodza

Name Hon. Christopher Mensah Signature

Witness:

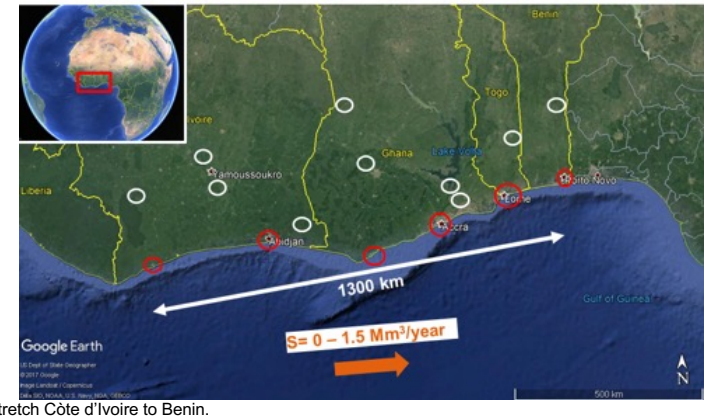
Name Joshua Agbezudor Signature

ANNEX 1: Coastal dynamics and area selection

I. Coastal processes

Geographical and natural perspective

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 (Map 5). 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[108]. 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.



Map 5. Coastal stretch Côte d'Ivoire to Benin.

The hydrodynamics are dominated by the west to east orientated Guinea-current, with flow speeds up to 0.5 to 1 m/s (winter-summer variation)[108]. There is a semi-diurnal tide with a tidal range of 1 m. Waves are swell-wave dominated with a general south-southwest orientation (189°N). Significant wave heights are on average 1.4 m with peak periods of 9.4 seconds. Wave conditions are more severe during the monsoon season between May and July. These monsoons lead to large river drainage systems to the sea, which are abundant in both target countries.

The abundance of sandy barriers and coastal lagoons along the coast of Ghana and Côte d'Ivoire indicate morphodynamic behavior 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.

Anthropogenic influence

Degradation of coastal resources and ecosystems is accelerating due to increasing population pressure on the coast, energy and resources demand, unplanned coastal development, and climate change. In the (recent) past the system has been influenced by a total of six major harbors, which are protected by large dams/ breakwaters. Two of these harbors are in Côte d'Ivoire and two in Ghana (red circles in Map 5. Coastal stretch Côte d'Ivoire to Benin, **Error! Reference source not found.**). Moreover, several (hydro power) dams have been constructed within the drainage system (white circles in Map 5). These have a dramatic effect on river discharges and sediment budget. This leads to a lack of available sediment at the coast, while the coast is still 'sediment hungry' due to the strong along shore current and persistent south-southwest orientated swell waves. The sediment at the coast that is picked up by the alongshore current is no longer complemented by sediment distributed by the rivers, resulting in coastal erosion. Moreover, due to the large harbor breakwaters, sediment is trapped at the updrift side of the breakwater, while at the downdrift side this leads to sediment shortage.

[108] *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

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Deleted: Map 5). Coastal stretch Côte d'Ivoire to Benin.

Coastline retreat caused by erosion is reported along the entire coastal stretch between Côte d'Ivoire and Ghana with reported retreat rates of 1 - 4 m/year[108,109]. Coastal erosion is dominantly caused by anthropogenic factors, although there are also natural causes such as extreme weather events and monsoons, as well as climate change like rising sea levels. Climate induced swell-waves can also result in increased coastal erosion. Without interventions, nature will find a new balance, although this might take decades (time span of the morphological cycle) and will be accompanied by strong coastal retreat and loss of key environmental and socio-economic assets.

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Coastal flooding

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, 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.

Especially coastal erosion and retreat lead to 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.

One problem is that the 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.

II. 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. Estimations show that more than 2/3 of the coast is already being affected by sea level rise and several coastal settlements will face extreme flooding, erosion, and coastal retreat.

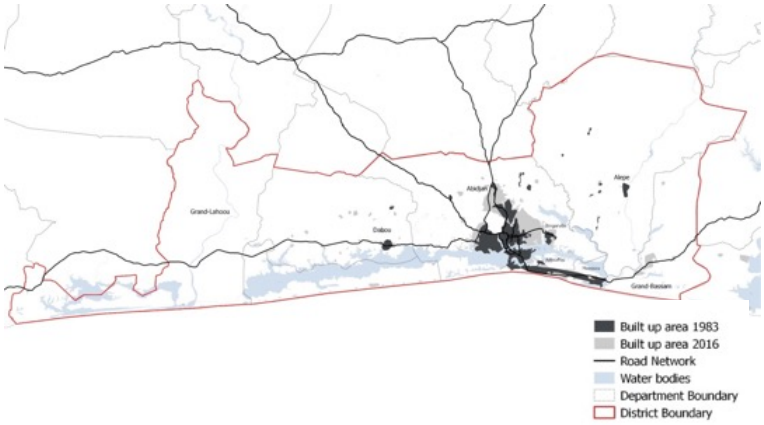
Map 6. Active erosion along the Côte d'Ivoire Coast

The coastline is 566 km long and consists of 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 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

[109] *Steijn, R. Sea Defence Ada, Ghana (1998), Alkyon report. Reference A208. (only available in hardcopy)*

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. Economic activities are dominated by agriculture, fisheries, mineral extraction, industries and trades. 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. Currently out of the whole Greater Abidjan area only 54% has a land-use plan, with developed areas divided into 60% for residential, 16% for institutional/utility, 6% for commercial/industrial area, and 18% for other uses.



Map 7. Settlements growth in target area. Côte d'Ivoire

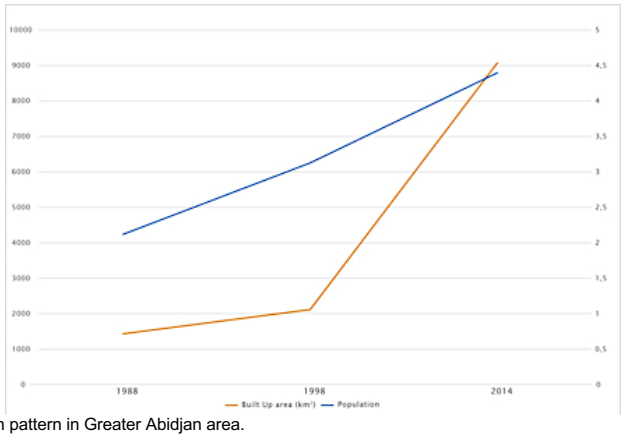


Figure 19. Urban growth pattern in Greater Abidjan area.

Increased poverty among inland rural communities has led to an increased migration of the population towards the coastal zone for finding new means for livelihoods, resulting in increased pressure on coastal resources. The principal activities in the coastal area include fishing, agriculture, forestry, factories, and tourism. This has led to over-exploitation of natural resources such as fish, uncontrolled use of coastal resources such as cutting mangroves for construction and firewood, land property conflicts and the degradation of the environment. For example, it has been estimated that approximately 60% of mangroves forests around Abidjan have been lost.

Five true species of mangrove are found in Côte d'Ivoire: Acrostichum aureum; Avicennia germinans; Conocarpus erectus; Laguncularia racemose; Rhizophora racemose. The lagoons are dominated by Rhizophora racemosa, Avicennia germinans and Conocarpus erectus, while the river system is dominated by A. germinans and R. racemosa. R. racemosa is more dominant on the outer edges of the lagoon followed by A. germinans, with C. erectus existing more towards the inside of the lagoon. There are two principal areas of mangroves along the coast (i) from Assinie to Fresco, characterized by rivers flowing into wide lagoons; and (ii) between Fresco and the border with Liberia, along the Cavally River, consisting of a deltaic river system.

Coastal infrastructure development associated with population growth and urbanization has led to negative impacts on the natural environment. A major cause of change in this region was the creation of Abidjan's port in 1950 which made Abidjan the principal economic centre of Côte d'Ivoire and Africa. The port contributes to 96% and 66% of the country's import and export, respectively. Since the port was built, Port-Bouet became the principal area of work due to its wide industrial sites. Due to this, unplanned development and urban sprawl occurred leading the city to extend in areas where (natural) hazards were higher.

Map 8. Infrastructure in coastal area. Côte d'Ivoire.

Other infrastructure development such as dams have also impacted the natural dynamics along the coast, due to the effective entrapment of particles in the reservoirs thereby reducing the amount of sediments flowing into the downstream catchment areas. Dam construction has also led to a decreasing of freshwater input in the downstream river estuaries and increase of saltwater intrusion inland. This has had negative ecological effects on mangroves and coastal lagoons. The loss of sediment input from inland together with sea level rise have been identified as the key drivers of erosion along the Ivorian coast.

Sea levels could rise up to 1.2 meters in Grand Bassam and Abidjan areas. Furthermore, the eastern part of the littoral from Abidjan to Assinie has been identified as a hot spot of erosion, rating between 1 to 2 m per year. This has become a major challenge in the area with a persistent net loss of land or coastal retreat over the years. This shoreline retreat is putting communities, infrastructure and urban settlements at increasing risk especially considering the current trends of sea level rise.

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 30. 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.

III.Coastal areas analysis in Ghana for area selection

As presented in the Background section, estimates show that half of the coast in Ghana is highly vulnerable to sea level rise, and therefore prone to flooding and erosion. However, vulnerability levels are based on a complex array of different factors that make certain areas more at risk than others.

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.[110] 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.

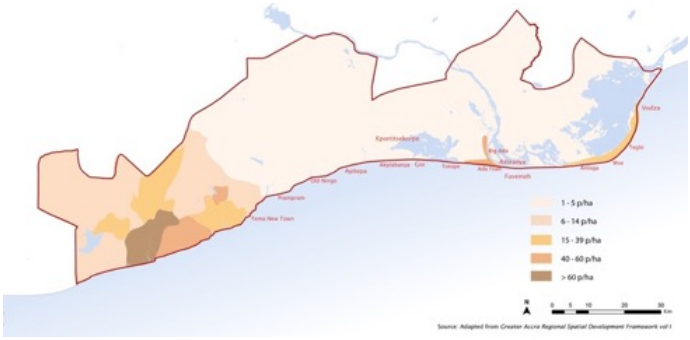
Map 9. Coastal Vulnerability Index to sea level rise and coastal flooding and erosion. Ghana

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

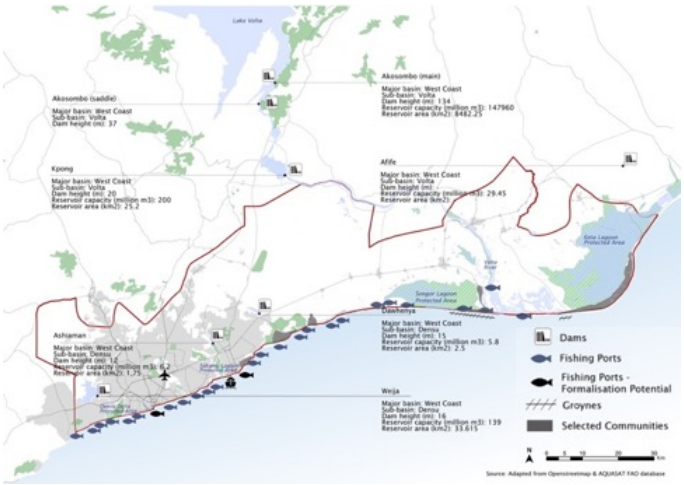
The study shows how 36% of the coastline has very high levels of vulnerability. The Eastern part of the coast presents the highest erosion rates, 3.9 m/year, compared to the Central and Western areas that have values of 2.7 m/year and 1.6 m/year, respectively.[111] Another study estimates that under a scenario of 2 m sea level rise, around 5,000 km^2 of the eastern districts will be impacted by floods.[112]

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[113] 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%.



Map 10. Population density in Greater Accra and Volta regions. Ghana



Map 11. Coastal areas infrastructure. Ghana

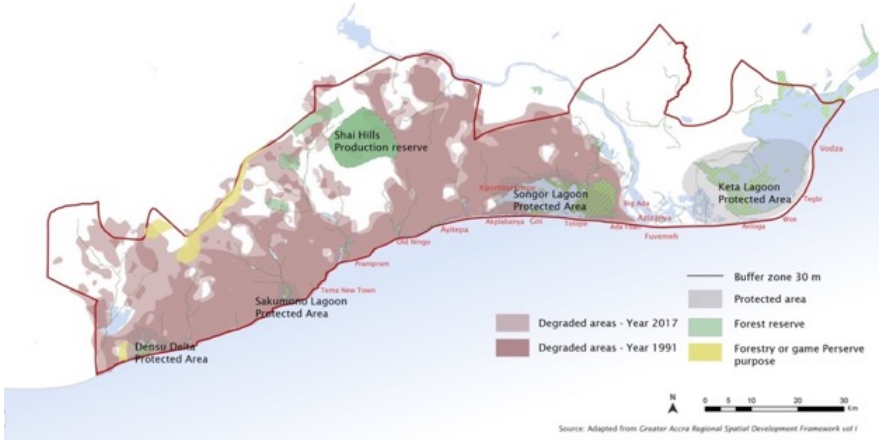
[111] *Giardino.A., et al. 2017. A quantitative assessment on human interventions and climate change on the West African sediment budget.*
[112] *Adortse. P., 2019. Coastal flood hazard assessment for Ghana.*
[113] *Ministry of Environment, Science, Technology and Innovation, Town and Country Planning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

Inter-regional migration plays a key role on population dynamics, and in general it is characterized by poorer rural communities migrating to urban areas or larger villages in search of better opportunities. According to the National Spatial Development Framework, this out-migration is threatening the viability of existing services and future provision in urban areas. Therefore, this plan states that “Ghana needs to retain a substantial proportion of its population in rural areas, but in vibrant, lively communities”, and to be able to do so they need to be supported, which is the aim of this project.

In terms of environmental resources, some of the most unique and valuable ecosystems are located towards the Eastern coast This includes the Volta estuary and a large system of coastal lagoons, wetlands, and beaches. These ecosystems provide a range of valuable services including food provision, clean water, regulatory services, shoreline protection, and opportunities for eco-tourism development. However, this unique natural environment is being threatened by sprawled development. Volta and Greater Accra regions have been identified the two with the highest population density decrease rates linked to unplanned growth and development patterns. For example, this implies encroachment of natural systems like mangroves. In Volta region, deforestation and loss of mangroves are particularly alarming, and in Greater Accra 22% of their wetlands have been lost.

There are six species of true mangrove are found in Ghana including: Acrostichum aureum; Avicennia germinans; Conocarpus erectus; Laguncularia racemose; Rhizophora harrisonii and Rhizophora racemose. The most developed mangroves are found in the west of the country along the low-lying coastal belt between Côte d’Ivoire and Cape Three Points, A secondary region of mangrove growth can be found bordering the lower reaches and delta of the Volta River. The open lagoons tend to be dominated by Rhizophora racemosa, while closed lagoons with an elevated salinity contain Avicennia germinans, Conocarpus erectus, Laguncularia racemosa and Acrostichum aureum. Laguncularia racemosa and Rhizophora racemosa are found on the
seaward side of lagoons in saline conditions.

The main threat to mangroves is population growth leading to overexploitation, unregulated use of mangroves, fishponds, saltpans, sugarcane production and clearing for building, fuel, fish processing and construction. Engineering in the rivers and coasts such as construction of dams, dikes, and sea walls for the regulation of water supply deprives many of the country’s downstream wetlands of their normal water regimes. The construction of the Akosombo Dam (1964) on the Volta has drastically reduced the water availability to downstream communities.



Map 12. Environmental assets. Ghana

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.

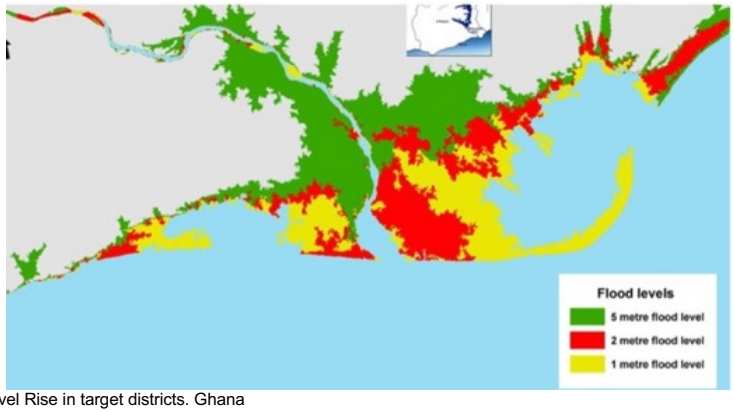
The selection of these districts was done according to a prioritization process using a multi-criteria methodology to ensure evidence-based selection. The parameters included in a multi-criteria methodology are environmental and socio-economic impacts, vulnerable groups, beneficiaries, geographical impact, 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.**

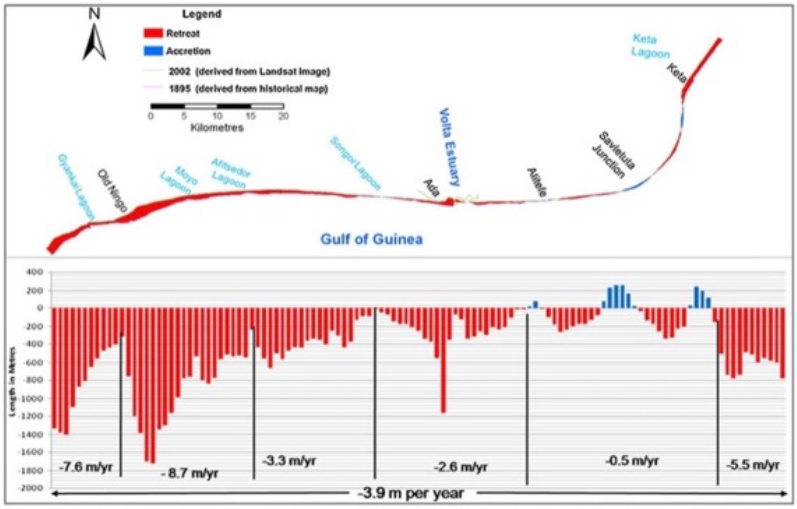
Table 31. Prioritization of target areas. Ghana

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. Sea level rise modelling has been done for 1 m predicted global mean sea level rise; for 2 m, the upper limit of global mean prediction for sea level rise; and for 5 m, a long-term scenario involving catastrophic conditions. 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.



Map 13. Sea Level Rise in target districts. Ghana



Map 14. 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 2: Overview of localized climate change impacts / hazards and effects, underlying vulnerabilities, barriers to adapt and resilience building needs

Table 32. Overview of CC impacts/hazards. Côte d'Ivoire

District and Communities	Population / beneficiaries	Main climate change impacts / Hazards	Effects on communities	Underlying Vulnerabilities	Barriers to adapt	Identified climate resilience building needs
JACQUEVILE	Total population: 56.308 Females: 27.397					
Grand Jack	Total: 3,318 Female: 45 % Youth:12% Children: 42 % Disabled: >15	Coastal erosion (last 20 years) Coastal flooding Flash flooding/rain (every year)	**Socio-economic** • Increased poverty • Increased food insecurity • Destruction of key assets (infrastructure, housing, etc) • Disease outbreaks • **Environmental** • Coastal retreat • Ecosystem and biodiversity loss • Livelihoods loss (Fish reduction) • Inundation in settlements •	• Low quality of drainage system • Sanitation problems • High density of population • Poor agriculture practices • Pressure on ecosystems • tenure insecurity, land conflict) • Poverty and inequalities • No access to drinking water and clean water • Pollution / rubbish issues in lagoon) • Uncontrolled urbanization and tenure security issues •	**Unsustainable development** • Weak government support. • Inadequate/insufficient funds especially for resettlement. • Uncontrolled development in communities contributing to deforestation and erosion, location in flood prone areas, including riverbanks and drainage ways. • Inadequate access/funding for collecting the waste, which is then disposed in rivers, gullies, drains, open spaces, pits or burnt. **Environmental degradation** • Continuous need of wood for cooking leading to deforestation and soil erosion/land degradation. **Lack of coping capacities** • Lack of knowledge/technical skills- among community members on how to solve problems in the community. • Inadequate information and communication about hazards (e.g. floods) Low awareness and community enforcement of sanitation and hygiene/low public health standards	**Reduce hazards exposure** • Protect people, assets and livelihoods from flooding, erosion and se level rise • Spatial planning to protect vulnerable areas and future developments from risks. • Flood preparedness and forecasting • **Increase community resilience** • Provision of sustainable livelihoods. • Raising awareness on climate change and environmental management. • Capacity building • Reduce the need for use of firewood. • Provision of waste disposal and collection • Creation of jobs • Hygiene awareness •
Jacqueville commune	Total: 11,000 Female: 50 % Children: 12,5 % Disabled: 0,5 %					
Techmien	Total: 527 Female: 42 % Youth:78% Disabled: >4	River flooding Flash flooding River banks erosion Severe storms	**Socio-economic** • Increased poverty • Increased food insecurity • Destruction of key assets (infrastructure, housing, etc) • Disease outbreaks • • **Environmental** • Ecosystem and biodiversity loss (mangrove deforestation) • Livelihoods loss (Fish reduction) • Salinization of lagoon • Inundation in settlements • Lagoon pollution •	• Low quality of drainage system • Sanitation problems • Pollution in lagoons • Poor agriculture practices • Pressure on ecosystems • Tenure insecurity, land conflict) • Poverty and inequalities • informality		
Couvé	Total: 307 Female: 43 % Youth: 37 % Disabled: >5					
Tefredi	Total: 3,632 Female 50% Children: 5.7 %					
Taboth	Total: 876 Female: 55 % Youth: 18% Disabled: 1.7%					

Attoutou B	Total: 1,268 Female: 45 Youth: 42% Elderly: 9%					
Koko	Total: 762 Female: 47 % Youth: 18 % Elderly: 10 %					
GRAND-BASSAM	Total population: 84,028 Females: 42,014					
Quartier France	Total: 2.333 Female: 45% Children: 27% Disabled: 0.85%	Coastal Erosion Coastal flooding Flash flooding Severe storms	**Socio-economic** • Increased poverty • Increased food insecurity • Destruction of key assets (infrastructure, housing, etc) • **Environmental** • Coastal retreat • Ecosystem and biodiversity loss (mangrove deforestation, loss of vegetation) • Livelihoods loss (Fish reduction) • Inundation in settlements	• Informality • Low quality of housing • Low quality of drainage system • Sanitation problems • Pollution in lagoons • Poor agriculture practices • Pressure on ecosystems • tenure insecurity, land conflict) • Poverty and inequalities •	**Unsustainable development** • Weak government support. • Inadequate/insufficient funds especially for resettlement. • Uncontrolled development in communities contributing to deforestation and erosion, location in flood prone areas, including river banks and drainage ways. • Inadequate access/funding for collecting the waste, which is then disposed in rivers, gullies, drains, open spaces, pits or burnt. **Environmental degradation** • Continuous need of wood for cooking leading to deforestation and soil erosion/land degradation. **Lack of coping capacities** • Lack of knowledge/technical skills- among community members on how to solve problems in the community. • Inadequate information and communication about hazards (e.g. floods) • Low awareness and community enforcement of sanitation and hygiene/low public health standards	**Reduce hazards exposure** • Protect people, assets and livelihoods from flooding, erosion and se level rise • Spatial planning to protect vulnerable areas and future developments from risks. • Flood preparedness and forecasting **Increase community resilience** • Provision of sustainable livelihoods. • Raising awareness on climate change and environmental management. • Capacity building • Reduce the need for use of firewood. • Provision of waste disposal and collection • Creation of jobs • Hygiene awareness
Azzureti	Total: 1,362 Female: 52% Youth: 25% Disabled: 1.5%					
Gbamele	Total: 395 Female: 43% Youth: 37% Disabled: 6%					
Vitre 2	Total: 1,376 Female: 45% Youth: 15% Disabled: 2.5%	River flooding Flash flooding Sever storms	**Socio-economic** • Increased poverty • Increased food insecurity • Destruction of key assets (infrastructure, housing, etc) • **Environmental** • Ecosystem and biodiversity loss (mangrove deforestation, loss of vegetation) • Livelihoods loss (Fish reduction) • Inundation in settlements • Lagoons pollution			
Mondoukou	Total: 1,400 Female: 48% Youth: 33% Disabled: 0.7%					

Table 33. Overview of CC impacts/hazards. Ghana

District and Communities	Population / beneficiaries	Main climate change impacts / Hazards	Effects on communities	Underlying Vulnerabilities	Barriers to adapt	Identified climate resilience building needs
ADA WEST DISTRICT	Total population: 59.124 Females: 51% Youth: 43% Disabled: 2%					
Akplabanya	Total: 5,101 Female: 50.99% Youth: 35.34% Children: 42.82% Elderly: 6.86%	• Coastal erosion and flooding. • • Severe storms, especially on sea. • • Severe drought.	**Socio-economic** • Loss of key assets like housing, road infrastructure, boats, markets etc. • Reduction in fish harvest due to loss on fishing infrastructure and reduced fish stocks due to higher sea temperatures and overfishing. • Diseases such as malaria, fever and skin rashes. **Environmental** • Loss of vegetation like palm trees • Lagoons pollution • Shoreline retreat	• Poverty and inequality • Lack of skills especially among the youth • Climate sensitive economic activities like fishing • Poor access to potable drinking water • Low quality drainage. No drainage ways to dispose of liquid waste. • No toilet facilities • No rubbish bins or appropriate site for dumping refuse. • Heavy pollution of the lagoons.	**Unsustainable development** • Little help from government. • Inadequate funds especially for resettlement. • Uncontrolled development in communities contributing to deforestation and erosion, location in flood prone areas, including river banks and drainage ways. • Inadequate access/funding for collecting the waste, which is then disposed in rivers, gullies, drains, open spaces, pits or burnt. **Lack of coping capacities** • Lack of knowledge/technical know-how among community members on how to solve problems in the community. • Inadequate information and communication about hazards (e.g. floods) • Low awareness and community enforcement of sanitation and hygiene/ low public health standards **Environmental degradation** • Continuous need of wood for cooking leading to deforestation and soil erosion/land degradation.	**Reduce hazards exposure** • Protect people, assets and livelihoods from flooding and erosion. • Spatial planning to protect vulnerable areas and future developments from risks. **Increase community resilience** • Provision of sustainable livelihoods. • Raising awareness on climate change and environmental management. • Reduce the need for use of firewood. • Provision of waste disposal and collection systems
Goi	Total: 3,657 Female: 53.32% Youth: 33.90% Children: 35.96% Elderly: 12.31%					
Wokumagbe	Total: 1,630 Female: 53% Youth: 51% Children: 51% Elderly: 6%					
ADA EAST DISTRICT	Total population: 71,671 Females: 52.5% Youth: 54% Disabled: 4.3%					

Kewunor/ Azizanya	Total:2,830 Female: 50.03% Youth: 52% Children: 41.84% Elderly: 7.42%	• Coastal erosion and flooding. • River and flash flooding along the estuary.	**Socio-economic** • Loss of key assets like housing, road infrastructure, boats, markets etc. • Reduction in fish harvest due to loss on fishing infrastructure and reduced fish stocks due to higher sea temperatures and overfishing. • Diseases such as malaria, fever and skin rashes. **Environmental** • Loss of vegetation like palm trees • Lagoons pollution • Shoreline retreat	• Poverty and inequality • Lack of skills especially among the youth • Climate sensitive economic activities like fishing • Poor access to potable drinking water • Low quality drainage. No drainage ways to dispose of liquid waste. • No toilet facilities • No rubbish bins or appropriate site for dumping refuse. Heavy pollution of the lagoons.	**Unsustainable development** • Little help from government. • Inadequate funds especially for resettlement. • Uncontrolled development in communities contributing to deforestation and erosion, location in flood prone areas, including river banks and drainage ways. • Inadequate access/funding for collecting the waste, which is then disposed in rivers, gullies, drains, open spaces, pits or burnt. **Lack of coping capacities** • Lack of knowledge/technical know-how among community members on how to solve problems in the community. • Inadequate information and communication about hazards (e.g. floods) • Low awareness and community enforcement of sanitation and hygiene/ low public health standards **Environmental degradation** • Continuous need of wood for cooking leading to deforestation and soil erosion/land degradation.	**Reduce hazards exposure** • Protect people, assets and livelihoods from flooding and erosion. • Spatial planning to protect vulnerable areas and future developments from risks. **Increase community resilience** • Provision of sustainable livelihoods. • Raising awareness on climate change and environmental management. • Reduce the need for use of firewood. • Provision of waste disposal and collection systems
KETA DISTRICT	Total population: 147,168 Females: 53.3% Youth: 34.6% Disabled: 7.2%					
Anloga	Total: 22,722 Female: 53.12% Youth: 33.00% Children: 32.70% Elderly: 14.98%	• Coastal erosion and flooding.	**Socio-economic**	• Poverty and inequality	**Unsustainable development** • Little help from government.	**Reduce hazards exposure**

Woe	Total: 12,164 Female: 52.25% Youth: 28.72% Children: 36.64% Elderly: 12.76%	• Storms/Strong winds. • Flash flooding. • Severe drought. • Extreme heat.	• Loss of key assets like housing, road infrastructure, boats, markets etc. • Reduction in fish harvest due to loss on fishing infrastructure and reduced fish stocks due to higher sea temperatures and overfishing. • Disease outbreaks especially malaria. **Environmental** • Coastal erosion has caused deforestation. • Poor crop yield due to saline soil. • Lagoons pollution • Shoreline retreat	• Lack of skills especially among the youth • Climate sensitive economic activities like fishing and farming. • Inadequate water for irrigating most farms especially during dry seasons • Land scarcity. • Lack of services like drainage, toilets, waste,health, electricity • Low quality housing. • Indiscriminate sharing of state sponsored houses meant for resettlement; • land conflicts	• Inadequate funds especially for resettlement. • Uncontrolled development in communities contributing to deforestation and erosion in flood prone areas, including river banks and drainage ways. • Inadequate access/funding for collecting the waste, which is then disposed in rivers, gullies, drains, open spaces, pits or burnt. **Lack of coping capacities** • Inadequate knowledge/technical know-how among community members on how solve problems temporarily or permanently. • Inadequate information and communication about hazards (e.g. floods) • Low awareness and community enforcement of sanitation and hygiene/ low public health standards **Environmental degradation** • Continuous need of wood for cooking leading to deforestation and soil erosion/land degradation	• Protect people, assets and livelihoods from flooding and erosion. • Spatial planning to protect vulnerable areas from human development. **Increase community resilience** • Provision of sustainable livelihoods. • Raising awareness on climate change and environmental management. • Reduce the need for use of firewood. • Provision of waste disposal and collection systems
Vodza	Total: 3,369 Female: 54.52% Youth: 30.99% Children: 35.17% Elderly: 13.68%					
Dzita	Total: 2,949 Female: 53% Youth: 51% Children: 40% Elderly: 9%					
Tegbi	Total: 12,164 Female: 54% Youth: 54% Children: 34% Elderly: 10%					
Agbledomi	Total: 4,864 Female: 51% Youth: 55% Children: 38% Elderly: 9%					
Agorkedzi	Total: 2,448 Female: 53% Youth: 53% Children: 38% Elderly: 9%					

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 favorable 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.

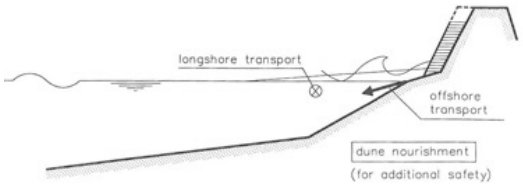


Figure 20. Dune/ barrier nourishment

- 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.

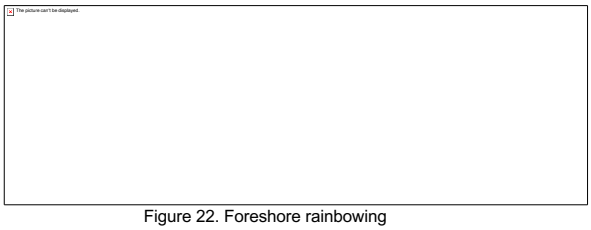


Figure 22. Foreshore rainbowing

Figure 21. Beach 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.

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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.

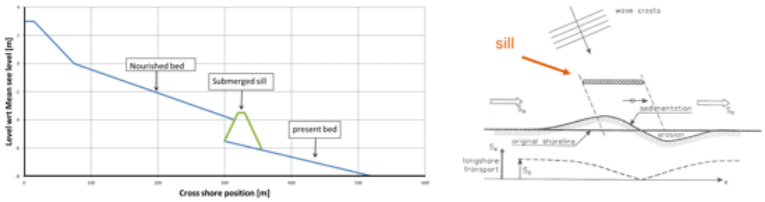

Figure 23. Example of perched beach

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.

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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.

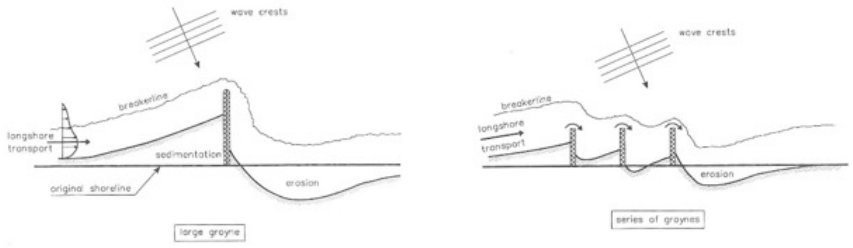

Figure 24. Groynes

- 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.

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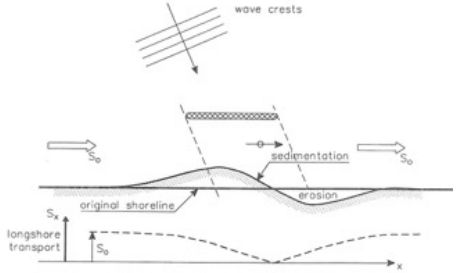


Figure 25. Detached breakwater

- 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.

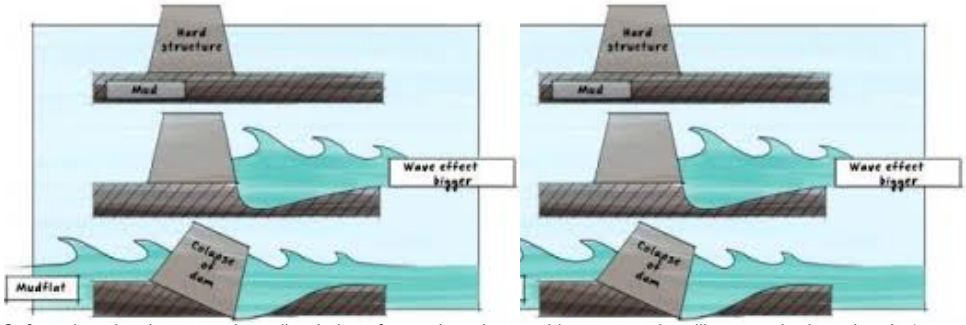
Structures to prevent the waves to reach the erodible materials

- 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 26. 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.

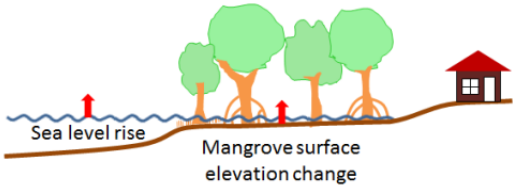


Figure 27. The response of mangrove soil surface elevation to sea level rise. McIvor et al., 2013.

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.

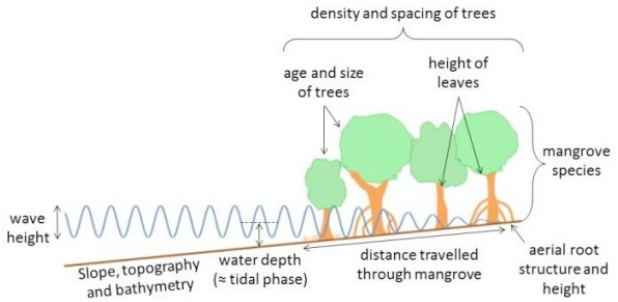


Figure 28. Factors affecting wave attenuation in mangroves Source: McIvor et al., 2012

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.

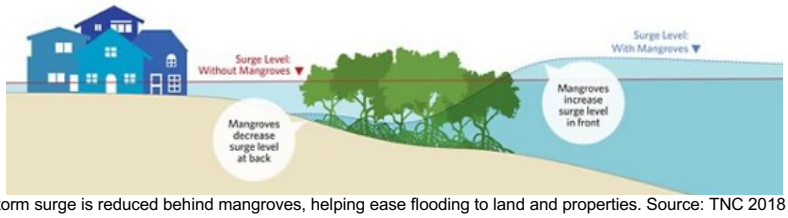


Figure 29. Storm surge is reduced behind mangroves, helping ease flooding to land and properties. Source: TNC 2018

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.

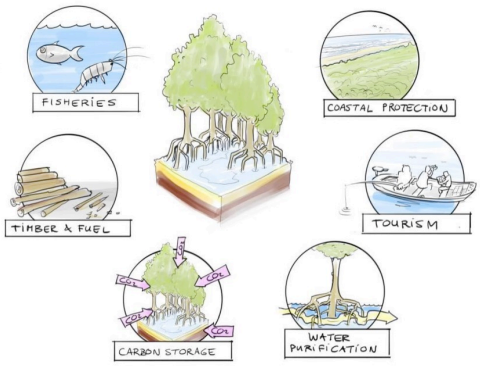


Figure 30. Mangrove restoration also restores all the other ecosystem services and benefits provided by these mangroves. Source: Wetlands International.

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.

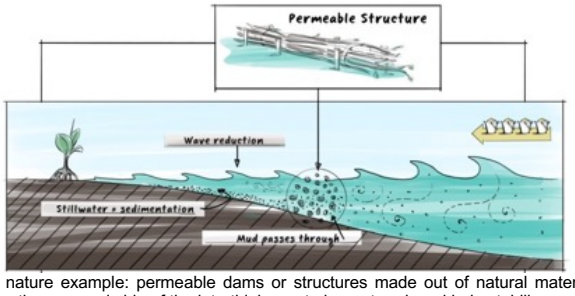


Figure 31. A Building with nature example: permeable dams or structures made out of natural materials such as bamboo and brushwood can be placed on the seaward side of the intertidal area to be restored, and help stabilize sediments so that mangroves can eb natur

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.

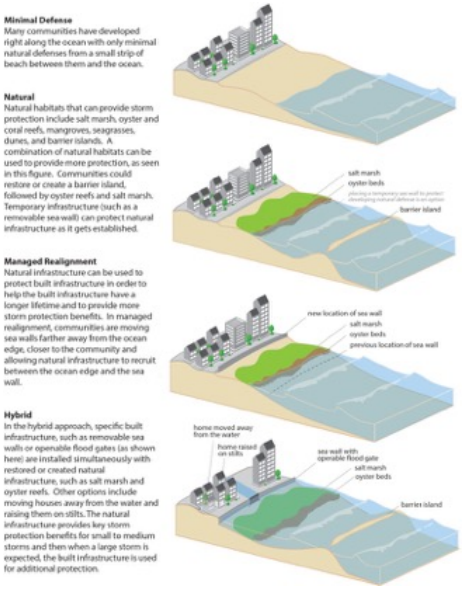


Figure 32. Different coastal protection and resilience options. Source: TNC

II. Concrete adaptation options

Table 34. 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	Coastal retreat/ flooding	Zero - option: no coastal defense, relocate people or avoid people moving in risk area through spatial planning	See above	Yes (see above)	See above	-	yes

		cross-shore transport		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)					
				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 + labor 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 + labor 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	See above	yes	See above	-	yes

				the role of land use planning versus concrete interventions)					
				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 penculture 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 discharge (damming of river)	Sediment is trapped in river mouth. Coastal retreat down stream of net longshore current	Sand bypassing. Dredging sediment in river mouth and relocating it down stream in erosive areas Level / type applicable: - Transformative - Catalytic (community)	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 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	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	roughly €10000, - per m groyne. (very high) E.g. US$ 180 million for 15 groynes in Keta	< 3 years	no

						start artificial bypassing).			
	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	Sediment ation in river mouth due to decrease d river discharg e	flooding of lagoon potenti ally in combin ation with down	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

		(damming of river)	drift erosion	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 carefuly 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	Open up river 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	Yes (but not in target area)	unknown	1 year but maintenance required	no

			agriculture		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 carefuly to control water flow				
			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

I. Consultative process 2017

i. Ghana

Table 35. 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	- 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	- Identify relevant projects and lessons, concerns and complementary potential	- 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	
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	- Align with NAP process - Northern project not relevant	

		Resources and Diversification of Livelihoods and NAP process		
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 prioritze 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

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Table 36. Focus group discussions, Ghana

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

ii. Côte d'Ivoire

Table 37. 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
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	- 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 •

			AF projects		
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 38. Focus group discussions, Côte d'Ivoire

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 39. Consultations 2018.

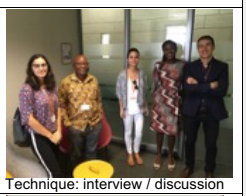
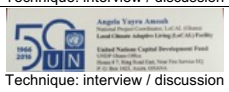
Date	Stakeholder	Consultation objective
07-13 February 2018 at World Urban Forum	Leading ministries from Ghana and Côte d'Ivoire	- Bring together leading ministries from Ghana and Côte d'Ivoire to: o Agree on regional approach and coordination mechanisms o Agree on / confirm list of priority interventions 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

i. Ghana

Table 40. 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	- Identify relevant projects and lessons, concerns and complementary potential - Identify potential project risks and opportunities	- No geographic overlap with UNDP projects - Compliment GEF Guinea project about marine ecosystems - Compliment REDD+ and GCF work on	- Need to involve both men and women to address resource control issues - Youth: use youth groups / associations and focus on 'innovative' work	

	(gender) Sylvia Sefakor Senu Economic analyst (youth)	related to gender and youth	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	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 approach •	- 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 too may delays and if makes sense with already identified actions and executing entities	 Technique: interview / discussion
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	- See on the left - Development Institute to coordinate on the left	 Technique: structured interview / discussion + workshop

			- 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	
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 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): - **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 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

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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

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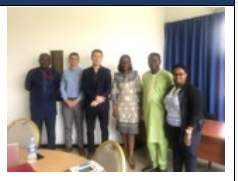
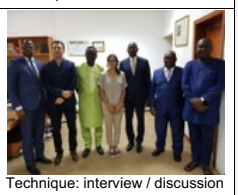
Table 41. Participation on the workshop for the Blue Deal Programme

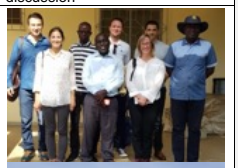
Date	Stakeholder	Objective	Conclusion
8th October 9th October Sogakope	Blue Deal Programme team	Discuss complementarities and potential overlap with AF project. Presentation on updates of the AF project to main stakeholders.	Clear alignment between Blue Deal Programme future work in Ghana and UN-Habitat's 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.

ii. Côte d'Ivoire

Table 42. 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
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	 Technique: structured interview / discussion + workshop

			- 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	
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.	  Technique: structured interview / discussion

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			• Development of plan to control urban growth, buffer zone (with public space or agriculture land) around the lagoon to prevent building.	
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	 Technique: structured interview / discussion + workshop

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			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	
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 43. 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

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i. Ghana

Table 44. Overview consultations (focused group discussions) during field work 2020.

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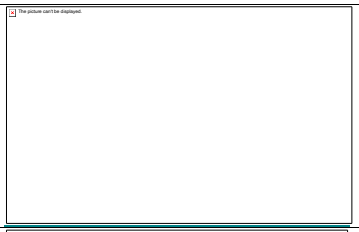
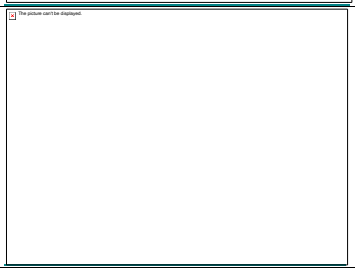
Date	Stakeholder/Participants	Issues and Conclusion	Evidence

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 land owners 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.	
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".	The picture can't be displayed.

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	

ii. Côte d'Ivoire

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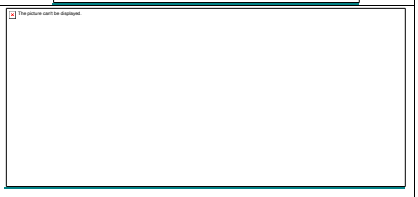
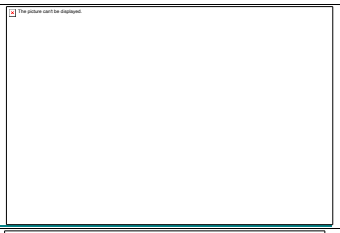
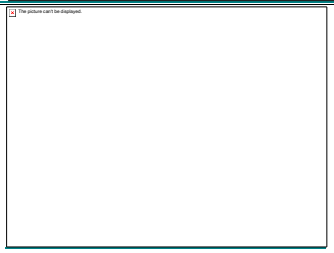
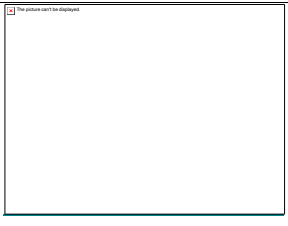
Table 45. Overview consultations (focused group discussions) during field work 2020.

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.	

ANNEX 5: ESIA-ESMP

Content:

I. Introduction, including summary description of the project

Introduction

Social and environmental policies are essential tools to prevent and / or mitigate undue harm of projects and project activities to people and their environment. In line with the Adaptation Fund's ESP and UN-Habitat's Environmental and Social Safeguard Policy (ESSP), UN-Habitat and partners are required to categorize the risk of the project as a whole and to manage potential risks and impacts.

Purpose

The purpose of this section is to demonstrate in an overview how this project complies to the AF ESP. The Annex shows what potential environmental and social risks and co-benefits and opportunities have been identified per project activity, the potential impacts of any risk identified and how these will be managed. 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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Methodology

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, identified (+ monitoring arrangements)

In both Ghana and Côte d'Ivoire, risks screening sheets have been completed for each proposed project activity. Besides that, in both countries, accredited consultants prepared country specific ESIAs, ESMPs and consultations reports for the project in compliance with the AF ESP and GP and national requirements for conducting ESIAs. Below shows an overview / summary of these reports (most important findings). The outcomes have been consolidated in the proposal, including in the budget. The country specific ESIAs, ESMPs and consultations reports are available through above website. The completed risks screening sheets are part of the reports.

Data and analysis are provided based on collected disaggregated data focused on identification of climate change related needs, limitations, constraints and requirements specific for marginalized and vulnerable groups, especially of women and youth. Activity prioritization and the identification and verification of potential risks and impacts and, where needed, identification of measures to avoid or mitigate potential risks have been done with project beneficiary groups (through community surveys, focus groups discussions and community planning and decision-making processes during project preparation.

Overview / summary of project risks management approach

Table 46, overview / summary of identified project risks, impacts assessments, mitigation measures and monitoring

AF ESP principle	Initial environmental or social risks triggered as per table in Part II.L Y/N	Impacts assessment	Safeguard / mitigation measures	Indicator and method	Responsibility and frequency
1 - Compliance with the law	NO - As per part II.F, the project and project activities comply to laws				
2 - Access and equity	NO - All stakeholders and groups have been mapped. A participatory planning process will be conducted under component 2. Quotas to ensure equal participation will be used, if needed				
3 – Marginalized and vulnerable Groups					
4 – Human rights	YES. - Target community populations may not be fully aware of their rights as consultations about this topic have been limited	- Target community populations are 74,689 in Ghana and 17,556 in CdI	- During project implementation communities will be made aware of their rights through posters and other information sharing options	- Nr of posters physically (at least one in each community); Check posters and other info sharing means	NGO with UN-H Every 3 months
5 – Gender equality and women's empowerment	NO - A participatory planning process will be conducted under component 2. Quotas to ensure equal participation will be used, if needed. A gender approach and baseline has been developed				
6 – Core labour rights	NO - Compliance risks to ILO standards have been analyzed. Clauses for compliance will be included in all contracts				
7 – Indigenous peoples	NO - All stakeholders and groups have been mapped. No indigenous groups have been identified				
8 – Involuntary resettlement	NO - All target areas have been identified, including ownership and use, also informally, and consent is given for implementation of project activities				
9 – Protection of natural habitats	YES - There may be a risk that replanted mangroves will be cut by the communities	- In Ghana 1500 ha will be planted. In CdI 110 ha will be planted	- Planning process under component 2 and by-laws will allow the beneficiary communities to manage the mangroves sustainably. Contracts will be signed stating beneficiary communities will have access only at the condition that mangroves will be sustained (not cutting more than being planted); An	- By-laws accepted and contracts signed; Check by-laws and acceptance by communities	NGO with UN-H Every 6 months

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			extra mangrove section may be planted and allocated dedicated for cutting for fish smoking		
10 – Conservation of biological diversity	YES - There may be a risk of disturbing turtle nesting sites, even though project activities are not in the nesting site areas - There may be a risk of breakout of fish diseases as part of the fish breeding activities	- There are some nesting sites along the coast in Ghana - 16 pens will be installed in Ghana and 22 in CdI	- All nesting sites will be located, and people involved in the project will be made aware. - Monitoring the fish stock to reduce health issues through the monitoring kit budgeted under the lagoon restoration intervention	- List and map of nesting sites - Fish stock going down; Check list and maps - Check monitoring results	NGO with UN-H Every 1 month
11 – Climate change	NO - There may be some emissions of GHG due to project activities, but this is minimal, and most activities are community-based				
12 – Pollution prevention and resource efficiency	NO - Waste management plans will be developed for all interventions though component 2			•	
13 – Public health	YES - Potential risk of using polluted water for irrigating farms for salt resilient crops in Ghana, causing public health issues	- In Ghana 48,346 will benefit from the salt resilient crops activities	- A storm water and drainage plan will be developed as part of component 2, including any treatment of water required in line with standards. - A monitoring regime will be adopted, and information will be collected on the following: o Periodic monitoring of water freshness and salinity of soils and crops o Time series Aerial and Satellite imageries - Capacity building on use of pesticides will be part of activities under component 2	- Check monitoring results	NGO with UN-H Every 1 month
14 – Physical and cultural heritage	NO - All heritage sites have been identified and the project activities will not affect these. Instead, project activities in CdI will support protection of these				
15 – Lands and soil conservation	YES - There may be a risk of sediments moving back into the lagoons after dredging, filling the lagoons. There may also be a risk of unawareness with executing entities on soil conservation and management. - There may be a risk of excavating soil for the Sand nourishment in Ghana from non-appropriate areas, causing negative effects	- 10 lagoons, which is over 1 km will be dredged. Soil could move back if barriers are not enforced with vegetation. - 7-11 km sand / dunes will be nourished in CdI; this requires excavation of sand from land or sea	- Planting of vegetation (mangroves and sea greases) that stabilize and retain sediments. This is already planned and budgeted for; Schedule this activity far from rainy season, so that there is time for these plants to consolidate - Prepare an additional study (already budgeted) from where the sand can be excavated from sea or land and assess the potential risks and impacts – involve experts in this study. Sand from the lagoons may be used but only if the quality of sand is acceptable following international standards. - A maintenance plan will be developed under component 2.	- Number of planting sites and maps - Green light from experts - Check planting sites to stabilize sand barriers. - Check study and standards - Check maintenance plans by experts •	UN-H and NGOs Every month

II. Risk screening and categorization

Based on the screening against the 15 AF principles, the project has been categorized as a "B" category project in terms of the environmental and social risks it poses. See Part II.L

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.

For an overview of project activities' screening results against the 15 AF principles see below table. For details, see the next section.

Table 47, Overview of project activities' screening results against the 15 AF risk areas / principles. For more details see country-specific ESIA reports

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Detailed outputs / activities		Risk screening result	Explanation why triggered or not
Component 1: Promote climate change resilience through spatial development frameworks			
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	No risks identified	Activities involve assessment and planning processes. Potential risks considered are those related to unequal access and equity, also for vulnerable groups and gender, throughout the assessment and planning processes and identification of gender sensitive action plans. However, the execution entities involved will be required to involve beneficiary groups, including identified vulnerable groups (and women and youth) in the activities. Targets and quotas will be used. These will be verified during the project inception phase with execution entity specific baseline and targets and action plans, also to involve women and youth and other vulnerable groups.
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 Jackeville, 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		
Component 2: Resilience building planning at community level			
4.1.4.	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.	No risks identified	Activities involve awareness raising and capacity building activities. Potential risks considered are those related to unequal access and equity, also for vulnerable groups and gender. However, the execution entities involved will be required to involve beneficiary groups, including identified vulnerable groups (and women and youth) in the activities. Targets and if needed, quotas will be used. These will be verified during the project inception phase with execution entity specific baseline and targets and action plans, also to involve women and youth and other vulnerable groups.
4.1.5.	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)		
Component 3: Transformative concrete ecosystem / natural resource adaptation interventions at sub-regional and district level			

3.1.1. Mangrove restoration along the Volta estuary in Keta district	Potential risks related to; 4 – Human rights 9 – Protection of natural habitats 10 – Conservation of biological diversity 15 – Lands and soil conservation	- Target community populations may not be fully aware of their rights - There may be a risk that replanted mangroves will be cut by the communities - There may be a risk of disturbing turtle nesting sites, even though project activities are not in the nesting sites - There may be a risk of sediments moving back into the lagoons after dredging, filling the lagoons. There may also be a risk of unawareness with executing entities on soil conservation and management. - There may be a risk of excavating soil for the Sand nourishment in Ghana from non-appropriate areas, causing negative effects
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		
3.1.5. Development of lagoon banks by sandbag dikes and embankment in Jacqueville		
Component 4: Catalytic concrete climate change adaptation interventions at community level		
4.1.1. Pen culture systems installed and operational in Ada East, Ada West and Keta district	Potential risks related to; 4 – Human rights 10 – Conservation of biological diversity 13 – Public health 15 – Lands and soil conservation	- Target community populations may not be fully aware of their rights - There may be a risk of fish diseases within the breeding activities - Potential risk of using polluted water for irrigating farms for salt resilient crops in Ghana and causing public health issues
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		
Component 4: Knowledge sharing and monitoring		
5.1. Coastal dynamics (i.e. erosion and flood) impacts and risk prediction model and assessment method	No risks identified	Activities include knowledge exchange though meetings, site visits, events, etc. UN-Habitat and Abidjan Convention and UCC will ensure equal involvement / representation.
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	No risks identified	Activities include desk top consultancy work
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	No risks identified	Activities include desk top consultancy work

Details and results of the risks screening process
*For more details see country-specific ESIA reports

Principle 1: *Compliance with the Law.*
Screening result: no potential risk
Explanation: During project preparation, all relevant rules, regulations and standards have been identified for all proposed project activities, including procedures / steps to comply to these. These are shown in Part II.F. Where required by national law, ESIAs have been conducted. Therefore, no potential risk of non-compliance exists.

Related to the ESIAs, below has been done for Ghana and Côte d'Ivoire. Accredited consultants in Ghana and Côte d'Ivoire conducting risks screening and impact assessments to comply to national law and AF requirements and prepared ESIA-ESMP reports, which have been submitted to authorizing offices for approval. Thus, in both Ghana and Côte d'Ivoire, the process is at the final step. Final approvals in Ghana and Côte d'Ivoire are expected in January 2021.

Table: ESIA legal framework, applicability and steps in Côte d'Ivoire and Ghana

	Côte d'Ivoire	Ghana
Legal Framework	☐ Law n ° 2016-886 of 8 November 2016 on the constitution of the Ivory Coast ☐ Law n ° 96-766 of October 3, 1996 on the environment code ☐ Decree No. 96-894 of 8 November 1996 determining the rules and procedures applicable to studies relating to the environmental impact of development	☐ Constitution of Ghana ☐ Environmental Protection Agency ("EPA") Act, 1994 (Act 490) ☐ Ghana Environmental Assessment Regulations 1999, LI 1652 ☐ Environmental Impact Assessment Procedures, June 1995
Applicability	Projects likely to have "significant impacts on the environment" required to: ☐ Register with the Ghana EPA ☐ Obtain environmental permits prior to beginning construction and operations Include specific requirements for sectors and types of projects	Projects likely to have "significant impacts on the environment" required to: ☐ Register with the Ghana EPA ☐ Obtain environmental permits prior to beginning construction and operations ☐ Include specific requirements for sectors and types of projects
Steps	7. Registration of the project in ANDE. 8. Assessment on the need of an ESIA. 9. Definition of the TOR for the ESIA. 10. Development of the ESIA. 11. Evaluation of the ESIA for approval. 12. Project authorisation.	1. Registration of potential project with EPA 2. Screening of registration by EPA within 25 days 3. Scoping and Terms of Reference 4. Development of Environmental Impact Statement ("EIS") 5. Provisional Environmental Permit

Principle 2: *Access and Equity*.
Screening result: no potential risk
Explanation: All project beneficiaries (i.e. population; groups) have been mapped (see tables 1 and 2) for each project activity / output. Community consultations and focus groups discussions have been conducted per beneficiary group to identify possible rivals, disputants and concerns related to equal access of project benefits (see part II.I, Annex 4 and consultation reports as part of country ESIA-ESMP reports). In that way, equal allocation and distribution of project / programme benefits will be ensured during project execution. Moreover, there will be neither discrimination nor favouritism in accessing project/programme benefits. Project benefits will be allocated and distributed equally through a participatory process and through joint decision-making. Component 2 has been designed to facilitate this process, including awareness raising and capacity building of communities and vulnerable groups to operate, maintain and replicate proposed activities under component 3 and 4. Under component 1, various groups will be equally involved, in assessment and planning processes (if needed through use of quotas).

Principle 3: *Marginalized and Vulnerable Groups.*
Screening result: no potential risk
Explanation: all project beneficiaries (i.e. population; groups), including marginalised and vulnerable groups have been mapped for each project activity / output (see tables 1 and 2). Desk research, expert consultations and community consultations and focus group discussions have been used (see part II.I, Annex 4 and consultation reports as part of country ESIA-ESMP reports) to identify possible risks / adverse impacts of project activities on marginalized and vulnerable beneficiary groups (i.e. specific needs, limitations, constraints and requirements of groups). Disaggregated data at the district and municipal and activity beneficiary level has been used to identify and quantify marginalized and vulnerable groups. As per Part II.I, a range of stakeholders have been consulted to identify specific needs and possible concerns of vulnerable groups.

Principle 4: *Human Rights*.
Screening result: Target community populations may not be fully aware of their rights

Explanation: during project preparation and execution, international human rights are respected and where applicable, promoted. During project preparation, possible human rights issues have been identified by assessing whether Ghana and Côte d'Ivoire are cited in any Human Rights Council Special Procedures, and to confirm and understand possible issues through consultations with 'experts.' (see part II.I)

Côte d'Ivoire Human rights not ratified:[114]

- ☐ CAT-OP - Optional Protocol of the Convention against Torture
- ☐ CCPR-OP2-DP - Second Optional Protocol to the International Covenant on Civil and Political Rights aiming to the abolition of the death penalty
- ☐ CED - Convention for the Protection of All Persons from Enforced Disappearance
- ☐ CMW - International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families

Ghana Human rights not ratified:[115]

- ☐ CCPR-OP2-DP - Second Optional Protocol to the International Covenant on Civil and Political Rights aiming to the abolition of the death penalty
- ☐ CED - Convention for the Protection of All Persons from Enforced Disappearance
- ☐ CRC-OP-SC - Optional Protocol to the Convention on the Rights of the Child on the sale of children child prostitution and child pornography

During project preparation, consultations focused on human rights have been limited. Therefore this will be done through participatory planning process in component 2. Besides that, reference to human rights will be made through standard clauses to be included. Moreover, awareness about this will be raised through poster, explaining rights and grievance options.

Principle 5: *Gender Equality and Women's Empowerment*.
Screening result: no potential risk
Explanation: the project ensures that gender equality and women's and youth empowerment is ensured for all project activities. During project preparation, this has been done through detailed stakeholder mapping (see tables 1 and 2) including identification of specific needs, limitations, constraints and requirements of women and youth (see part II.I and Annex 4). UNICEF and UN Women have also been consulted to specifically identify potential risks and needs of women. A specific 'gender' approach and baseline section has been developed (see Annex 6). In this section, the legal and regulatory context with respect to gender equality and women's empowerment in which the project takes place has been analysed, as well as cultural, traditional and religious context. Arrangements that ensure equal participation in project activities and consultations and equal access to benefits have also been identified in gender approach and baseline.

Principle 6: *Core Labour Rights*.
Screening result: no potential risk
Explanation: the project ensures that all project activities meet the core labour rights and that possible risks have been identified and if existing, prevented or mitigated. During project preparation, this was done by identifying possible compliance issues by analysing if Ghana and Côte d'Ivoire ratified the conventions, to confirm and understand these possible issues through consultations with ILO and by describing how the project will address possible compliance issues.

Côte d'Ivoire core labour rights (not) ratified[116]

- ☐ Fundamental Conventions: 8 of 8
- ☐ Governance Conventions (Priority): 3 of 4. Not ratified:
  - **C122** - Employment Policy Convention, 1964 (No. 122)
- ☐ Technical Conventions: 30 of 178

Ghana core labour rights (not) ratified[117]

- ☐ Fundamental Conventions: 8 of 8
- ☐ Governance Conventions (Priority): 2 of 4. Not ratified:
  - **C122** - Employment Policy Convention, 1964 (No. 122)
  - **C129** - Labour Inspection (Agriculture) Convention, 1969 (No. 129)
- ☐ Technical Conventions: 41 of 178. Relevant not ratified:
  - **C155** - Occupational Safety and Health Convention, 1981 (No. 155)

[114] https://www.ohchr.org/EN/countries/AfricaRegion/Pages/CIIndex.aspx
[115] https://www.ohchr.org/EN/Countries/AfricaRegion/Pages/GHIndex.aspx
[116] https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:103023
[117] https://www.ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:103231

- **C187** - Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187)

UN-Habitat will ensure all contracts include standard clauses to avoid any risks regarding above and that safety measures are taken and inspections conducted.

Principle 7: *Indigenous Peoples*.
Screening result: no potential risk
Explanation: the project ensures that project activities are consistent with the rights and responsibilities set forth in the UN Declaration on the Rights of Indigenous Peoples by ensuring that possible issues are identified and mitigated / prevented. During project preparation, the project determined that no indigenous people are present in the project / programme target areas. This has been determined through stakeholder mapping. No indigenous groups have been identified in target areas. Besides that, it has been analyzed if Ghana and Côte d'Ivoire ratified the ILO Convention 169 and other applicable international instruments relating to indigenous peoples.

Principle 8: *Involuntary Resettlement*.
Screening result: no potential risk
Explanation: the project determined that no physical or economic displacement will take place due to the project/programme. This has been determined by mapping project target sites land ownership (private, public) and land use, also informally, and through consulting communities / users on the possible risk of resettlement and to get agreement on proposed interventions (i.e. no interventions will take place without the consent of inhabitants in the targeted areas). Land owners, private or public, have agreed with use of land for project activities. Consultation in the target areas did not identify any concerns related to resettlement.

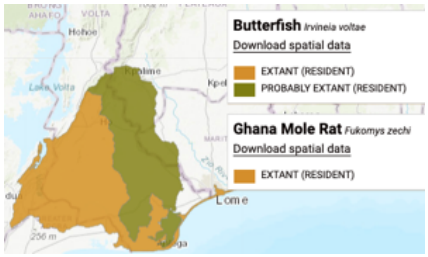
Principle 9: *Protection of Natural Habitats*.
Screening result: There may be a risk that replanted mangroves will be cut by the communities
Explanation: the project ensures that no unjustified conversion or degradation of critical natural habitats will take place because of project activities. During project preparation, it has been checked if any critical natural habitats exist in the target location, including their location, characteristics and critical value (i.e. legal protection status, common knowledge or traditional knowledge), as well as possible negative impacts on these due to project activities. This has been done by checking National plans and legal documents, the Convention on Wetlands and UNESCO Man and the Biosphere Programme. Besides that the IUCN regional office has been consulted.

National plans and legal documents	Mangroves, beaches, dunes
Convention on Wetlands (Ramsar, Iran, 1971)	Keta lagoon complex + Songor[118]
UNESCO Man and the Biosphere Programme:	Songor[119]

The internationally recognised natural habitats Songor and Keta lagoon are close to the project sites. However, as per the ESIA-ESMP reports prepared by national accredited consultants, negative impacts may be limited, except a potential risk that replanted mangroves will be cut by the communities

Principle 10: *Conservation of Biological Diversity*.
Screening result: There may be a risk of disturbing turtle nesting sites, even though project activities are not in the nesting sites; there may also be a risk of fish diseases within the fish breeding activities
Explanation: the project ensures that any significant or unjustified reduction or loss of biological diversity because of project activities will be avoided. During project preparation, it has been checked if any important biodiversity exist in the target location, including their protection status and other recognised inventories as well as possible negative impacts on these due to project activities. According to the IUCN red list sea turtles, the Ghana Mole rat and Butterfish are located in the target areas. This was confirmed through consultations with IUCN (regional office).

National plans and legal documents: Leatherback sea turtle
IUCN Red List of Threated Species:
Butterfish; Ghana Mole Rat[120]



Nesting sites to the Sea Turtle (Leatherback) are identified in Agorkedzi / Atiteti, Dzita, Agbledomi, and Wuti. The Wildlife Department was consulted for data/maps on Nestling sites. The exact location of these areas will be protected during project implementation.

However, these nesting sites are usually on the sand in the beaches where our interventions will not interfere.

[118] https://www.ramsar.org/wetland/ghana
[119] https://en.unesco.org/biosphere/africa#ghana
[120] https://www.iucnredlist.org/search/map?query=syria&searchType=species

Principle 11: *Climate Change*.
Screening result: no potential risk
Explanation: the project will ensure that project activities will not result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change. Although some extra energy will be used for project activities, especially dredging, this will be limited and compensated by planting of mangroves.

Principle 12: *Pollution Prevention and Resource Efficiency*.
Screening result: no risk
Explanation: the project aims to maximize energy efficiency and minimizing material resource and prevents waste and pollution due to project activities through analysis of possible risks of inefficiencies in energy and material resource use and waste and pollution risks of each activity – which has been done during project preparation. Water and soil quality have been checked in the target lagoons – for details see the ESIA-ESMP reports prepared by accredited consultants. Although most parameters where withing the threshold set by national standards, some soil may be polluted. Therefore, the dredged / excavated soil will be checked. If polluted this will be moved to already identified waste management sites. If clean, it can be used to raise the sand barriers. Waste management plans will be developed under component 2 for each community.

Principle 13: *Public Health*.
Screening result: Potential risk of using polluted water for irrigating farms for salt resilient crops in Ghana and causing potential public health issues
Explanation: the project will ensure that potentially significant negative impacts on public health are avoided. To avoid potential negative health impacts for project activities and other activities safety signs and equipment will be provided in line with core labour rights (155 and 187). Although the project intends to improve the quality already used for irrigation, water quality monitoring will take place.

Principle 14: *Physical and Cultural Heritage*.
Screening result: no risk
Explanation: the project ensures that the alteration, damage, or removal of any physical cultural resources, cultural sites, and sites with unique natural values recognized as such at the community, national or international level due to project activities will be avoided. During project preparation, It has been checked if physical or cultural heritage sites are present or near project sites, as well as possible risks of impacts on these due to project activities. UNESCO listed Heritage sites in target area.

According to the Ghanaian government and UNESCO[121], the Forts and Castles, Volta, Greater Accra, Central and Western Regions are the closest recognised protected heritage sites. Other local heritage sites are in the Dzita and Agorkedzi Project area. These are sacred sites for performing rites. However, these sites are not located in the project target area. In Côte d'Ivoire, the historic town of Grand Bassam is regarded as heritage site.[122] The project intends to improve coastal protection of the Grand Bassam coast through output 3.4.

Field Code Changed

Principle 15: *Lands and Soil Conservation*.
Screening result: There may be a risk of sediments moving back into the lagoons after dredging, filling the lagoons. There may also be a risk of unawareness with executing entities on soil conservation and management.
Explanation: The project ensures no negative impacts lands and soil conservation will result from project activities. All proposed project activities aim to enhance sustainable land and soil use. However, some dredging / excavation of soil will take place. This may cause a potential negative impact elsewhere.

III. Environmental and social impact assessment

For an overview of project activities' potential risks and impact assessment result against the 15 AF principles, see below table.

[121] https://whc.unesco.org/en/statesparties/gh
[122] https://whc.unesco.org/en/statesparties/ci

Table 48 Overview of project activities' screening and assessment results against the 15 AF risk areas / principles

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AF ESP principle	Initial environmental or social risks triggered as per table in Part II.L Y/N	Impacts assessment
1 - Compliance with the law	NO - As per part II.F, the project and project activities comply to laws	
2 - Access and equity	NO	
3 – Marginalized and vulnerable Groups	- All stakeholders and groups have been mapped. A participatory planning process will be conducted under component 2. Quotas to ensure equal participation will be used, if needed	
4 – Human rights	YES. - Target community populations may not be fully aware of their rights as consultations about this topic have been limited	- Target community populations are 74,689 in Ghana and 17,556 in CdI
5 – Gender equality and women's empowerment	NO - A participatory planning process will be conducted under component 2. Quotas to ensure equal participation will be used, if needed. A gender approach and baseline has been developed	
6 – Core labour rights	NO - Compliance risks to ILO standards have been analyzed. Clauses for compliance will be included in all contracts	
7 – Indigenous peoples	NO - All stakeholders and groups have been mapped. No indigenous groups have been identified	
8 – Involuntary resettlement	NO - All target areas have been identified, including ownership and use, also informally, and consent is given for implementation of project activities	
9 – Protection of natural habitats	YES - There may be a risk that replanted mangroves will be cut by the communities	- In Ghana 1500 ha will be planted. In CdI 110 ha will be planted
10 – Conservation of biological diversity	YES - There may be a risk of disturbing turtle nesting sites, even though project activities are not in the nesting site areas - There may be a risk of breakout of fish diseases as part of the fish breeding activities	- There are some nesting sites along the coast in Ghana - 16 pens will be installed in Ghana and 22 in CdI
11 – Climate change	NO - There may be some emissions of GHG due to project activities, but this is minimal, and most activities are community-based	
12 – Pollution prevention and resource efficiency	NO - Waste management plans will be developed for all interventions though component 2	
13 – Public health	YES - Potential risk of using polluted water for irrigating farms for salt resilient crops in Ghana, causing public health issues	- In Ghana 48,346 will benefit from the salt resilient crops activities
14 – Physical and cultural heritage	NO - All heritage sites have been identified and the project activities will not affect these. Instead, project activities in CdI will support protection of these	
15 – Lands and soil conservation	YES - There may be a risk of sediments moving back into the lagoons after dredging, filling the lagoons. There may also be a risk of unawareness with executing entities on soil conservation and management. - There may be a risk of excavating soil for the Sand nourishment in Ghana from non-appropriate areas, causing negative effects	- 10 lagoons, which is over 1 km will be dredged. Soil could move back if barriers are not enforced with vegetation. - 7-11 km sand / dunes will be nourished in CdI; this requires excavation of sand from land or sea

*Details can be found in the country specific ESIA-ESMP reports.

IV. Environmental and social management plan

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 49 Capacity of potential executing entities to carry-out gender responsive activities

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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 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

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 overview table

* 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 50 Monitoring arrangements for general risks management

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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 51 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

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

Table 52 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.	40% of 200		52% of 277,963	43% of 277,963	-	-	-	-
1.2.	40% of 150		53% of 218,839	41% of 218,839	-	-	-	-
1.3.	40% of 40		40% of 100		-	-	-	-
1.4.	-	-	-	-	40% of 200		48% of 356,495	31% of 356,495
1.5.	-	-	-	-	40% of 70		49% of 56,308	30% of 56,308
1.6.	-	-	-	-	40% of 40		40% of 100	
2.1.	40% of 300	20% of 300	52% of 74,689	53% of 74,689	-	-	-	-
2.2.	-	-	-	-	40% 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.	40% of 240				Same as Ghana			
5.4.	40% of 400				Same as Ghana			

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b. 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 53. 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
Ghana123 - **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		

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

	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'Ivoire124 - **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).	

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

c. Differentiated climate change impacts on men and women and their differentiated capacities do adopt to these, gender division of labor 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 54 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 55 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			

d. Capacity gaps affecting GP compliance

Table 56 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 (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
Comp 1 Côte d'Ivoire			
Companies / consultancy firms	Limited (as company)		
Development Institute	Some (as NGO / university)		
NGO in Côte d'Ivoire			
UCC			

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Abidjan Convention	Yes (UN core value)		- Awareness on requirements - Share guidelines for execution entities to comply

e. 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 57. 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: 40 % 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: 40 % 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: 40 % 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 penculture	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 penculture	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	

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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 58, Ghana project alignment with National and sub-national priorities

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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,

		○ Stakeholder participation is central, - Gender sensitivity and reduction of vulnerability are extensively adopted
Plan of Action on Disaster Risk Reduction and Climate Change Adaptation 2011-2015	2011	- Alignment with strategic goals: ○ 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: o Ensure that every socio-economic activity is consistent with sound land use through sustainable land use planning in the long-term o 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	2017	- Support on addressing identified key challenges such as provision of planning schemes and improvement in revenue generation.

Plan (2018-2021)		- 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 59 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 Catastrophes (SNGRC) & Plan d'Action	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.
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

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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: Detailed project activities compliance with national standards

Table 60. Ghana project activities compliance with relevant national technical standards

Expected concrete output/intervention	Relevant rules, regulations, standards and procedures	Authorizing offices	Compliance procedure (steps to be taken to comply)
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 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. Land Use and Spatial Planning Act, 2016, Act 925 2. Land Use and Spatial Planning Regulation, 2019 LI 2384 3. National Building Regulations 1996, LI 1630; 4. Environment Protection Act, Act 490, 1994; 5. Environmental Assessment Regulation 1999 (LI 1652 amended 2002); 6. Metropolitan, Municipal & District Assembly by Laws 7. Ghana National Spatial Development Framework, 2015 – 2035 8. Lands Commission Act 2008 act 767; 9. Ghana National Spatial Development Framework, 2015 – 2035; 10. Metropolitan, Municipal & District Assembly by Laws; 11. National Building Regulations 1996, LI 1630; 12. Local Government Act 1994 Act 462; 13. ocal Government Act 2016, Act 936 14. Environment Protection Act, Act 490, 1994; 15. Environmental Assessment Regulation 1999 (LI 1652 amended 2002); 16. National Museum Act 1969 (NLCD 387)	Land Use and Spatial Planning Authority Land Use and Spatial Planning Authority Town & Country Planning Department Lands Commission Environmental Protection Agency Metropolitan Municipal & District Assemblies	Authorization of spatial Development Framework Authorization of zonation and land use Permits, certificates and Environmental Impact Statements are required from project proponents. An authorisation from the Lands Commission, Environmental Protection Agency, Metropolitan, Municipal & District Assemblies will be required. In addition, sectoral collaboration and coordination is imperative.

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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	NA	NA	NA
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.	NA	NA	NA

3.1. Mangrove restoration along the Volta estuary in Keta district 3.2. Coastal lagoons restoration in Ada East, Ada West and Keta districts	1. Environment Protection Act, Act 490, 1994 Environmental Assessment Regulation 1999 (LI 1652); 2. Metropolitan, Municipal & District Assembly by Laws 3. Lands Commission Act 2008 act 767; 4. National Wetlands Conservation Strategy Wetlands Management (RAMSAR site) Regulation 1999 National Water Policy, 2017. 5. National Ambient Air Quality Standards (GS 1236, 2019) National Ambient Noise Level Standards (GS 1222, 2018) National Effluent Quality Discharge Standards (GS 1212, 2019 6.Labour Act, 2003 (Act No. 651). 7.Fees and Charges (Amendment) 2019, LI 2386 8. National Disaster Management Organisation Act, 2016 (Act, 927)	Environmental Protection Agency Metropolitan Municipal & District Assemblies Lands Commission	1. 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. 2. An authorisation required from the Ada East; Ada West and Keta Municipal Assembly for Development and Building permit. A formal letter with development proposals attached to the District Assembly. 3. This law is applicable only in the event of land valuation and payments of compensation issues if required. This project will not trigger payments of compensations 4. The project area has been designated as a RAMSAR site. No permit required to plant mangroves. However, the provisions and guidelines on mangroves and water related activities will be spelled out clearly in the EPA permit for compliance. 5. An authorisation from the Environmental Protection. Compliance with air, noise and effluent quality standards will be incorporated into the EPA permit schedule for adherence. No separate permit required. 6. The Constitution of Ghana and the labour laws prohibit discrimination on the basis of race, sex, ethnic origin, creed, colour, religion, social, or economic status. Part VI of the Labour Act ensures protection of working women and Part V protects workers with disabilities. 7. This Act is relevant to the Project in becoming abreast of the fees and charges collectable by the Environmental Protection Agency. 8. The Act will help manage disaster risk especially flood related issues.

4.1. Pen culture systems installed and operational in Ada East, Ada West, and Keta districts	1. Environment Protection Act, Act 490, 1994; Environmental Assessment Regulation 1999 (LI 1652); 2. Labour Act, 2003 (Act No. 651). 3. National Ambient Air Quality Standards (GS 1236, 2019) National Ambient Noise Level Standards (GS 1222, 2018) National Effluent Quality Discharge Standards (GS 1212, 2019) 4. Fisheries Act 625, 2002. 5. Fees and Charges (Amendment) 2019, LI 2386 6. PPublic Health Act 851, 2012.	Environmental Protection Agency Metropolitan Municipal & District Assemblies Fisheries Commission Food and drugs Authority	1. 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. 2. The Constitution of Ghana and the labour laws prohibit discrimination on the basis of race, sex, ethnic origin, creed, colour, religion, social, or economic status. Part VI of the Labour Act ensures protection of working women and Part V protects workers with disabilities. 3. An authorisation from the Environmental Protection. Compliance with air, noise and effluent quality standards will be incorporated into the EPA permit schedule for adherence. No separate permit required. 4. Compliance with sections 88 (prohibited fishing methods) and section 92 (pollution of fishery waters). 5. This Act is relevant to the Project in becoming abreast of the fees and charges collectable by the Environmental Protection Agency. 6. Certification needed regarding the manufacture, processing, and distribution of food products.

4.2. Salt resilient crops and water infiltration introduction systems installed and operational in Keta district	1. Environment Protection Act, Act 490, 1994; Environmental Assessment Regulation 1999 (LI 1652); 2. Metropolitan, Municipal & District Assembly by Laws 3. Lands Commission Act 2008 act 767; 4. National Wetlands Conservation Strategy Wetlands Management (RAMSAR site) Regulation 1999 5. Labour Act, 2003 (Act No. 651). 6. National Ambient Air Quality Standards (GS 1236, 2019) National Ambient Noise Level Standards (GS 1222, 2018) National Effluent Quality Discharge Standards (GS 1212, 2019 7. Plant and Fertilizer Act, 2010 Act 803 Pesticides Control Management Act 1996. 8. Fees and Charges (Amendment) 2019, LI 2386 9. Public Health Act 851, 2012.	Environmental Protection Agency Metropolitan Municipal & District Assemblies Lands Commission Food and drugs Authority	1. 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. 2. An authorisation required from the Ada East; Ada West and Keta Municipal Assembly for Development and Building permit. A formal letter with development proposals attached to the District Assembly. 3. This law is applicable only in the event of land valuation and payments of compensation issues if required. This project will not trigger payments of compensations. 4. The project area has been designated as a RAMSAR site. No permit required for farming purposes. However, the provisions and guidelines under these conventions would be spelt out clearly in the EPA permit for compliance. 5. The Constitution of Ghana and the labour laws prohibit discrimination on the basis of race, sex, ethnic origin, creed, colour, religion, social, or economic status. Part VI of the Labour Act ensures protection of working women and Part V protects workers with disabilities. 6. An authorisation from the Environmental Protection. Compliance with air, noise and effluent quality standards will be incorporated into the EPA permit schedule for adherence. No separate permit required. 7. Submit to the Agency an application for registration which shall be in such form and be accompanied with such fee, information, samples and such other material as the Agency may determine. 8. This Act is relevant to the Project in becoming abreast of the fees and charges collectable by the Environmental Protection Agency 9. Certification needed regarding the manufacture, processing, and distribution of food products.

The Draft Coastal and Marine Habitat Management Regulation Bill which is currently before the Attorney Generals Department when turn into law will protect, enhance and restore the quality of coastal zones in Ghana.[125]

[125] *Ghanaweb (General News of Thursday, 8 August 2019). Coastal and marine regulations bill coming. https://www.ghanaweb.com/GhanaHomePage/NewsArchive/Coastal-and-marine-regulations-bill-coming-770493*

Table 61, Côte d'Ivoire project activities compliance with relevant national technical standards

Expected concrete output/intervention	Relevant rules, regulations, standards and procedures	Authorizing offices	Compliance procedure
1.4. One (1) Sub-regional-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	- Orientation Law on Territorial Development - Decree n ° 96-894 of November 08, 1996 determining the rules and procedures applicable to studies relating environmental impact of development projects	MINEDD Ministry of Environment and Sustainable Development Ministry of Planning and Development Ministry of Construction, Housing, Sanitation and Urban Planning Local planning departments (including BNETD)	Conduct of the public inquiry Validation session of the ESIA report Obtaining the environmental permit Supervision and coordination by the planning ministry Establishment of a committee including key stakeholders
1.5. One (1) District-level Spatial Development Frameworks (Local development plan), targeting Jacqueville and Attoutou, 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 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	N/A	N/A	N/A

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2.2. Community-level plans developed in Côte d'Ivoire, including planning, operation, maintenance, monitoring and replication components (same target area as outputs 3.1.3 and 3.1.4, 3.1.5 and 4.1.3)	- Law n°2003-489 of 26 decembre 2003 on regime financier, fiscal et domanial des collectivités territoriales - Décret n° 2005-268 of 21 july 2005 regarding environnement protection et management of natural ressources, les modalités d'application de la loi n° 2003-308 du 07 juillet 2003 portant transfert et répartition de compétences de l'Etat aux Collectivités Territoriales.	Collectivités under supervision of the *Direction Générale de la Décentralisation et du Développement Local* (DGDDL) (Min of Interior) Ministère de l'administration du territoire et de la décentralisation	Led by communities under the supervision of the General Directorate of Decentralization and Local Development (DGDDL)

3.3. 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 by law 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 is supervised by the local directions of the forestry and environment administration
3.4. 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	EIA required by law Validation by the Ministry of Environment through the national coastal management agency (Agence Nationale de Gestion du littoral cotier)
3.5 Embankment of lagoons by sandbag dikes in Jacqueville			Prior validation by the Ministry of the Environment through the national coastal littoral management agency. Coordinated by the project team and the communities

4.3. 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 - 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	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).	ESIA required by law Technical validation of Ministry of Animal Resources through the Jacqueville aquaculture center for the choice of species and location of pens. Implementation supervised by the Jacqueville nursery school and local directions of Ministry of Animal Resources Certification needed regarding the manufacture, processing, and distribution of food products.

Table 62 Regional project activities compliance with relevant national technical standards

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Expected concrete output/intervention	Relevant rules, regulations, standards and procedures	Compliance procedure	Authorizing offices
5.1. Coastal dynamics (i.e. erosion and inundation/flood) impacts and risk prediction model and assessment method	NA	NA	NA

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)	NA	NA	NA
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	NA	NA	NA
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	NA	NA	NA

ANNEX 9: Detailed maintenance and sustainability arrangements for all outputs

Table 63 Project activities' maintenance and sustainability / exit strategy arrangements, including replication and upscaling

Detailed outputs / activities	Operation and maintenance	Responsible	Sustainability (exit strategy + replication + upscaling mechanisms)	Responsible
Component 1: Promote climate change resilience through spatial development frameworks				
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.	The Land Use Spatial Planning Authority (LUSPA) in Ghana is mandated to develop national and regional SDFs. With the funding under this output they will execute this task for the target area. To ensure commitment a co-funding agreement has been reached, entailing that LUSPA will provide staff, office space, computers and accessories, and vehicles. An implementation action plan will be developed during the project, including responsibilities and budgets for implementation. The plan will include financial mechanisms for plan implementation such as land value capture, developer exactions, property taxation, transfers from national government and own-resource revenue from districts/departments.	Planning : LUSPA Implementation : LUSPA With technical support from UN-Habitat	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	LUSPA Abidjan Convention University of Cape Coast

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	A budget is already dedicated to approve / implement the plan, thus ensuring its operationalization and implementation. Once the plan is approved, LUSPA as government entity for spatial planning will be responsible for its long-term implementation with their dedicated (co-funded) staff and equipment, taking full ownership of the plan as has been the case for the several other Spatial Development Frameworks developed in the country.		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.	
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.	The Municipal District Assemblies (MMDAs) in Ghana are mandated to develop district SDFs. With the funding under this output they will execute this task for the target area. To ensure commitment a co-funding agreement has been reached, entailing that MMDAs will provide staff, office space, computers and accessories, and vehicles. An implementation action plan will be developed during the project, including responsibilities and budgets for implementation. The plan will include financial mechanisms for plan implementation such as land value capture, developer exactions, property taxation. A budget is already dedicated to approve / implement the plan, thus ensuring its operation. Once the plans are approved, the MMDAs, guided by LUSPA as government entity for spatial planning will be responsible for its long-term implementation with their dedicated (co-funded) staff and equipment.	Planning: Metropolitan, Municipal District Assemblies (MMDAs). Implementation: MMDAs, LUSPA. With technical support from UN-Habitat.	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.	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.	Specific budget is allocated as part of the project for LUSPA and MMDAs and as co-financing from the Government of Ghana to ensure that the development and implementation of the plans count with sufficient financial and human resources. The Government of Ghana through LUSPA has requested the technical assistance of UN-Habitat for the spatial development frameworks and the integration of climate-change related issue. In this sense UN-Habitat will be able to support this area of work in which it has extensive experience, technical expertise, and a competitive advantage.	Planning: UN-Habitat, LUSPA and MMDAs. Implementation: UN-Habitat	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

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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.	Co-funding: As the Ministry of Plan is mandated to develop national and regional SDFs, for this project a co-funding agreement has been reached. This entails that the Ministry of Plan will provide staff, office space, computers and accessories, and vehicles. Operationalization and implementation: 1. The approval of the plan is considered and budgeted for through the involvement of different stakeholders required by law (phase 4. Adoption of Plan) 2. During project development, the project will put a mechanism to ensure resources for the implementation are provided as well as the identification of strategic investments and matching funding opportunities (Phase 3. Proposal and implementation action plan). Once the plan is approved, the Ministry of Plan (DGAT) as government entity for spatial planning will work towards its implementation with funding allocated from the government side.	Planning: Ministry of Planning and Development (DGAT) Implementation: Ministry of Planning and Development With technical support from UN-Habitat	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.	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	The Ministry of Planning and Development in Cote d'Ivoire is mandated to develop Local Development Plans in coordination with the technical departments of the municipalities. With the funding under this output they will execute this task for the target area. To ensure commitment a co-funding agreement has been reached, entailing that the Ministry and the municipalities will provide staff, office space, computers and accessories, and vehicles. An implementation action plan will be developed during the project, including responsibilities and budgets for implementation. The plan will include financial mechanisms for plan implementation such as land value capture, developer exactions, property taxation, transfers from national government and own-resource revenue from districts/departments. A budget is already dedicated to approve / implement the plan, thus ensuring its operation. Once the plan is approved, the Technical Department of the municipality, guided by the Ministry as government entity for spatial planning will be responsible for its long-term implementation with their dedicated (co-funded) staff and equipment.	Planning: Ministry of the Plan and Development; Municipalities (Technical Department) Implementation: Ministry of Planning and Development Municipalities (Technical Department) With technical support from UN-Habitat	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 Municipalit y (Technical Department)
1.1.6 Strengthened capacity of the Ministry of the Environment and Sustainable Development, Ministry of Planning and Development,) and	Specific budget is allocated as part of the project for the Ministry of Plan and municipalities and as co-financing from the Government of Côte d'Ivoire to ensure that the development and implementation of the plans count with sufficient financial and human resources.	Planning: UN-Habitat, Ministry of the Environment and Sustainable Development, Ministry of	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.	UN-Habitat

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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	The Government of Côte d'Ivoire through Ministry of Plan has requested the technical assistance of UN-Habitat for the spatial development frameworks and the integration of climate-change related issue. In this sense UN-Habitat will be able to support this area of work in which it has extensive experience, technical expertise, and a competitive advantage.	Planning and Development, Municipalities Implementation: UN-Habitat	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, 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: Resilience building planning at community level				
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	The community plan will be developed for a period coinciding with the operational budget cycles of the local government with the resources allocated by the project, which are sufficient to ensure the design and operationalization of the plans, and will be used as components to contribute to the local plans. The community plans have as their main objective to ensure the coordination and involvement of key community, NGO and private sector, investors and donors. The development of the plans will follow UN-Habitat's Participatory Incremental Urban Planning (PIUP) methodology, with specific participatory activities that address the social, financial and environmental sustainability of the plans and projects. The process will enable the project to ensure ownership, capacity development of the different stakeholders involved, establishment of financial mechanisms to implement the plan and operate the projects after the provided project funding finalises, both from the community and private sector as contributions for environmental services as well as from the national and local government, ensuring continuous funding from operational budgets for the sustainability of the project after the 3.5 years. The community plans have as their central component the ecosystem interventions (component 3) and catalytic community interventions (component 4). By developing specific participatory processes and activities with national and local government, communities, private sector and NGO's, the plans (and specifically the action plan component of them) will focus on the extended sustainability of the project after the 3.5 years, from the revenues generated by the activities, community contributions, private sector contributions and government transfers. Besides ensuring ownership, this output is included to ensure maintenance and sustainability arrangements are in place at the community level. For this purpose, operation and maintenance and exit strategy plans will be developed per target community, considering the relevant proposed concrete interventions under component 3 and 4. This may also include waste management plans.	NGO Ghana, communities and local government in coordination with UN-H Within communities, chiefs and women and youth representatives will be targeted.	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. See also column on operation and maintenance. 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)	Local government and communities with the support of an established NGO that has been working in the region with similar projects.

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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	Same as for 2.1.1	NGO Côte d'Ivoire in coordination with UN-H Within communities, chiefs and women and youth representatives will be targeted.	Same as for 2.1.1.	NGO Côte d'Ivoire.
Component 3: Transformative concrete ecosystem / natural resource adaptation interventions at sub-regional and district level				

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3.1.1 Mangrove restoration along the Volta estuary in Keta district	**Operation**: 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 with roles, benefits and responsibilities. A team of well-trained and dedicated experts part of an NGO with previous and relevant experience in the development of mangrove restoration programmes (3 NGOs have been identified and have supported the project preparation (The Development Institute and Hen Mpoano) and 1 of them selected) will be leading the project execution, and community members will work on the replanting after they receive 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. **Maintenance**: The NGO and the community groups will jointly take responsibility to execute the mangrove restoration project. 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 replanting areas that have not succeed on the first round. CREMA By-laws enacted by the district assembly for the protection and financing of mangrove which will impose measures such as fines, contributions, etc. (C1 or C2)	During project: The Development Institute. After project: CREMA and MMDAs	The **sustainability** of this intervention relies on the built ownership by the communities through being executors and the capacity building activities (component 2). Additionally, the project includes continued awareness creation to develop self-drive and 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. Results and experience from previous years will be used as yardstick for sustaining the intervention, with the project including long-term monitoring of mangrove reforestation activities by the local government and specialized agencies conversant with the project. The CREMA will be applied. The principle is that the community will manage the mangrove area with equal participation and access. Target beneficiaries will have access to the lagoons with the pre-condition that they will 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. Economic benefits are expected to be obtained from mollusc and sustainable wood collection, and by-laws enhancement fees, as well as carbon sequestration market and contribution from ecotourism activities in the replanted areas (following the successful example in Kenya, Tanzania and Mozambique). Approaches such as the NRMC (Natural Resource Management Committee in Mozambique) will be pursued during the duration of the project in collaboration with government an NGO, for a 50% of community entitlement to fees charged from illegal cutters of mangroves reported by the community. The CREMA will also be responsible along with the Municipal Assemblies of **replication and upscaling**. This could be done through the capacity built in the communities and based on the lessons learnt from the intervention final report. There is great opportunity for replication since the mangrove ecosystems are vast in this coastal area.	CREMA and MMDAs

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3.1.2 Coastal lagoons restoration in Ada East, Ada West, and Keta districts	**Operation:** 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 with roles, benefits and responsibilities. A team of well-trained and dedicated experts part of an NGO with previous and relevant experience in the development of lagoon restoration programmes (3 NGOs have been identified and have supported the project preparation (The Development Institute and Hen Mpoano) and 1 of them selected) will be leading the project execution, and community members will work on the replanting after they receive training. Community level waste management plan to 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 (component 2) Resources and livelihoods management plan to be developed, including waste management (component 2). A monitoring and maintenance plan to be developed (component 2) which includes water quality parameters monitoring and replanting areas that have not succeed on the first round. CREMA By-laws enacted by the district assembly for the protection of the lagoons which will impose fines etc	Planning and implementation: NGO CREMA MMDAs	The **sustainability** of this intervention relies on the built ownership by the communities through being implementors and the capacity building activities (component 2). 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 The CREMA will be applied. The principle is that the community will manage the lagoons and replanting and planted area with equal participation and access. Target beneficiaries will have access to the lagoons with the pre-condition that they will 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. Economic benefits are expected to be obtained from fishing inside of the restored lagoon and by-laws enhancement fees, as well as carbon sequestration market and contribution from ecotourism activities in the restored areas. The CREMA will also be responsible along with the Municipal Assemblies of **replication and upscaling**. This could be done through the capacity built in the communities and based on the lessons learnt from the intervention final report. There is great opportunity for replication since the lagoon's ecosystems are vast in this coastal area.	CREMA and MMDAs

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An implementation plan will be put in place to supervise and coordinate the activity (component 2).

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3.1.3 Mangrove restoration along the coast in Grand Bassam and Jacqueville	**Operation**: 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 with roles, benefits and responsibilities. A team of well-trained and dedicated experts part of an NGO with previous and relevant experience in the development of mangrove restoration programmes (3 NGOs have been identified and have supported the project preparation (2D Consulting, Impactum, SOS Forets) and 1 of them selected) will be leading the project execution, and community members will work on the replanting after they receive 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. **Maintenance**: The NGO and the community groups will jointly take responsibility to execute the mangrove restoration project. 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 replanting areas that have not succeed on the first round. CREMA By-laws enacted by the district assembly for the protection and financing of mangrove which will impose measures such as fines, contributions, etc. (C1 or C2)	Ministère de l'Environnement et du Développement Durable Ministère des Eaux et Forêts et Ministère de l'Environnement Collectivités locales (mairies de Grand Bassam et de Jacqueville, préfectures de Grand-Bassam et Jacqueville, conseils régionaux)	The **sustainability** of this intervention relies on the built ownership by the communities through being executors and the capacity building activities (component 2). Additionally, the project includes continued awareness creation to develop self-drive and 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. Results and experience from previous years will be used as yardstick for sustaining the intervention, with the project including long-term monitoring of mangrove reforestation activities by the local government and specialized agencies conversant with the project. The CREMA will be applied. The principle is that the community will manage the mangrove area with equal participation and access. Target beneficiaries will have access to the lagoons with the pre-condition that they will 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. Economic benefits are expected to be obtained from mollusc and sustainable wood collection, and by-laws enhancement fees, as well as carbon sequestration market and contribution from ecotourism activities in the replanted areas (following the successful example in Kenya, Tanzania and Mozambique) Approaches such as the NRMC (Natural Resource Management Committee in Mozambique) will be pursued during the duration of the project in collaboration with government an NGO, for a 50% of community entitlement to fees charged from illegal cutters of mangroves reported by the community. The CREMA will also be responsible along with the Municipal Assemblies of **replication and upscaling**. This could be done through the capacity built in the communities and based on the lessons learnt from the intervention final report. There is great opportunity for replication since the mangrove ecosystems are vast in this coastal area.	Ministère de l'Environnement et du Développement Durable, and Ministère des Eaux et Forêts. Collectivités locales (mairies de Grand Bassam et de Jacqueville, préfectures de Grand-Bassam et Jacqueville, conseils régionaux)

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An implementation plan will be put in place to supervise and coordinate the activity (component 2). A team of experts will be leading, and community members will work on the replanting after they receive capacity building.¶
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Maintenance:¶
Raising awareness and capacity building (component 2)¶
¶
Resources and livelihoods management plan to be developed (component 2)¶
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A monitoring and maintenance plan to be developed (component 2) which includes replanting areas that have not succeed on the first round.¶
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By-laws enacted by the local authorities for the protection of mangrove which will impose measures such as fines etc. (C1 or C2)¶

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Results and experience from previous years will be used as yardstick for sustaining the intervention.¶
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The principle is that the community will manage the mangrove area with equal participation and access. Target beneficiaries will have access to the lagoons with the pre-condition that they will sustain it, as per a signed agreement.¶
¶
The Ministère de l'Environnement et du Développement Durable et Ministère des Eaux et Forêts will be the responsible entities 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 benefits are expected to be obtained from ... [1]

3.1.4 Sand nourishment along the coast of Grand Bassam	**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) including partial renourishments with a frequency of approximately 5-10 years.	Ministère des mines et de la géologie Ministère de l'Environnement et du Développement Durable Collectivités locales (mairie de Grand Bassam, conseil régional)	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. From the institutional perspective, the sand nourishment 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 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. From the financial perspective, the initial sand nourishment, which represent the largest investment for a period of approximately 10 years will be funded by the project. The sand nourishment initiative is located in areas where vulnerable communities and economic activities would commit to pay a recurrent fee to support long-term maintenance and renourishment of the beach. To concrete complementary options have been discussed to be developed during the duration of the project. The first option aims at funding future sand nourishment 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 beach, and that would have an increased benefit from having their property preserved. Technical sustainability relies on: - Using sand with a similar composition to the natural sand. - Placing sand up 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.[126] **Replication and upscaling** will be achieved through: - raising awareness of coastal resilience, sand extraction risks, etc	Ministère des mines et de la géologie Ministère de l'Environnement et du Développement Durable Collectivités locales (mairie de Grand Bassam, conseil régional)

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			- training stakeholders - creating an information system - using monitoring technics to enhance replication and upscaling: LIDAR, modelling, etc - Lessons learnt.	

[126] *Speybroeck, J., Bonte, D., Courtens, W., Gheskiere, T., Grootaert, P., Maelfait, J. P., ... & Lancker, V. V. (2006). Beach nourishment: an ecologically sound coastal defence alternative? A review. Aquatic conservation: Marine and Freshwater ecosystems, 16(4), 419-435.*

3.1.5 Embankments of lagoons in Jacqueville	**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. **Maintenance**: 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.	Ministère des mines et de la géologie Ministère de l'Environnement et du Développement Durable Collectivités locales (mairie de Jacqueville, conseil régional)	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. 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. 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 pay 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. Technically it also relies on: - Using sediments from sustainable sources.[127] - Forbidding 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 **Replication and upscaling** will be achieved through: - raising awareness of coastal resilience, sand extraction risks, etc - training stakeholders	Ministère des mines et de la géologie Ministère de l'Environnement et du Développement Durable Collectivités locales (mairie de Jacqueville, conseil régional)

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			- creating an information system - using monitoring technics to enhance replication and upscaling: LIDAR, modelling, etc - Lessons learnt.	
Component 4: Catalytic concrete climate change adaptation through diversified and strengthened livelihoods at community level				

[127] *Rodríguez, G. R., et Brebbia, C. A. (Eds.). (2015). Les villes côtières et leur avenir durable (vol. 148). WIT Press.*

4.1.1 Pen culture systems installed and operational in Ada East, Ada West, and Keta districts	**Operation**: An implementation plan will be put in place to supervise and coordinate the activity (component 2). Identified NGO with relevant experience and previous projects in pen culture 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 of the pen culture systems. 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 pen culture systems as well as the training of additional communities with 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. **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 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. 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 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	Planning and implementation: The Development Institute (DI) CREMA MMDAs	The NGO, through the planned capacity development activities will fully transfer the operation and maintenance of the pen culture system to the community group involved in the initiative. The social sustainability of the initiative is ensured through the participatory processes and stakeholder engagement that will take place as part of the Component 2. During the development of community plans and action plans, the institutional arrangements inside the community will be set, including by-laws and operational entity. In terms of environmental sustainability studies estimate a reduction of carbon emissions in community managed pen culture systems in comparison with industrial activities. The coordination and participation of local government as well as environmental authorities for the development of the projects and the grant of environmental licenses, will ensure the sustainable growth and location of possible additional pen culture systems. From the financial point of view, the expected increase in fish availability as well as reliable supply will provide a stable source of funding to community members involved in the pen culture initiative. The operation and maintenance of the pen culture system will be maintained through a percentage of the fish revenues as well as training fees and provision of construction materials for communities interested in the development of additional pen culture systems. The sustainability of this intervention relies on the built ownership by the communities through being implementors and the capacity building activities (component 2). 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. 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 with the pre-condition that they will 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. Economic benefits are expected to be obtained from fishing. The CREMA will also be responsible along with the Municipal Assemblies of replication and upscaling. This could be done through the capacity built in the communities and based on the lessons learnt from the intervention final report. There is great opportunity	CREMA and MMDAs

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			for replication since the lagoons ecosystems are vast in this coastal area.	

4.1.2 Salt resilient crops and water infiltration introduction systems installed and operational in Keta district	**Operation**: An implementation plan will be put in place to supervise and coordinate the activity (component 2). Identified NGO 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 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 to be developed (component 2) which includes soil monitoring and water infiltration system that may need servicing and salty 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	Planning and implementation: Development Institute CREMA MMDAs Technical support: The Salt Doctors	From the environmental perspective, this initiative represents one of the most crucial adaptation innovations for the region and the communities, since there is a high reliance on agriculture and climate change impacts are reducing water availability and increasing saltwater intrusion in coastal areas. Adaptation to climate change through climate smart agriculture, agroecology and crop-based management. From the financial perspective, the project continuity after the initial funding is invested will continue based on the revenue and know-how generated for the selection of the salty resilient crop as well as the development of water infiltration systems. Additionally, marginal soils identified in the communities would be reclaimed given the possibility to turn them into productive land for salt resilient crops. The resources of the project will focus on the identification and verification of feasibility of recent advancements in alternate crops such as oil seeds, legumes, cereals, medicinal, lignocellulose and fruit crops. From the institutional and social perspective, the sustainability of this intervention relies on the built ownership by the communities through being implementors and the capacity building activities (component 2). 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 The CREMA will be applied. The principle is that the community will manage infiltration systems and access knowledge on salty crops with equal participation and access. Target beneficiaries will have access with the pre-condition that they will 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. Economic benefits are expected to be obtained from crops production. The CREMA will also be responsible along with the Municipal Assemblies of replication and upscaling. This could be done through the capacity built in the communities and based on the lessons learnt from the intervention final report. There is great opportunity for replication since there are large agricultural areas with the same problematic.	CREMA and MMDAs

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4.1.3 Pen culture systems installed and operational in Grand Bassam and Jacqueville	**Operation**: An implementation plan will be put in place to supervise and coordinate the activity (component 2). Identified NGO with relevant experience and previous projects in pen culture 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 of the pen culture systems. 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 pen culture systems as well as the training of additional communities with 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. **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 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. 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 water quality parameters monitoring and replanting areas that have not succeed on the first round.		The NGO, through the planned capacity development activities will fully transfer the operation and maintenance of the pen culture system to the community group involved in the initiative. The social sustainability of the initiative is ensured through the participatory processes and stakeholder engagement that will take place as part of the Component 2. During the development of community plans and action plans, the institutional arrangements inside the community will be set, including by-laws and operational entity. In terms of environmental sustainability studies estimate a reduction of carbon emissions in community managed pen culture systems in comparison with industrial activities. The coordination and participation of local government as well as environmental authorities for the development of the projects and the grant of environmental licenses, will ensure the sustainable growth and location of possible additional pen culture systems. From the financial point of view, the expected increase in fish availability as well as reliable supply will provide a stable source of funding to community members involved in the pen culture initiative. The operation and maintenance of the pen culture system will be maintained through a percentage of the fish revenues as well as training fees and provision of construction materials for communities interested in the development of additional pen culture systems. The sustainability of this intervention relies on the built ownership by the communities through being implementors and the capacity building activities (component 2). 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 Replication and upscaling could be done through the capacity built in the communities and building on the lessons learnt from the intervention final report.	
Component 5: Knowledge sharing and monitoring				
5.1.1Coastal dynamics (i.e. erosion and inundation/flood) impacts and risk prediction model and assessment method	- Software to use this model will be provided to key stakeholders throughout the project - Guidelines to use this model will be developed and shared with key stakeholders	- University of Cape Coast - Abidjan Convention	- 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	- A monitoring plan / mechanism will be developed and shared with key stakeholders	- University of Cape Coast (in	- Guidelines for monitor project activities will also be available after the project ends. This will be part of the agreements with UCC and AbC.	- University of Cape Coast

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	effectiveness and impacts of the proposed concrete adaptation interventions under component 3 and 4	- Guidelines for monitoring project activities will be developed and shared with key stakeholders and target communities - Community-level project activities monitoring plans will be developed under component 2. - The drone will also be used for other project activities, including for component 1 and 3 and 4.	coordination with execution entities, e.g. for the drone) - Abidjan Convention	- 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	- 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 operate and maintain the model and monitoring system under outputs 5.1. and 5.2.	- Abidjan Convention	- 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	- Abidjan Convention	- 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

ANNEX 10: Level of definition and detail of proposed activities and projects contained in the ESIA-ESMP.

Given the length and number of projects and in alignment with the proposal length limitation UN-Habitat presents a sample of projects included in the ESIA-ESMP to clarify the level of definition of each project.

10.1: PROJECT LOCATION AND TARGET AREAS

Three districts, two of which are in the Greater Accra Region and the third district in the Volta Region. The selected Districts are:

1. Ada West District Assembly: 5°52′30″N 0°21′42″E; 5.87500°N 0.36167°E; 5.87500; 0.36167.

2. Ada East District Assembly: 5°45 and 6°00 N; 0°20 to 0°35 E

3. Keta Municipal Assembly: 5.9005° N, 0.9893° E

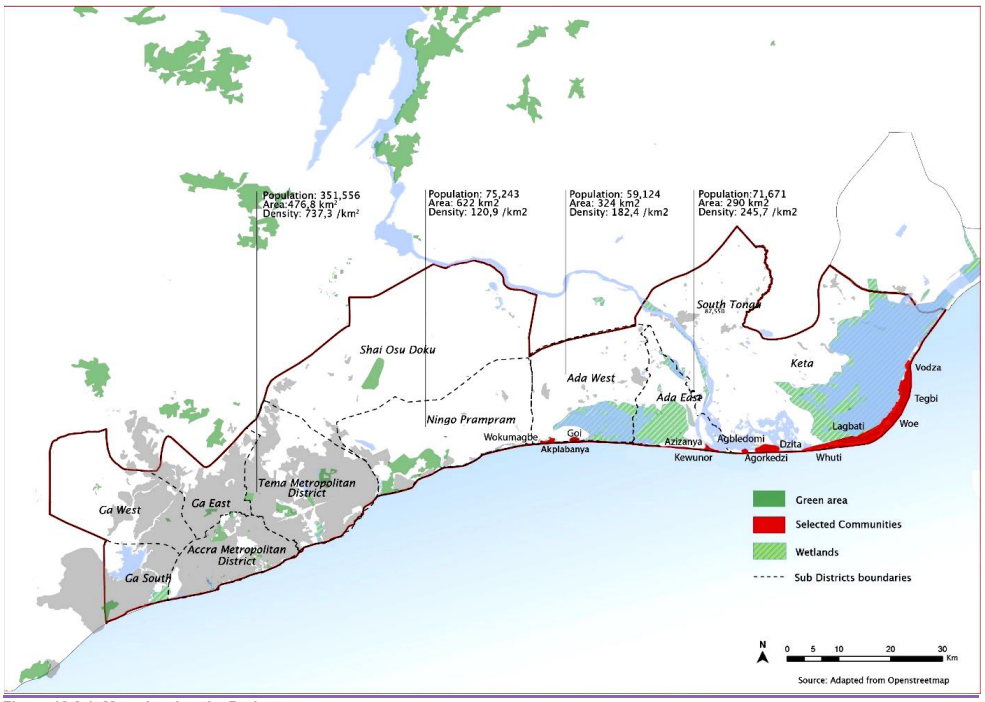

Figure 10.3.1: Map showing the Project area

10.2 PROJECT COMPONENTS

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Table 3.1 below shows the project components and the beneficiary communities in the respective districts. The project will comprise of the following four components:

1. Mangrove Restoration

2. Lagoon Restoration

3. Pen Culture

4. Crop Resilient Crop and Water Infiltration

Table 10.3.1: Overview of interventions per Community

District	Community	Mangrove	Lagoon Restoration	Pen Culture	Salty Crops/ Water infiltration
Ada West	Akplabanya				
	Goi				
	Wokumagbe				
Ada East	Kewunor/Azizanya				
Keta	Agorkedzi/Atiteti				
	Agbledomi				
	Dzita				
	Vodza				
	Tegbi				
	Woe				
	Lagbati/Kashibi				
	Whuti				

10.3.1. Detailed Output/Activities – Mangrove Restoration

The project plans to plant about 1500 Ha of mangrove. The four communities selected for the mangrove restoration intervention include, Agorkedzi/Atiteti, Agbledomi, Dzita, and Whuti. 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. There are no pollution threats to the growth of mangroves in the targeted communities The total cost for the mangrove restoration is about $ 1,222,435 Table 3.2 below shows some detailed output activities for the Mangrove Restoration Project.

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Activities		Notes / Staff	TOTAL	Year 1	Year 2	Year 3	Year 4
Phase 1: Prepare	Detailed engineering study and design	Staff (consultants)	**20,000**	20,000	-	-	-
	Buying materials	Mattock, wellington boots, cutlasses	**1,624**	1,624	-	-	-
	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 (20%)	**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	-	-	-
		Experts	**120,000**	8,000	40,000	48,000	24,000
Phase 4: Maintain	Maintenance	CREMA mechanism set up					
		Extra seeds in case of potential failure (5%)	**41,325**	-	-	41,325	-
	Field monitoring	Including accomm, car/fuel, and staff cost	**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*					
			1,222,435	**168,494**	**909,816**	**106,525**	**37,600**

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Map 10.3.1: Sample of project location in Agorkedzi, Agbledomi and Whuti as an excerpt of the ESIA-ESMP

10.3.2. Mangrove Restoration Sub Project Benefits

A total of about 13,082 people will directly benefit from the project in the selected communities. These direct beneficiaries include Local community (vulnerable and marginalized group: women (6,666) constituting 50.9%; youth (6,900) constituting 52.7%; children (4,991) constituting 38.1% and elderly (1,192) constituting 9.1%. Table 3.3 below shows details of the direct beneficiaries in each project community.

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Table 3.3: Mangrove Restoration Sub Project Direct Benefits

Communities	Children	Youth	Elderly	Total	Male	Female
Agorkedzi/Atiteti	935	1,289	225	2,448	1,151	1,297
Dzita	1,185	1,496	268	2,949	1,386	1,563
Whuti	1,014	1,556	251	2,821	1,088	1,228
Agbledomi	1,857	2,559	448	4,864	1,378	1,443
Total	**4,991**	**6,900**	**1,192**	**13,082**	**5,911**	**6,666**

10.3.2.4 Lagoon Restoration Intervention

Lagoons are typical and key coastal ecosystems in Ghana, playing a crucial role in providing (in-land) livelihood opportunities; due to climate change and urbanization trends many lagoons are deteriorating. 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). This intervention focuses on lagoon restoration 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. In addition, lagoons ecosystems will be restored facilitating biodiversity conservation and allowing to generate livelihood opportunities. The restoration process will also include mangrove replanting around lagoon's shoreline. The seven communities selected for the mangrove restoration intervention include Wokumagbe, Akplabanya, Goi, Kewunor, Agorkedzi/Atiteti, Dzita and Agbledomi. The intervention is suitable for these targeted communities because it builds on the existing ecosystems, and environmental and socio-economic dynamics. It aims at protecting and enhancing natural assets that support coastal inhabitants, and at providing a prosperous living habitat as a source of income (pen culture). Figures 3.8 to 3.14 below show Location Maps of the target communities.

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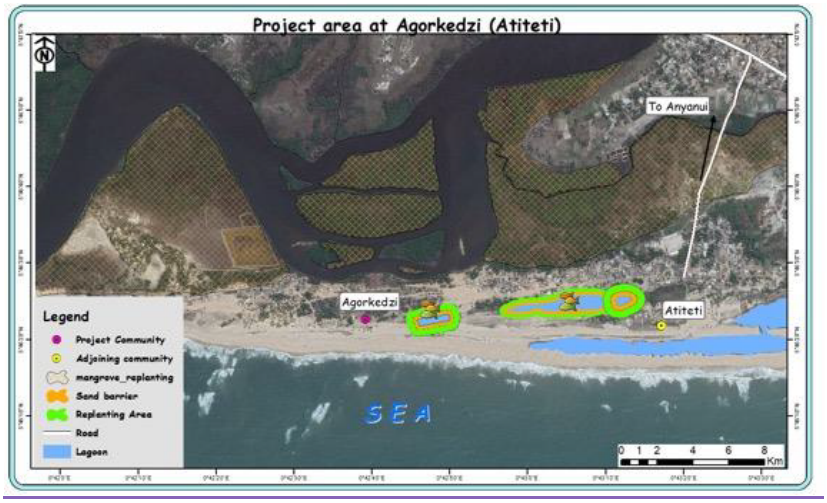
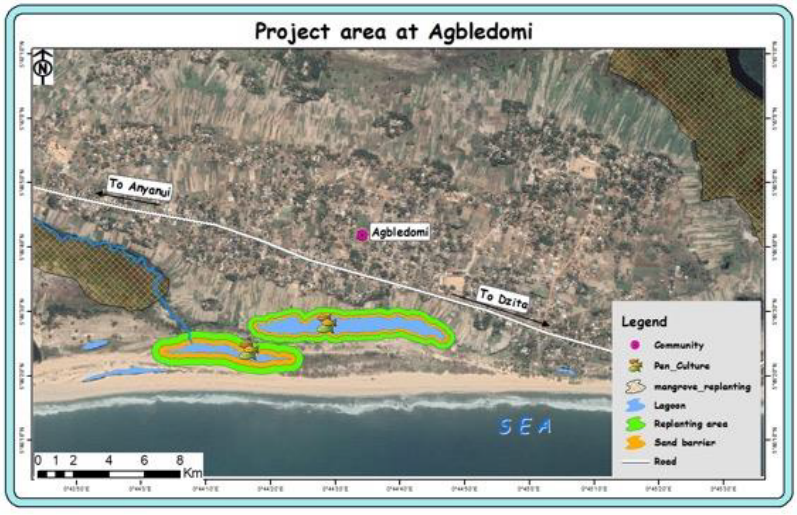

Project area at Agorkedzi (Atiteti)
To Anyanui
Agorkedzi
Atiteti
SEA
Legend
Project Community
Adjoining community
mangrove_replanting
Sand barrier
Replanting Area
Road
Lagoon
0 1 2 4 6 8
Km


Project area at Agbledomi
To Anyanui
Agbledomi
To Dzita
SEA
Legend
Community
Pen_Culture
mangrove_replanting
Lagoon
Replanting area
Sand barrier
Road
0 1 2 4 6 8
Km

Communities	Area m²	Depth m	Total excavation m³
Wokumagbe	36,000	1	36,000
Aklabanya	60,000	1	60,000
Goi	43,000	1	43,000
Agorkedzi	1,800	1	1,800
Kewunor	1,200	1	1,200
Dzita	18,000	1	18,000
Dzita	7,500	1	7,500
Agorkedzi	1,200	1	1,200
Agbledomi	2,000	1	2,000
Agorkedzi	5,000	1	5,000
Total	**175,700**		**175,700**

Table 10.3.2: Total area coverage of lagoon restoration as an excerpt of the ESIA-ESMP

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2.4 Replanting		
	m^2 to be replanted	ha to be planted
Wokumagbe	10,200	1.02
Aklabanya	11,400	1.14
Goi	9,200	0.92
Agorkedzi	2,200	0.22
Kewunor	1,800	0.18
Dzita	6,200	0.62
Dzita	3,900	0.39
Agorkedzi	1,800	0.18
Agbledomi	700	0.07
Agorkedzi	2,900	0.29
Total	**50,300**	**5.03**

Table 10.3.2: Total area coverage for replanting of mangroves and sea grass as an excerpt of the ESIA-ESMP

10.3.2.4.1 Detailed Output/Activities –Lagoon Restoration

The coastal lagoon restoration intervention involve prioritised measures to rejuvenate and conserve the lagoon ecosystem in selected lagoons. The detailed activities will involve:

Preparation

1. Detailed engineering study and design: detailed design and programming of the intervention will be done by the implementing partner (site evaluation, seeds survey, final zoning etc.). 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. Pollution study: a pollution assessment of the lagoons water quality has been done during preparation phase in order to analyse the potential of these lagoons in terms of livelihoods support through pen culture (to be developed under project component 4). During project preparation another two studies will be done that will be used as a baseline for the cleaning activity under this intervention and its monitoring. Lagoons soil will also be assessed and monitored through two studies, one before implementation as a baseline and another one after the dredging activity.

Implementation

1. Lagoon cleaning: this activity will consist on removing all waste deposited in the lagoons and their surroundings. It will be done by a subcontractor that will also do the dredging activity.

2. Waste management: waste collected from the previous activity will be then disposed and treated on specific sites selected with the communities and the Municipal Assemblies. This activity will ensure an adequate treatment of the waste is done so it does not pollute the soil. Once treated, most of the content will degrade apart from plastics, which will be taken by recycling community groups, and sediments, which will be burried.

3. Dredging: in order to increase lagoons' water storage capacity, lagoons will be dredged 1m depth. This soil will be also treated and later use to create sand barriers around the lagoons.

4. Replanting: lagoons are often surrounded in many areas by mangroves. These have often been cut down which deteriorates the lagoons, especially in terms of shoreline stabilisation and fauna and flora habitat. For this intervention main deforested areas along the lagoon have been mapped and will be replanted, following the procedures of the intervention "Community-based ecological mangrove restoration".

Operationalization

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1. 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.

Monitoring and maintenance

1. Field monitoring: monitoring will consist on doing another pollution study to assess water quality and fisheries stock by using a specific monitoring kit for biophysical assessments. Mangroves will be monitored as part of the larger mangrove intervention.

2. Awareness raising through component 2.

3. Maintenance through CREMA

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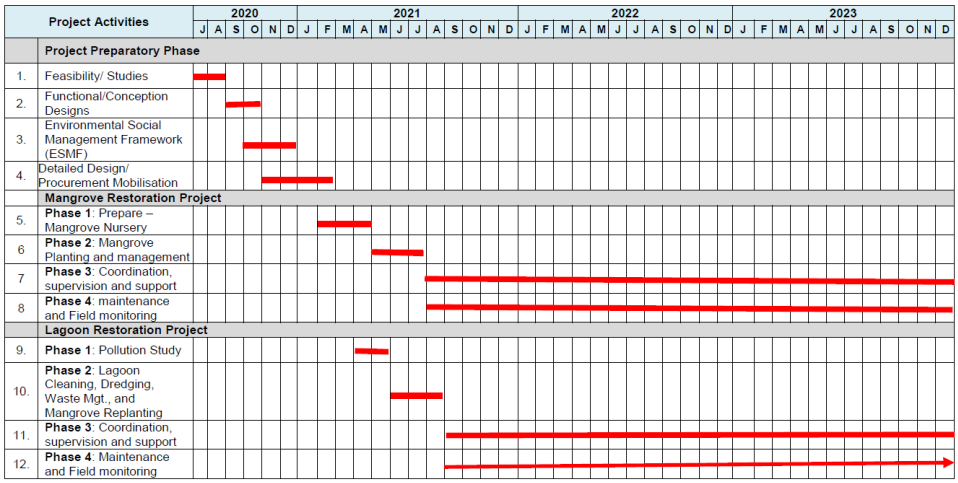
Figure 3.15: Proposed Lagoon to be dredged at Goi

Figure 3.16: Proposed Lagoon to be dredged at Workumagbe

Activities		Notes / Staff	TOTAL	Year 1	Year 2	Year 3	Year 4
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	**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 (20 %)	**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			
Phase 4: Maintain	Maintenance	CREMA mechanism set up					
	Field monitoring	Including accomm, car/fuel, and per diem	**15,600**	-	4,800	7,200	3,600
		Pollution and fish stock assessment (budgeted under phase 1)					
		Monitoring kit	**17,500**	-	17,500	-	-
Phase 5: Replicate	*CREMA mechanism*	*Covered by revenue generated by the intervention*					
	Capacity building	*Covered by Component 2*					
			1,125,126	**106,000**	**988,326**	**17,200**	**13,600**

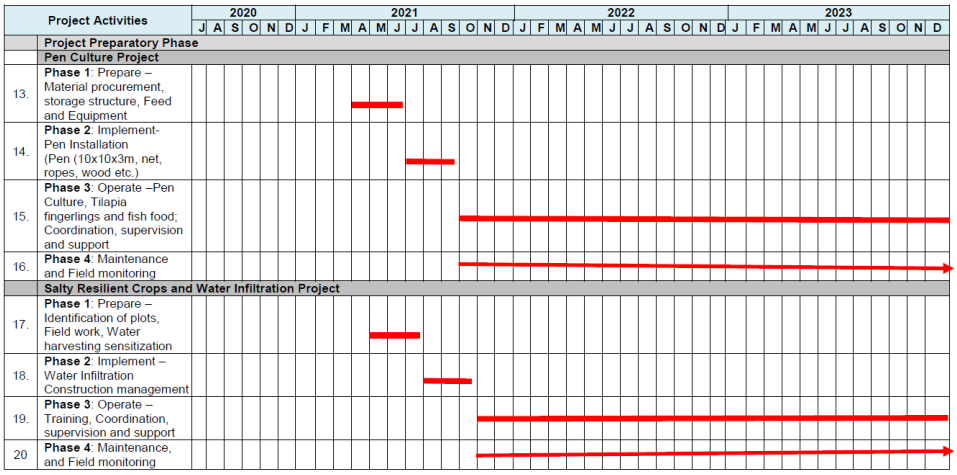
Table 10.3.3: Budget for lagoon restoration as an excerpt of the ESIA-ESMP

TABLE 3.13: PROPOSED PROJECT IMPLEMENTATION WORK



	Project Activities	2020						2021										2022										2023									
		J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
	Project Preparatory Phase																																										
1.	Feasibility/ Studies																																										
2.	Functional/Conception Designs																																										
3.	Environmental Social Management Framework (ESMF)																																										
4.	Detailed Design/ Procurement Mobilisation																																										
	Mangrove Restoration Project																																										
5.	**Phase 1**: Prepare – Mangrove Nursery																																										
6	**Phase 2**: Mangrove Planting and management																																										
7	**Phase 3**: Coordination, supervision and support																																										
8	**Phase 4**: maintenance and Field monitoring																																										
	Lagoon Restoration Project																																										
9.	**Phase 1**: Pollution Study																																										
10.	**Phase 2**: Lagoon Cleaning, Dredging, Waste Mgt., and Mangrove Replanting																																										
11.	**Phase 3**: Coordination, supervision and support																																										
12.	**Phase 4**: Maintenance and Field monitoring																																										

TABLE 3.13: PROPOSED PROJECT IMPLEMENTATION WORK CONT'



	Project Activities	2020						2021										2022										2023									
		J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
	Project Preparatory Phase																																										
	Pen Culture Project																																										
13.	**Phase 1**: Prepare – Material procurement, storage structure, Feed and Equipment																																										
14.	**Phase 2**: Implement- Pen Installation (Pen (10x10x3m, net, ropes, wood etc.)																																										
15.	**Phase 3**: Operate –Pen Culture, Tilapia fingerlings and fish food; Coordination, supervision and support																																										
16.	**Phase 4**: Maintenance and Field monitoring																																										
	Salty Resilient Crops and Water Infiltration Project																																										
17.	**Phase 1**: Prepare – Identification of plots, Field work, Water harvesting sensitization																																										
18.	**Phase 2**: Implement – Water Infiltration Construction management																																										
19.	**Phase 3**: Operate – Training, Coordination, supervision and support																																										
20	**Phase 4**: Maintenance, and Field monitoring																																										

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