



RESILIENT COASTLINES RESILIENT COMMUNITIES

Annual Report 2020







“

I have seen all the houses go into the sea. The rooms in our house have disappeared into the water."

Khady Gueye, 30
Bargny, Senegal

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This Report is based on activities of the West Africa Coastal Areas Management (WACA) Program in its first two years since inception.

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This report was prepared in 2020 to summarize the progress made on the WACA Program, including country-led activities and those implemented to support countries since its launch in 2018.

The report is based on multiple sources of information from countries and regional institutions, technical studies from the World Bank and development partners, as well as consultations and discussions with representatives of civil society, governments, academia, and the private sector.

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- Regional institutions, including Abidjan Convention (ABC), Ecological Monitoring Centre (CSE), Economic Community of Central African States (ECCAS), Economic Community of West African States (ECOWAS), International Union for Conservation of Nature (IUCN), Port Management Association of West and Central Africa (PMAWCA), Regional Network of Marine Protected Areas in West Africa (RAMPAO), Regional Partnership for Coastal and Marine Conservation (PRCM), and the West African Economic and Monetary Union (WAEMU) for their commitment to regional integration and engagement in harmonizing their work for cross-border synthesis and economies of scale.
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PREFACE




Jonas Gbian,
Commissioner
West African Economic and Monetary
Union (WAEMU)

The West African Economic and Monetary Union (WAEMU) Commission has made the sustainable development of the coastal zone one of the priorities of the Common Policy for Environment Improvement (CPEI), which promotes regional economic integration, competitiveness of economies, and a streamlined and harmonized legal environment.

Accordingly, in 2007, convinced that a coordinated response to coastal sustainability was needed to deal with common challenges of coastal risks management, the WAEMU engaged in a coastal resilience initiative in partnership with the Economic Community of West African States (ECOWAS) and the International Union for Conservation of Nature (IUCN). This led to the development of the Regional Coastal Masterplan for West Africa (SDLAO) covering eleven countries from Mauritania to Benin. In 2011, environment ministers from those states committed themselves to pursuing a better understanding of the scientific and bio-physical processes in the coastal zone, and recommended the establishment of a coastal observatory. Prior to the establishment of this observatory, the WAEMU Commission launched a mission, in collaboration with IUCN and CSE, in order to advance the functions of the observatory.

With the World Bank engagement through WACA, we have been able to accelerate regional integration on coastal resilience.



The combination of the World Bank's ability to provide finance at the national and regional levels in parallel is proving effective for integration, harmonization, and economies of scale.

The combination of the World Bank's ability to provide finance at the national and regional levels in parallel is proving effective for integration, harmonization, and economies of scale. It also helps WAEMU to blend activities in complementary areas, such as mangroves, water resources management, pollution and marine litter.

WAEMU is committed to expanding its engagement with WACA through its institutions, instruments and ministerial committees. The WACA Platform for scaling up action, with its ability to crowd in knowledge and finance, complements our own efforts to ensure that countries meet the commitments they have made to engage in regional integration. Together with the World Bank, we have a new way of working, one that I believe is set to become a needed transformational game-changer for sustainability and the well-being of our people in Africa.

FOREWORD: WORLD BANK



Deborah Wetzel,
World Bank Director of Regional Integration
for Sub-Saharan Africa,
the Middle East & Northern Africa

We recognize that countries are facing an enormous fiscal challenge due to the COVID-19 pandemic. However, this does not mean that sustainable investments that enhance resilience should be set aside in the short- and medium-term. It is possible to design recovery programs that deal with the immediate challenge of economic recovery and jobs, while cementing the basis for a sustainable and resilient future. The West Africa Coastal Areas Program (WACA) provides a clear example of this approach.

I believe we can turn the COVID-19 crisis into a catalyst to accelerate the transition towards a more sustainable, resilient and inclusive development model, where the health of the spaces people occupy, including coastal areas, is managed sustainably.

In this Annual Report, you will read about the emphasis on livelihoods and social development that the WACA Program offers, in parallel with physical and green investments to combat coastal erosion, flooding and pollution. The World Bank has chosen to focus on these entry points to sustainable development in coastal countries because coastal degradation, if unaddressed, costs about five percent of countries' GDP.

I am keen to see regional institutions maintain their leadership role in engaging countries. WACA's multiple interventions to foster regional

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integration, build the knowledge base, and find innovative financial solutions like the Marketplace, are all central elements that will pave the way to transform and scale up the protection of West Africa's coastline.

My hope is that development partners will continue to engage and help address the fundamental challenge of coastal degradation, so that national economies become resilient to natural and man-made shocks.

The COVID-19 crisis has posed unprecedented human loss, fiscal and economic challenges for countries across the globe, including those in Africa. We are hopeful, however, that recovery from the pandemic and related economic crisis can become a catalyst

to accelerate the transition toward a more sustainable, resilient and inclusive development model, where the health of the spaces people occupy, including coastal areas, is managed sustainably.

Economic data and the state of the biophysical environment are key factors when making development decisions. The upcoming 2020 State of the Coast Report, based on a massive effort to embrace digital development and data, becomes a powerful source of factual and scientifically verified information for countries. Our hope is that through tools like this, natural capital can be saved and coastal ecosystems can continue to serve coastal resilience.

The World Bank continues to support regional institutions in maintaining their leadership role in engaging countries. WACA's multiple interventions to foster regional integration, build the knowledge base, and find innovative financial solutions like the Marketplace, are all central elements that will pave the way to transform and scale up the protection of West Africa's coastline.

FOREWORD: CÔTE D'IVOIRE



Professor Joseph Séka Séka,

Former Minister of Environment and Sustainable Development,
Côte d'Ivoire

For more than a decade, the West African coastal countries have suffered from the adverse effects of coastal erosion exacerbated by climate change, jeopardizing the high socio-economic, environmental and cultural potential of their coastal zones. According to a World Bank study, coastal degradation cost four countries—Benin, Côte d'Ivoire, Senegal and Togo—\$3.8 billion, or 5.3 percent of their combined GDP in 2017. As a former Minister of Environment and Sustainable Development of Côte d'Ivoire, being well aware of the integrated management coastline issues, I fully understand the significance of these figures for the country but also for the communities which bear the full brunt of the coastal degradation's devastating effects. If nothing is done, the vulnerability of the socio-economic infrastructure, natural resources and coastal populations will only grow, leading to an ever-increasing loss of wealth in our countries.

One of the challenges of coastal development is to define the best possible compromise between the needs for risk prevention and environmental protection on the one hand and the equally pressing development needs on the other, the pace of which will be largely dictated by population dynamics. It cannot be said enough: a government alone cannot address challenges of this magnitude.

The failure to address these challenges due to a lack of financial or human

resources will result in even higher costs. However, given the high costs already involved in combating coastal hazards, the implementation of these instruments cannot be the sole responsibility of developing countries.

Fortunately, the complex issue of coastal resilience, which encompasses challenges relating to climate change and disaster risk reduction, is generally dealt with by the Regional Economic Communities (ECOWAS, WAEMU) through their Environmental Ministries. Regional organizations such as the Abidjan Convention, the International Union for the Conservation of Nature (IUCN) and the Centre de Suivi Écologique (CSE) also work towards the resilience of the West African coastal zones. Additionally, there are a number of long-standing initiatives in coastal resilience, including the Mission Observatory for the West African Coast (MOLOA), the Master Plan for Coastal West Africa (SDLAO), and the adoption by the plenipotentiaries of four additional protocols to the 2019 Abidjan Convention to address the challenges and risks facing African coastal zones.

Likewise, as Minister in 2018, I was excited to see the advent of the West Africa Coastal Areas Management Program (WACA), supported and financed by the World Bank. This represents an excellent opportunity to achieve the effective and proven enhancement of the resilience of communities and targeted areas of the

West African coast. The WACA platform, which aims to attract funding from various sources to bring relief to a part of the world highly exposed to natural disasters, is seen by our countries as a life-saving initiative which West African decision-makers and stakeholders are urged to support unconditionally.

It is essential to promote the gradual integration of the other West African countries into this important program so that the implementation of projects at national and cross-border level can lead to the synergistic building of resilience along the West African coast.

Therefore, I would like to appeal to the African community in general and the West African community in particular to engage fully in actions to fight coastal erosion, floods and landslides, by integrating them into the national, local and sectoral development programs.

Only then will we be able to find sustainable solutions to the problems of the coastal area's integrated management, in order to greatly reduce the vulnerability of our coasts to the many anthropogenic and natural threats they face. It will also open up opportunities for the development of a Blue Economy, likely to boost economic growth and environmental protection and thus help us achieve the Sustainable Development Goals of Agenda 2030 in West Africa.

EXECUTIVE SUMMARY

About WACA

The West Africa Coastal Areas Management (WACA) Program is a convening Platform that assists Western African countries in sustainably managing their coastal areas and enhancing their socio-economic resilience to the effects of climate change, facilitating access to technical expertise and financial resources for these countries.

WACA boosts the transfer of knowledge, fosters political dialogue among countries, and mobilizes public and private finance to tackle coastal erosion, flooding, pollution and climate change adaptation. The WACA Program consists of country investment projects, regional integration and support activities, and a WACA Platform as the mechanism for scaling up knowledge, dialogue and finance. WACA builds on existing institutional mandates and regional programs to implement its projects.

As COVID-19 threatens development gains and weakens the resilience of coastal communities, WACA leverages existing programs in confronting the pandemic and preparing the recovery through resilient development of the coastal areas, including socio-economic assistance.


Partnering for impact

WACA's core function is to build partnerships with national and regional organizations, as well as international development partners, to meet resilience targets for coastal communities. The success of WACA's first two years of operation is a mark of the extent and strength of these partnerships, and the transformative intent of the Program.

Regional Partnerships

Supporting the WAEMU Mechanisms for Regional Integration: WAEMU

received a mandate through the Dakar declaration in 2011 to support countries in the fight against coastal erosion. To fulfil this mandate, several joint initiatives have been launched, notably the preparation of the 2020 State of the Coast report; the development of the strategic regional action plan for investments; the framework for a gender action plan for coastal resilience; and the integration of the additional protocols of the Abidjan convention into WAEMU legal instruments.



Countries have committed to four protocols, for mangroves, marine litter, oil and gas, and integrated coastal zone management.

Supporting the Abidjan Convention Protocols for the Marine Environment:

The Convention on Cooperation for the Protection, Management and Development of the Marine Environment and Coastal Areas of the Atlantic Coast of the West, Central and Southern African Region (Abidjan Convention) accelerates the development of regional cooperation instruments, to harmonize coastal regulations and policies. Four protocols to which countries have committed are supported, for mangroves, marine litter, oil and gas, and integrated coastal zone management. With support from WACA, the Secretariat of the Convention, in partnership with GRID-Arendal, has provided training to countries in Marine Spatial Planning (MSP) for sustainable coastal management.

Provision of Implementation Support


via IUCN: In support of WACA's country-driven approach, the International Union for the Conservation of Nature (IUCN) established a regional implementation support unit (RISU). The RISU monitors and evaluates progress, shares results and experience among the countries in the region, and ensures that environmental and social safeguards are understood, assessed and applied. Initiatives include guidance for community relocation in Príncipe; mobilizing technical partners to support the design of national activities; and participation in the establishment of a regionalized Grievance Mechanism.

Supporting the West Africa Coastal Observatory through the Centre de Suivi Ecologique (CSE):

The CSE works in close collaboration with WACA's Regional Implementation Support Unit, focusing on the design and implementation of the Regional Observatory for the West African Coast (ORLOA), which covers twelve countries, from Mauritania to Benin, and including São Tomé and Príncipe; the second update of the Master Plan for the West African coastline priorities for actions and monitoring; and technical support to the countries to build and strengthen their mechanism for coastal observation.

Building Capacity with the Africa Center of Excellence for Coastal Resilience (ACECoR):

ACECoR was established by The World Bank and the University of Cape Coast (UCC), with the support of the Government of Ghana and the Association of African Universities (AAU). The Center promotes coastal resilience through the development of technical and scientific expertise of young African professionals. ACECoR works with WACA to explore opportunities like the creation of an incubation hub to support talented youth with creative business ideas related to coastal resilience.



Following World Bank Board approval in 2018, all country projects and the regional integration mechanisms are well into implementation.

International Partnerships

Nordic Countries: In 2015, the Nordic Development Fund (NDF) was the first external donor to provide seed funds to WAEMU and the World Bank to catalyze the development of WACA. In 2018, the Fund provided an additional €13.1 million, consisting of a €4.0 million loan to Benin, a €4.0 million loan to Senegal and €5.1 million to the World Bank for the five-year period from 2018 – 2023. The financing to the World Bank is the core source for the development of the WACA Platform. To expand on this, in 2020, consultations with 20 public and private Nordic institutions revealed the emergence of several opportunities for WACA in the form of research and technical programs.

France: France's involvement in the WACA Program began with the signature of an Administrative Arrangement with the World Bank in April 2016, and at the 2018 One Planet Summit, President Macron renewed France's commitment to coastal resilience with support to Senegal for a coastal erosion control project, implemented by the French Development Agency (AFD). France also mobilized resources from the French Facility for Global Environment for coastal protection in Senegal, Togo, and Benin.

Japan: Based on its experience in managing natural disasters, Japan supports initiatives and programs around the world to strengthen Disaster Risk Reduction. A "Virtual Kickoff Meeting for Collaboration with Japan" was held in April 2020, to strengthen the partnership between the WACA Program and Japan. Following this, Japanese partners are drawing on their expertise mainstreaming disaster

risk management to support the Multi Sector Investment Plans (MSIP) in Ghana and Nigeria.

The Netherlands: In October 2019, representatives of the Governments of Ghana, Liberia and Sierra Leone joined a WACA study tour of the Netherlands to learn about Dutch experience in nature-based water management and flood control measures. This led to further collaboration with Dutch institutions, including Dutch participation in the 2019 WACA Finance Marketplace, and in June 2020 a Memorandum of Understanding (MoU) was signed between the Netherlands Water Partnership (NWP) and the World Bank for the establishment of a Hub of expertise in support of WACA.

Global Facility for Disaster Reduction and Recovery (GFDRR): Since 2018, GFDRR has provided programmatic support for the design, launch and operation of the WACA Platform, and continues to support various WACA initiatives, including the Marketplace and Local Action Community Engagement (LACE). GFDRR's Japan program supports country engagements in Ghana, Guinea-Bissau, and Nigeria to identify investment priorities for resilient infrastructure and social development.

Reaching resilience targets

Overview of WACA ResIP results

Following World Bank Board approval in 2018, all country projects and the regional integration mechanisms are well into implementation. National projects have harmonized work plans, and adopted regional performance tracking procedures. Collaboration among the regional institutions (WAEMU, IUCN, ABC, and CSE) is functioning well, and residual bureaucratic burdens are managed. Final engineering designs for coastal protection, mechanisms for social sub-projects implementation, institutional capacity building is ongoing. Physical works in the countries is anticipated to commence by early 2021.

Benin: Erosion control measures and protection works have been undertaken on the south bank of the Mono River, through berm-nourishment and reforestation, securing about 3,500 households from coastal erosion and flooding. Co-financing agreements have been signed with 33 Biodiversity Community Conservation Areas cooperatives for Income Generating Activities (IGAs) in the fields of animal husbandry, fish farming, market gardening and agri-food processing. The protection of the Togo-Benin cross-border area from coastal erosion is underway.

Côte d'Ivoire: WACA supports the creation of the National Agency for the Integrated Coastal Zone Management (ANAGIL) and the preparation of the coastal master plan (PAGLI). The Multisectoral Investment Plan (MSIP) was completed for the Grand-Lahou area, and preparatory studies completed for Port-Bouet. In parallel, mangrove restoration is underway, and management of two national parks is ongoing through the Office Ivoirien des Parcs et des Réserves (OIPR).

Mauritania: Implementation of the Mauritania Coastal Master Plan (PDALM), updated in 2017, is at the core of support to Mauritania. As part of this, the legal framework to regulate further construction in coastal areas is being updated. Local land-use plans are being prepared for the two major economic growth poles, aligning sector strategies and respecting room for nature's ecosystem services. In the Diawling National Park, natural ecosystems are restored as a source for livelihoods, while preserving biodiversity. A key intervention in Mauritania is the rehabilitation of the coastal dune network that protects the capital city of Nouakchott against the risk of flooding.

São Tomé and Príncipe: A key objective in São Tomé and Príncipe is to reduce the impact of climate change in coastal communities by promoting settlement expansion in safer areas and diversifying sustainable income-generating activities. Through the project, twelve

of the country's most vulnerable coastal communities are implementing adaptation strategies specific to their needs. Patrols by trained volunteers provide early warning of disasters and maintain risk reduction infrastructure, and a census of artisanal fishermen and boats has been conducted to define the equipment and trainings necessary for future safety at sea activities. A diagnostic of the capacity of the national meteorological institute has been concluded with a view to developing a reliable coastal early warning system. Laws and regulatory frameworks are also being reviewed to include climate change and coastal disaster risks, including for marine spatial plans.

Senegal: Erosion control studies for the historic Gorée Island, and Dakar's coastal roads (corniches east and west) are commencing, ahead of planned construction. The feasibility study for creation of the National Agency for Integrated Coastal Management is about to start, and the contract for the National Integrated Coastal Zone Management (ICZM) Plan has been awarded. The ecosystem regeneration plans for the Langue de Barbarie National Park and the Saint Louis marine protected area have been finalized.

Togo: Because of the risk of eastward impact of interventions in Togo, coastal protection measures are planned with Benin. A Togo-Benin joint committee was formalized with a Memorandum of Understanding in September 2018. The technical feasibility study for coastal protection between Togo and Benin is ongoing. The financing agreements for 11 community sub-projects have been signed, and the activities associated with these sub-projects officially launched in December 2019. Business plans have been prepared for seven income-generating activities (IGA) sub-projects.

Within the World Bank Group

WACA activities are complemented by significant investment financing for coastal communities in the region through other World Bank-financed projects.

Senegal - Saint Louis Emergency Recovery and Resilience Project

(SERRP): Active since September 2018, the project is aimed at reducing the vulnerability of populations to coastal hazards and strengthening urban and coastal resilience planning of the city of Saint-Louis. As of May 2020, 690 people have been relocated from the high-risk coastal zone, and a second phase was planned through December 2020. WACA complementing this project by supporting the National Integrated Coastal Zone Management Plan for the Saint-Louis area of Senegal.


Côte d'Ivoire: Urban Resilience and Solid Waste Management Project: This \$315 million project, aimed at improving the management of rainwater and household waste in poor, mainly coastal households, was approved in June 2020. The project will also set up a flood early warning system and strengthen the capacities of the institutions in charge of sanitation and urban planning.

Private Sector Dialogue: The IFC and EFI partnered to organize two coastal resilience private sector dialogues in 2019. The informal network recommended creating a catalytic financing mechanism to facilitate the private sector's engagement on finance for coastal resilience and compliance with environmental standards.

Scale-Up and Leveraging using the WACA Platform

The WACA Platform has made significant progress in developing knowledge, leveraging investment financing, and facilitating regional technical and political dialogue on strengthening coastal resilience.

Under the *Knowledge Pillar*, the Platform has leveraged financing to establish the Africa Center of Excellence for Coastal Resilience (ACECoR) now established at the University of Cape Coast, Ghana. With IRD and the ACECoR, the Platform supported the development of a Compendium of Solutions, a decision-making tool for policymakers that provides to the challenges of coastal



The first WACA Marketplace brought together financial partners and country representatives to catalyze investments in coastal resilience.

erosion, flooding and pollution. An interim Technical Advisory Committee (iTAC), consisting primarily of regional scientists, was established to provide technical advisory services, and to inform the identification of a long-term mechanism for managing, cultivating, and advancing knowledge on coastal resilience in the region. The West Africa Hub for knowledge management and scientific advice, would be anchored in a regional academic institution as part of the transition of WACA functions. A study on climate change scenarios and hazards was published to inform resilience planning for four countries.

Under the *Finance Pillar*, the first WACA Marketplace, held in Abidjan in November 2019 brought together financial partners and country representatives to catalyze investments in coastal resilience, and consultations on a concept for a catalytic fund for private sector investment was undertaken. Finally, business cases for 12 Public Private Partnership were initiated and will be brought to the next WACA Marketplace. A report on an approach to Blue Bonds in Cabo Verde was prepared.

In the area of *Dialogue*, the WACA Communique, signed with the launch of WACA in 2018, promotes regional integration, national scale-up, through expanding scope of investments in current countries, and the mobilization of financial resources from partners. A program for Local Action and Community Engagement (LACE) was designed in consultation with civil society.

Lessons Learned

Several lessons have emerged from WACA's first years in operation and will be incorporated into future initiatives. Firstly, the design of the Program, with its combination of national, regional, and global components has proven both effective and popular with countries and development partners. Secondly, the Marketplace concept, with its direct links to Multi-Sector Investment Plans (MSIPs) has delivered on its promise of connecting government priorities with appropriate investors and implementing partners. Finally, the West Africa Coastal Observatory has demonstrated the efficacy of having one coordinating institution working with a network of countries and partners to deliver key functions.

Looking forward

Scaling Up Geographically

Ghana signed onto the WACA Communiqué in November 2018, and in late 2019 formally requested that the WACA Program be engaged for technical assistance to inform potential World Bank and partner investments for coastal resilience. A World Bank investment operation for coastal resilience in Ghana is expected to be approved in fiscal year 2022.

In Guinea, a signatory to the 2018 WACA Communiqué, the IDA-financed Natural Resources, Mining and Environment Management Project (P168613), takes an intersectoral approach and provides an opportunity to support the first steps toward an integrated coastal and marine planning and the integration into the WACA Program.

Guinea-Bissau signed on to the 2018 WACA Communiqué and requested assistance for investments in coastal protection and restoration, as well as social and livelihood activities. A World Bank investment operation for coastal resilience in Guinea-Bissau is expected to be approved in fiscal year 2022.

In Nigeria, a signatory to the 2018 WACA Communiqué, the MSIP in

preparation will address coastal degradation and hazards in Cross Rivers, Delta, and Lagos states. The first results are expected in early 2021, and WACA is working with its development partners to identify financing.

Scaling Up Knowledge

Knowledge for coastal resilience is available at many levels. WACA is working with partners to synthesize knowledge on the West African coastline, consolidating local knowledge, countries' best practices and partners' experience, and to highlight emerging knowledge products or findings from ongoing and planned projects.



An investment portfolio of about 12 projects with a total value of about \$1.6 billion was presented by the ministries of finance and environment of each country to attract potential investors.

A first volume of the WACA *Compendium of Solutions* is at stage finalization and aims to support decision makers in ensuring that proposed technical options address their priorities, and that they are resilient to predicted climatic and non-climatic stressors, both current and future. A 2020 *West Africa State of the Coast Report* will be published in 2021, focusing on pressures on coastal systems and the responses implemented by the States and their partners for the period 2016-2020. The WACA *Climate Change Assessment* consolidates relevant information on climate change in Mauritania, Senegal, Togo, Benin, and Côte d'Ivoire to describe potential changes in the coastal climate, as well as related hazards, and will be published in 2020. Finally, WACA is supporting a *Mangroves Study* detailing the ecosystem services provided by mangroves to communities and countries in the region.

Scaling Up Dialogue

To engage with *communities* and mobilize their capacity to protect the coast and enhance resilience, WACA is working with civil society partners to develop a Local Action and Citizen Engagement (LACE) initiative, focusing on three activity areas: facilitating community-led partnerships for coastal resilience; promoting public participation and citizen engagement in WACA, and promoting social inclusion.

Scaling Up Financing

In its first two years of operation, the WACA Program has made significant progress in leveraging public finance via traditional development projects, engaging the private sector, and developing new financing instruments. At the heart of these efforts is the Finance Marketplace. WACA convened the first Marketplace in November 2019 in Abidjan, Ivory Coast. The event resulted in one offer of specific finance and one transformative offer of technical collaboration, both of which are now being pursued. The WACA Call for Innovation closed at the end of last year and some transformative private sector-related ideas emerged, including the three winners: (i) the WAC-App which is an interactive coastal planning tool to explore the impacts of coastal interventions; (ii) the Trans-Sand which is an idea for a transnational bypass scheme funded by a public-private dredging fund; and (iii) the SA-POD which is a systematic integrative approach for port development. WACA has also reviewed national investment strategies for projects that could be developed into public private partnerships, and a number of ideas have been identified, some of which are in the process of detailed financial analysis, and to be presented at an upcoming Marketplace. As a result of the Bank's engagement with development partners and the first Marketplace, a total of \$650 million has been leveraged for approval or in the pipeline of donors.

WACA AT A GLANCE

Launched in 2018 across 9 Countries, WACA now supports:

- Coastal protection at 22 sites
- Social development with over 1,000 microprojects



INTERVENTION TYPES

Policy



Coastal Erosion



Flooding



Nature-based solutions



BENIN: Groynes, beach nourishment; river bank stabilization and rehabilitation; river mouth opening

CÔTE D'IVOIRE: Establishment of a coastal agency; sand barrier protection; urban flood risk management

MAURITANIA: Coastal dune rehabilitation and protection; dyke rehabilitation and extension; mangrove restoration; ecotourism

SÃO TOMÉ AND PRÍNCIPE: Protective retaining walls; road protection; breakwaters

SENEGAL: Revetments; coastal road stabilization; ecosystem restoration and management; Ecotourism

TOGO: Groynes; beach nourishment; shoreline stabilization; lake, river and canal dredging

Technical Assistance/
Project Preparation



GAMBIA: Urban resilience and flood risk management

GHANA: Multi-sector investment planning; resilient infrastructure design; mangrove restoration planning

GUINEA: Mangrove restoration planning

GUINEA-BISSAU: Multi-sector investment planning; institutional capacity

NIGERIA: Multi-sector investment planning; resilient infrastructure design

Future Engagement



CABO VERDE
CAMEROON
GABON
LIBERIA
SIERRA LEONE

REGIONAL ACTIVITIES

WACA is engaged at the regional level to promote integration and joint action, through activities including:

- National and regional coastal observatory (CSE)
- Abidjan Convention protocol ratification and implementation at country level (ABC)
- Regional WAEMU policy on coastal resilience, regional investment prioritization (WAEMU)
- Implementation support by WACA Regional Implementation Support Unit (IUCN)
- Africa Center of Excellence for Coastal Resilience, ACECoR (University of Cape Coast)
- West Africa Sustainable Ports' Partnership (with PMAWCA)
- Finance Marketplace for Coastal Resilience (World Bank)
- Call for Innovation for coastal resilience and sustainability (World Bank)
- Knowledge Helpdesk and international Hubs (World Bank)
- Local Action and Community Engagement (World Bank)
- Ministerial Dialogue (WAEMU and World Bank)



1.

THE WACA PROGRAM

The case for coastal resilience

What is WACA?

The West Africa Coastal Areas Management Program (WACA) is a convening Platform that brings stakeholders together to assist West African countries in sustainably managing their coastal areas and enhancing their socio-economic resilience to the effects of climate change. The program facilitates access to technical expertise and financial resources for participating countries.

West Africa's coastal areas are home to about one third of the region's population and generate more than half of its Gross Domestic Product (GDP). The coastlines of West African countries are key for international trade and are a source of essential natural resources and are vectors for ongoing social and economic development. However, these areas face a number of serious and increasing threats, including coastal erosion, pollution, the depletion of fisheries, and the many impacts of climate change.

A study undertaken by the World Bank estimates that the environmental degradation in the coastal areas of Benin, Côte d'Ivoire, Senegal, and Togo cost \$3.8 billion, or 5.3 percent of the four countries' combined GDP in 2017. Beyond the economic cost, disasters exacerbated by coastal degradation take lives and destroy livelihoods, but also prevent future development and trap the most vulnerable into poverty.

Coastal resilience is the ability of countries and their coastal communities to absorb the shocks and stresses they currently face, adapt to future stressors, and progressively transform their communities into sustainable centers of equitable growth and prosperity that successfully manage risks from coastal hazards and pollution. The

risks in question may either be natural or man-made, and in West Africa are either generally similar for all or most of the countries in the region, or are transboundary in nature.

To fully uncover the potential of growth of these areas, developments and settlement should take place in a resilient environment, from which communities would benefit and to which interventions would contribute. Interventions aim to reduce the shared risks to which these countries and communities are exposed, and to strengthen their capacity to bounce back and recover from shocks caused or linked to coastal erosion, flooding or pollution. However, unless countries have systems in place to track the state of the coast and assess whether and how the economic, environmental and social capital is at risk, it is hard to make decisions for sustainable development.

COVID-19 has exposed the risk vulnerable communities face to their livelihoods when business as usual is no longer possible. The pandemic has also highlighted the need to build long-term resilience into development planning. Rather than placing the coastal resilience agenda on hold, the current crisis has made it more urgent than ever before.



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Tackling flooding and coastal erosion requires a mosaic of interventions. Agriculture, disaster risk management, environment and water teams must join forces to reduce risk, protect ecosystems, and improve infrastructure in order to build resilient livelihoods.”

Simeon Ehui

Regional Director, Africa Sustainable Development, World Bank

Environmental degradation in the coastal areas of Benin, Côte d'Ivoire, Senegal, and Togo cost \$3.8 billion, or 5.3 percent of the four countries' combined GDP in 2017.



Senegal. Photo: Vincent Tremeau / World Bank

Vision and strategy

WACA is a convening Platform that brings stakeholders together to assist West African countries in sustainably managing their coastal areas and enhancing their socio-economic resilience to the effects of climate change. The program also facilitates access to technical expertise and financial resources for participating countries.

The WACA Program was developed in partnership with people living on the coast in six Western African countries - Benin, Côte d'Ivoire, Mauritania, São Tomé and Príncipe, Senegal, and Togo - who depend on the coast for their livelihoods, nutrition, food security, and prosperity. The program supports the efforts of these countries to improve the management of their shared coastal resources and reduce the natural and man-made risks affecting coastal communities. WACA is working with additional countries to scale up the response to support all 17 coastal countries from Mauritania to Gabon, including Cabo Verde and São Tomé and Príncipe.

History

The World Bank and the West Africa Economic and Monetary Union (WAEMU) initiated the WACA Program with a technical assistance phase at COP21 in December 2015. The countries, the World Bank through the International Development Association (IDA), the Global Environment Facility (GEF) and Nordic Development Fund (NDF), established a financial package of around \$230 million, approved in April 2018, to fund the first WACA Resilience Investment Project six countries with a regional integration component to promote cross-border coordination and economies of scale. The French Development Agency (AFD) and the French Fund for the Global Environment (FFEM) provided additional and coordinated support to the package, under the WACA Program.

In January 2018, Senegalese president Macky Sall, French President Emmanuel Macron, and then-World Bank President Jim Yong Kim visited Senegal's historic

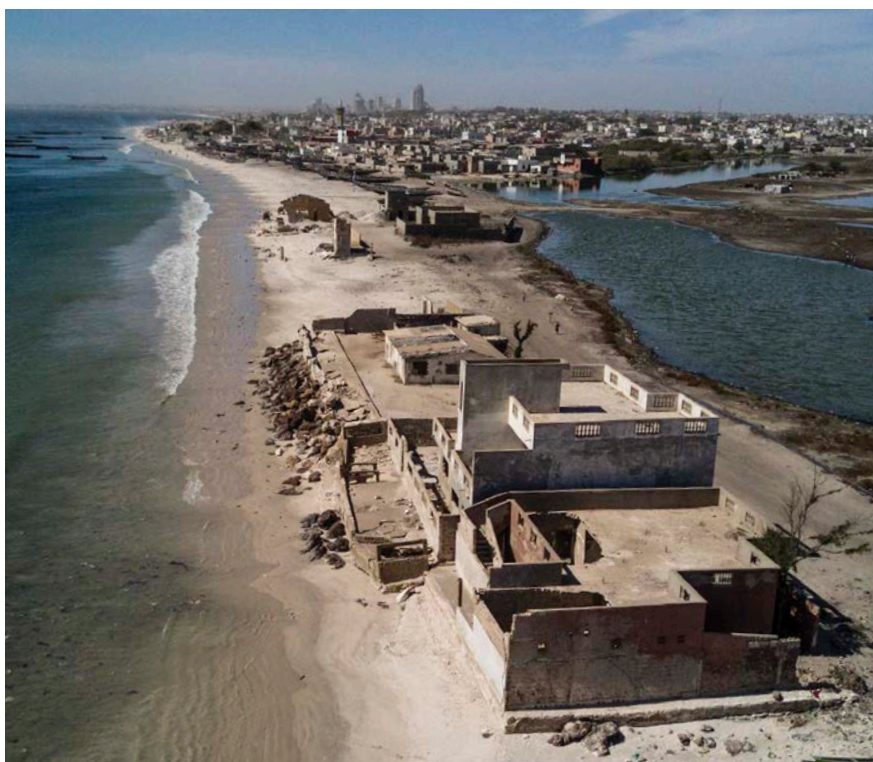
city of Saint-Louis, once considered the "Venice of Africa", to view the effects of coastal erosion which are devastating communities around the city. The visit was part of a trip to Senegal by both leaders to demonstrate commitment to joint action on adaptation to climate change. The visit resulted in commitments of €15 million from France and €30 million from the World Bank for coastal protection and the relocation of communities for this specific Saint-Louis site.

How WACA works

WACA builds on existing institutional mandates and regional collaboration to implement its projects. For example, WAEMU and the International Union for Conservation of Nature (IUCN) have been instrumental in raising the profile of the issues of coastal zone management, erosion, flooding, and climate change. The Abidjan Convention (ABC) has the mandate to create a common approach and policy for coastal zone management, and at the 12th Conference of the Parties of the Abidjan Convention

What does WACA aim to achieve?

The program supports countries' effort to improve the management of their shared coastal resources, and reduce the natural and man-made risks affecting coastal communities. Specifically, the Program aims to make households less exposed to coastal erosion, flooding and pollution.



Senegal. Photo: Vincent Tremeau / World Bank



Senegal. Photo: Vincent Tremereau / World Bank

of United Nations Environment (COP12) in 2017, countries agreed to address the coastal erosion problem. The Center for Ecological Monitoring (*Centre de Suivi Ecologique*, CSE) is hosting the West African Coast Observation Mission (*Mission d'Observation du Littoral Ouest Africain*, MOLOA), which is a regional cooperation mechanism, instigated by WAEMU, for the monitoring of the coastline and for the reduction of coastal risks in West Africa. However, there is a need to catalyze better collaboration and coordination and strengthen capacity for results-oriented approaches.

WACA is implemented through a portfolio of **WACA National Resilience Investment Projects (WACA ResIP)**, which focuses on regional integration and national interventions, executed by countries and partners, and the **WACA Platform**, aimed at scaling collaboration, financing, knowledge, and dialogue for coastal resilience in the region, coordinated by the World Bank. The functions of the Platform will eventually be transitioned to one or more suitable regional organizations to ensure long-term institutional sustainability.

WACA National Resilience Investment Project (ResIP)

Approved by the World Bank Board in April 2018, the WACA Resilience Investment Project (WACA ResIP) is a regional integration project which provides support to countries in building an enabling environment for coastal resilience through a range of measures. These include strengthening

national and regional institutional and legal frameworks and assistance in the implementation of laws; the creation of key institutions and capacity building – both technical and skills – for their staff; and the development of decision-support tools such as observatories.

In 2018, it provided a total package of \$222 million to six countries (Benin, Côte d'Ivoire, Mauritania, Senegal, São Tomé and Príncipe, and Togo), and a grant for regional integration involving WAEMU, the IUCN, the Abidjan Convention Secretariat, and the Centre de Suivi Ecologique (CSE). Additional finance and subsequent finance for parallel projects supporting the WACA objectives has been provided by other financiers.

The main physical interventions of the project are focused on protection against coastal erosion and flooding through traditional “grey” infrastructure, such as building seawalls, dikes, and groins, and restoring and preserving “green” infrastructure.

Whenever possible, the project combines both features, by implementing nature-based solutions such as fixing dunes, restoring wetlands and mangroves, and replenishing beaches—all of which play a critical role in managing the coastline.

WACA implements complementary activities through social sub-projects, identified, designed and executed through participatory approaches, to benefit the most vulnerable,

THREATS TO COASTAL RESILIENCE

Threats to coastal resilience in West Africa are complex, costly, and widespread. To address them will require much greater financial resources than are currently provided, a high level of political mobilization, and the transfer of expertise and knowledge from within the region and from elsewhere in the world.

Coastal threats addressed by WACA



COASTAL EROSION

Coastal erosion occurs primarily due to poorly designed or managed coastal infrastructure, such as ports. Climate change and extreme weather event exacerbates natural and man-made factors. In addition, coastal areas are deprived from their natural replenishment of sediment due to obstructions on rivers like dams. Finally, a significant amount of sand is mined from beaches further aggravating erosion rates.



COASTAL FLOODING

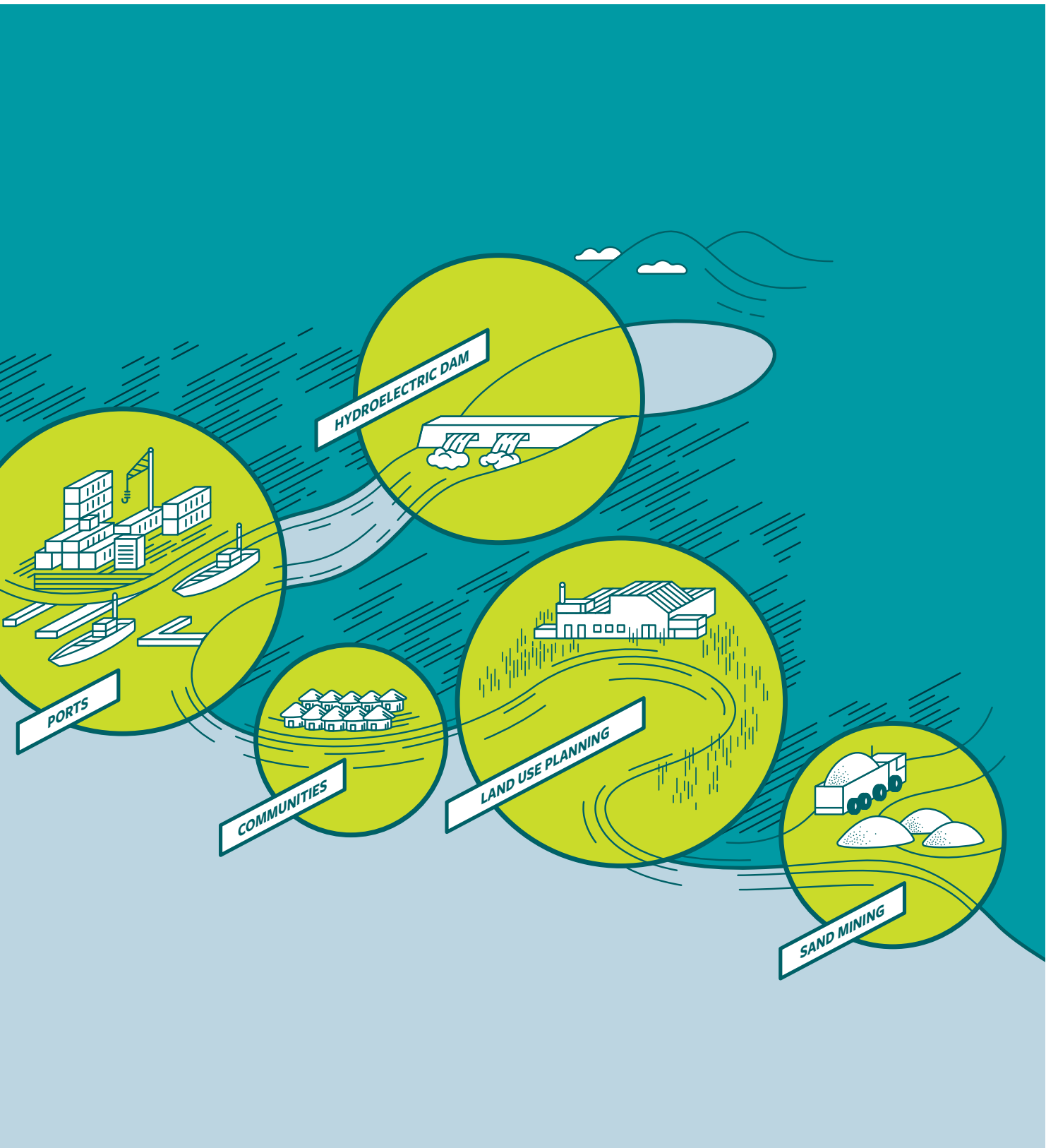
Coastal flooding with sea-water occurs due to storm surge events, while flooding with river-water happens when natural flood zones are no longer available (due to development) or their capacity is no longer sufficient to absorb the flood.



POLLUTION

Roughly 90 percent of solid waste in coastal waters originate from land-based sources. In Africa, just about 10 percent of liquid sewage is treated before emission in the coastal waters. Africa is the second-highest contributor to annual global plastics inputs from rivers into global oceans.





Mauritania. Photo: Arne Hoel / World Bank



Benin. Photo: JB Dodane / flickr.com



“

For us Imragen, fishing is our life, it is the only thing we know. The last years have been a struggle for my people. We catch fewer and smaller fish; and most of our coast and our homes were swallowed by the sea.”

Ahmed ould Bilal
Fisherman, Iwik, Mauritania

What gender issues exist, and how do you address them?

Women across the region lack equal access to economic opportunities and/or decision making and experience greater impacts of climate change and COVID-19 than men. Gender action plans at national level are being prepared to address some of these gaps.

Ghana. Photo: Andrea Borgarello / World Bank





Does WACA play a role in fisheries?

WACA supports social development and livelihood activities for coastal communities, including those involved with fisheries. However, the Program is not involved in fisheries management or governance.

and to both the physical and the social resilience of the most exposed coastal communities. Interventions also support pollution control through better treatment of marine litter, oil spills and industrial and municipal waste.

When designing WACA ResIP, the project team and partners accommodated the complexity of the implementation of the project, which involves the initial six countries, four regional partners (UEMOA, ABC, CSE and IUCN) and multiple stakeholders, including the private sector, national and local authorities, targeted communities, and the larger public. Technically well-designed projects often face behavioral change issues during implementation; accordingly, WACA ResIP introduced an innovative adaptive management approach, that changes the path to achieve the goals in response to these behavioral changes.

The project provides for the hiring of an institutional development specialist (IDS) by each country project implementation unit and the WACA Regional Integration Support Unit. These specialists work on improving coordination and support stakeholders in change management. So far, the IDSs for WACA RISU and three IDS in country PIUs have been hired and have received training in the necessary skills.

The WACA Platform

Ensuring the resilience of the West African coast will require much greater financial resources than are currently provided, a high level of political mobilization, and the transfer of expertise and knowledge from within the region and from elsewhere in the world. The WACA Platform, announced at the One Planet Summit in Paris in December 2017, is the response to this challenge. The Platform serves as a vehicle for scaling current levels of collaboration, and is supported by three pillars: Knowledge & Solutions; Finance & Instruments; and Dialogue & Engagement.

Knowledge & Solutions

The Knowledge Pillar of the WACA Platform identifies needs and priorities for coastal resilience investments, facilitating the access of countries to global expertise and knowledge. Knowledge products guide intervention strategies in natural capital, nature-based and sustainable infrastructure solutions, new or updated WACA Multi-Sector Investment Plans, and migration and gender aspects. The Platform facilitates knowledge exchanges between countries within West Africa, and with countries beyond. Coordinated by the World Bank, the Knowledge Pillar is being implemented with multiple partners through several initiatives, including the African Center of Excellence for Coastal Resilience, hosted at University of Cape Coast, for academic capacity building, and the West Africa Coastal Observatory for data and state-of-the-coast reporting. Activities of these initiatives are covered in greater detail later in this report.



Senegal. Photo: Vincent Treméau / World Bank

Finance & Instruments

One of the key objectives of the WACA Platform is to mobilize investments for coastal resilience; to achieve this, two strategies are deployed:

- bilateral discussions with traditional development partners to mobilize and coordinate concessional and grant financing; and
- development of a WACA Marketplace, a simplified investment mechanism that aims to match the demand for coastal resilience investments with the supply of partner financing.

Several Financing Instruments could be used to finance public and private projects for coastal resilience. These include public private partnerships, project guarantees, and bonds. The Private Sector is keen to be part of the solution for coastal resilience and represents an opportunity to maximize financing for development. The WACA Platform is engaging the private sector to help develop the relationships, tools and mechanisms needed to support their engagement in strengthened coastal resilience for the region.

Dialogue & Engagement

Via the 2018 WACA Communique, the thirteen countries provided an authorizing environment to pursue three critical streams of work for WACA:

- **Regional integration**, working via regional economic commissions (WAEMU and ECOWAS), the Abidjan Convention and its protocols, and the pursuit of a regional observatory for coastal resilience continuing the work by the Centre de Suivi Ecologique.
- **National scale-up** through expanding scopes to current investments in current countries and expanding it to other countries on the WACA Multi-Sector Investment Plans.
- **Mobilizing financial resources from partners** in support of new WACA projects or to complement the existing portfolio of projects for strengthened coastal resilience.

In a similar way, the 2019 Private Sector Communique provided the confirmation of the commitment of industry stakeholders from transport, mining, energy, fisheries to pursue deeper engagement and establish ways to facilitate access to information and identification of projects of interest to the private sector.

Critical paths: goals and key milestones

The WACA Program's core development goal is to strengthen the resilience of people and communities in coastal West

Africa, especially for those exposed to erosion, flooding, and pollution.

The key milestone for investment financing is the mobilization of \$2 billion for coastal resilience. This is the minimum estimated amount required to ensure a transformative development impact for West Africa's coastal communities, resulting in more resilient communities in most high-risk areas in the region, and a long-term and sustainable reduction of poverty

For the WACA Platform, the key milestone is the progressive transfer of services provided by the Platform to West



Ghana. Photo: Andrea Borgarello / World Bank

African regional institutions to ensure the sustainability of the WACA Program. While the WACA Program is currently housed in and coordinated by the World Bank, its long-term success relies upon the adoption of the program by the countries, institutions, and communities in the region itself. This scale-up Platform therefore operates under a “build, operation, and transfer” model, where services and functions are first designed and implemented jointly by the World Bank, countries, and partners, and gradually transferred to the appropriate regional institution that is already engaged with the coastal resilience

The key milestone for investment financing is the mobilization of \$2 billion for coastal resilience.

challenge and whose development is supported by the WACA Program to ensure a smooth and successful transfer.

To maximize impact and address the needs of coastal communities as fast as possible, the WACA Program utilizes a “critical path” approach to achieve its dual objectives to mobilize a transformative level of investments and ensure the sustainability of the program through the transfer of its functions. This critical path approach results in three guiding principles for the WACA Program to:

- guarantee the immediate relevance of all investments, initiatives, or other work supported by the program;
- build on existing initiatives and institutions, and minimize the creation of new processes or structures; and
- always ensure a people-centered approach that includes the meaningful engagement of coastal communities and people where a role for their involvement in the program is clearly elaborated.

Measuring success

At its most basic level, success is measured by the number of households targeted coastal areas with less exposure to the impacts of coastal erosion, flooding, and pollution. Other measures of success relate to the sustainability of the WACA Program and its longer-term impact. These are:

Creating a Coalition of partners: WACA is building a coalition of partners, including West African Institutions and Donors, that are committed to making a success of the Program. It is intended that regional organizations

will decide where the functions of the WACA Platform will eventually be housed. Development partners, including regional organizations, will support WACA by mobilizing or aligning their own resources and programs with WACA objectives, building on existing or planned WACA investments and analytical work. Individuals on the Committee will act as ambassadors for WACA so that other agencies and resources can be mobilized.

Getting the right solutions: The mix of African and international expertise is critical for success. From the outset, the World Bank has recognized the need for technical quality and included a Technical Advisory Committee (TAC) as part of the knowledge pillar. France has been engaged since 2018, and an African group of experts are engaged as of 2019. WACA is in the process of formalizing engagements with experts from Japan, France, Nordic countries, and Korea. The TAC could advise on which scientific bodies – for example, regional research centers – could be utilized to advance technical depth and mobilize additional expertise.

Raising Awareness: A network of communications experts at country, regional, and WB level has been established, with common strategies, messaging, and outreach – all contribution to a one-stop-shop website (www.wacaprogram.org). The program is looking to engage scientific, technical, cultural and political luminaries in Africa to promote WACA and urgency of the broader issue of coastal resilience.

Building African Ownership: It is proposed that adequate African representation in the governance structure should be ensured. The Committee needs to be an Africa-owned structure, hence the strong representation of African organizations and people, and the engagement of ministers of finance and their deputies at the WBG Annual Meetings. Communities and other stakeholders are also needed to fully buy into the WACA Program objectives, which will require sustained engagement with civil society and academia.



Coastal Voices: disappearing livelihoods

For a long time, Yacine Dieng used to make a decent living as a fishmonger in Bargny, Senegal. Like other members of the Lebou tribe of fishermen, she took pride in living on the coast, and off the plentiful marine resources. But as the sea gradually swallowed her home, her possessions, and her pride, she could no longer provide for her family. Yacine has now found a new passion: helping women from the coast get organized and lobby for solutions that can improve their lives. "The sea took the little we had. We are left with no choices, we have nowhere to go," she explained.

Yacine's story is one that could be repeated by thousands who live along the coast of West Africa. As noted by the World Bank, flooding, erosion, and pollution cost the countries of Benin, Côte d'Ivoire, Senegal, and Togo about \$3.8 billion in 2017 alone. Globally, coastal degradation causes more than 13,000 deaths a year, primarily due to flooding and pollution. It disrupts both lives and livelihoods, and causes the displacement of entire populations.

"The findings show the financial and social urgency to strengthen the resilience of millions of people living on the coastline," says Benoît Bosquet, Director for Environmental and Natural Resources Global Practice at the World Bank. "Countries need to work together to find common solutions and crowd-in the finance needed to protect their coastline and avoid future damage."

WACA was established to help countries meet these challenges and preserve their coastlines. The program finances interventions such as the construction of protective measures, the restoration of mangroves and the treatment of waste to combat the pollution of the ocean.

The degradation of West Africa's coasts already has dramatic significance for Yacine Dieng and many others. Investing in coastal preservation today will help them rebuild their livelihoods.

Côte d'Ivoire. Photo: Jack / flickr.com



Senegal. Photo: Vincent Tremeau / World Bank



Benin. Photo: Roberto Maldeno / flickr.com



COVID-19: a green, resilient and inclusive recovery

The COVID-19 pandemic has shaken the world, putting lives on hold, causing systems like healthcare and supply chains to strain under a new burden, and threatening entire economies. The crisis has also given us a new appreciation of why the resilience of people and economies is imperative. This is something which may once have seemed obvious, but which we approach with a new and more visceral understanding as we write this Annual Report for the WACA Program.

The current deficit in resilience is particularly stark in coastal West Africa, where poverty rates are at 41 percent, where communities are visibly losing their assets to coastal erosion and floods, and where plastic and other pollution dominates the landscape of poor urban communities. Climate change is set to exacerbate the trends, with sea level rise of 0.3-0.6 meters by 2050, and 1 meter by 2100. Extreme rainfall, extended droughts and other climate events are likely to become more frequent in the region. COVID-19 multiplies the

effects of these challenges; in turn, they amplify the impact of the pandemic on the poorest communities.

The World Bank Group has provided fast-track emergency support to over 100 countries, and will deploy \$160 billion over 15 months to help countries protect the poor and vulnerable, bolster economic recovery, and help maintain the private sector.

Current activities of the WACA Program complement ongoing investments for COVID-19 in three ways in support of sustainable, resilient and inclusive recovery:

Income-generating activities planned to improve livelihoods. Meaningful community participation allows communities to (i) play an active role in risk management; (ii) recognize and accept risk mitigation measures; and (iii) contribute to a shared understanding of the responsibilities of each stakeholder in reducing the risk. It also ensures better representation for the most at-risk groups in the community, including, persons with disabilities, the elderly, and members of female-headed households, all of whom are particularly vulnerable to the impacts of COVID-19.

Investments in protection against erosion, floods and pollution. Such investments reduce community exposure to hazards, but also improve sanitary and living conditions, through improved resilience of both lives and livelihoods to crises like the COVID-19 pandemic.

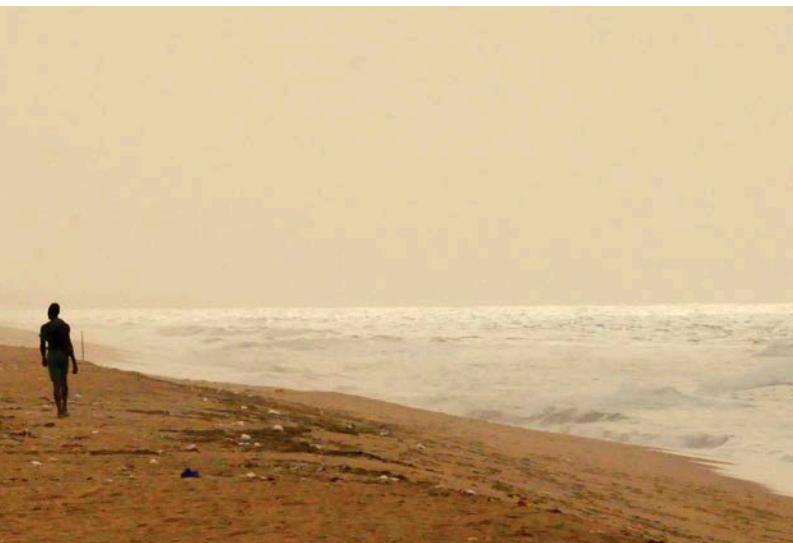
Support for the West Africa Coastal Observatory. Effective data is essential in reducing the impact of the COVID-19 pandemic on countries and communities. WACA mobilizes data, develops analytical applications, establishes partnerships for support, and uses technology to establish easy-to-use information systems. As a result, regional institutions have access to the data, analytics, and expertise necessary to make the best decisions possible for addressing exigencies like the current crisis.

As COVID-19 continues to spread, threatening development gains and attacking the resilience of coastal communities, WACA will continue to explore ways of leveraging existing programs and investments to support countries and the region in confronting the pandemic and preparing the recovery through resilient development of the coastal areas. As such, WACA is an integral part of countries' sustainable recovery in the post-pandemic world.

In São Tomé and Príncipe, the Ministry of Health is using the 31 coastal risk local committees supported by WACA, to disseminate guidance and raise awareness. Women's cooperatives were also trained in sewing protective masks and generating income. In Benin, income generating activities were extended to communities economically impacted by the pandemic. In Senegal, the World Bank/NDF-funded Radio du littoral was used to organize radio program on how the pandemic affects fishers and coastal communities.

Who finances the WACA Program?

National governments, bilateral and multi-lateral donors, private sector, international and national NGO's.



2.

PARTNERING FOR
IMPACT

Who is responsible for implementation of the program?

National governments are responsible for managing investments in countries, and regional organizations are responsible for managing regional integration activities.

WACA's approach to partnering and collaboration on coastal resilience is outlined in the WACA Communique, which was issued by 13 countries in 2018. This is a call for action that asks institutions and partners to follow through on their existing commitments and coordinate regionally on future commitments.

The WACA Program supports existing regional and national counterparts to implement their existing commitments and identify and plan for future interventions. In this sense, it does not create anything new, it helps make current measures towards coastal resilience more effective.

The spirit of the Communique is that partners shape their programs, institutions, and instruments so that the support to coastal resilience becomes more than the sum of its parts.

At the international level: mobilizing expertise and solutions

Nordic Countries

With their own expansive coastal areas, the Nordic countries - Denmark, Finland, Iceland, Norway and Sweden - have a

This is a call for action that asks institutions and partners to follow through on their existing commitments and coordinate regionally on future commitments.

common interest in coastal and marine issues. They share a profound respect for nature and its environmental services, and the urge to ensure sustainability. The countries also share cultural and natural assets, and from historic times have practiced integrated and cross-border management of coastal areas. Over the years, Nordic countries have supported innovative approaches to development, emphasizing governance, climate, and participation with a distinct strategic focus on leveraging resources.

Against this backdrop, a series of consultations with the Nordic Development Fund (NDF) and about 20 public and private institutions in Nordic countries, starting in 2020, saw the emergence of several opportunities for



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As population growth and climate change increasingly impact the coastline, WACA's vision becomes ever more important, and its execution more urgent.”

Professor Ochou Delfin
WACA Coordinator, Côte d'Ivoire



Senegal. Photo: Vincent Tremereau / World Bank



The West Africa Coastal Areas Program (WACA) is a transformative response to the urgency of addressing coastal erosion, flooding, and pollution. Through it, countries and regional institutions come together to bring cross-boundary solutions for the resilience of West Africa's coastal communities, economy, and natural capital. Through WACA, finance, innovation and partnerships are mobilized at the scale needed for a green, resilient and inclusive recovery and development."

Ousmane Diagana

Vice President, Western & Central Africa, World Bank

What is the role of the World Bank?

The World Bank manages a range of technical assistance activities in support of WACA countries, and currently acts as convener of the Platform.

What is the role of countries?

Countries maintain a Multi-Sector Investment Plan (MSIP) which is updated periodically to reflect new opportunities and priorities for action on coastal resilience.

these countries to support research and technical programs in coastal resilience around the world. If connected to WACA, these initiatives could be of greater benefit to West African countries and communities, providing expertise on topics like the social development aspects of coastal management, effective community participation, plastic pollution, capacity development, and private sector engagement. The WACA Program has identified immediate entry points for collaboration and will continue the dialogue with Nordic partners to explore further opportunities and identify how partnerships between the Nordics and West African countries and institutions can be sustained over time.

France

Following a COP21 side event on coastal risks in West Africa, France's involvement in the WACA Program began with the signature of an administrative arrangement with the World Bank in April 2016. France is a maritime nation: with over 11 million km² of marine waters, including its overseas territories, the country has the second largest exclusive economic zone in the world. Of its 20,000 km of coastline, including overseas territories, 25 percent are subject to erosion. France has a history of coastal observation, risk management, marine protected areas, Integrated Coastal Zone Management (ICZM) and more recently, with the implementation of the EU marine framework directive, marine spatial planning.

France undertook to finance a staff member under the Global Secondment Program, and to collaborate on WACA and subsequently on the Blue Economy. Commitments included bringing in French expertise and providing investment financing of €1,277,000 from the French Global Environment Facility (FFEM) and €800,000 from the French Ministry for an Ecological and Inclusive Transition (MTES) for a WACA/FFEM project. In 2018, President Macron renewed France's commitment to the issue through support to Senegal for a coastal erosion control project on the Langue de Barbarie in

Three knowledge exchanges took place in 2018: In France on coastal risk management, in Senegal on photo interpreted coastal infrastructure mapping, and in the Netherlands on nature-based solutions.

Saint-Louis, implemented by the French Development Agency (AFD).

Based on French expertise, the World Bank and France are collaborating on several other projects within the WACA Program:

- **Nature-based solutions and coastal observation:** The WACA/FFEM project "Nature Based Solutions and Coastal Risk Monitoring in Benin, Senegal and Togo", led by the Ecological Monitoring Center (CSE), was initiated at the WACA Program launch in Dakar in November 2018. The project leverages French expertise to reinforce the capacity of key stakeholders in coastal observation and coastal risk management, with pilot activities in the field demonstrating soft solutions like mangrove restoration and dune ecosystem management. In the area of coastal observation, four French public institutes (Cerema, SHOM, IGN and BRGM) provide countries with historical data from sea charts, bathymetric surveys and aerial photos, which are essential in understanding the evolution of coastal erosion processes over several decades. Three knowledge exchanges took place in 2018: In France on coastal risk management, in Senegal on photo interpreted coastal infrastructure mapping, and in the Netherlands on nature-based solutions. The Center for Studies and Expertise on Risks, Environment, Mobility and Development (Cerema)

– a public institution focused on supporting public policies
- is also supporting CSE in the feasibility study for the regional observatory.

- **Coastal engineering and coastal zone planning:** Cerema has been mobilized to provide staff-time and expertise to WACA ResIP countries on engineering solutions and planning through the WACA Regional Implementation Support Unit (RISU).
- **Evidence-based policy:** The French National Research Institute for Sustainable Development (IRD), a public scientific and technological institution, is leading the development of the WACA Compendium of Solutions, detailed further in Chapter 4, in partnership with the University of Cape Coast in Ghana.
- **France parallel- and co-financing:** An ongoing dialogue has been established with AFD to deepen collaboration on coastal resilience in West Africa through the WACA Program. In June 2019, AFD confirmed that they are seeking to provide investment financing or co-financing to two projects as part of the WACA collaboration, in Mauritania and Senegal, subject to Board approval. This provides an opportunity

to jointly begin the identification of projects in support of priority areas identified in the coastal development plans in both countries. AFD will support the technical assistance required through their €30 million Adapt'Action trust fund facility which assists NDCs. AFD is also interested in potential collaboration opportunities in Côte d'Ivoire and Ghana. The WACA Program and Adapt'Action will coordinate TF resources to support the technical assistance required to leverage investment financing in both countries.

The Netherlands

The Netherlands is recognized as a global leader in innovative solutions for coastal zone management, including flood risk, erosion control, and water resource management. These solutions include novel approaches to traditional grey infrastructure, and nature-based solutions that promote ecosystem-based approaches to risk management. Proven solutions like these, adapted to a variety of West African contexts, will help manage coastal risks in WACA countries through hybrid approaches using both grey and green solutions, achieving greater resilience along with co-benefits such as biodiversity conservation, livelihood diversification, and strengthened natural resource management.



Mauritania. Photo: Scott Wallace / World Bank

WACA facilitates the access of West African countries and WACA partners to Dutch technical expertise and knowledge on water management, coastal risk management, and nature-based solutions. In October 2019, in partnership with the Netherlands Water Partnership (NWP), WACA organized a study tour of the Netherlands for representatives of the Governments of Albania, Georgia, Ghana, Liberia, Romania, and Sierra Leone to learn about the Dutch experience in nature-based water management and flood control measures. The study tour led to further collaboration with NWP, which participated in the 2019 WACA Finance Marketplace and whose involvement was formalized in June 2020 in a Memorandum of Understanding (MoU) with the World Bank. This MoU formalizes NWP's role in making Dutch expertise in coastal and flood management available to West African countries and assists NWP in its mission to help 180 organizations from the Dutch Water sector to have an international impact. With the recent establishment of the WACA Netherlands Hub with NWP, the WACA Program aims to expand and deepen this collaboration.

WACA's engagement with the Netherlands continues to evolve and expand. Through the Netherlands Enterprise Agency (RVO), WACA has engaged Dutch students studying climate resilience in West Africa coastal development initiatives and continues to engage RVO to explore potential opportunities for collaboration, including technical assistance, development coordination, and investment financing opportunities.

Japan

As an island nation, Japan has a coastline of 35,307 km², and most of its population and assets are concentrated in the low-lying coastal areas. Due to the impact of intensive development of river basins and coastal areas, much of Japan's coastline is facing the threat of erosion. In addition, frequent typhoons and heavy rains pose a significant risk of storm surges and other coastal flooding. For this reason, measures



Benin. Photo: Aurel59 / shutterstock.com



against coastal erosion and flooding have long been promoted. In addition to floods, the country is exposed to hazards such as volcanic eruptions, landslides, earthquakes and tsunamis. Accordingly, Japan has established and applied comprehensive disaster risk management (DRM) measures, covering the entire disaster management cycle, from legal and organizational arrangements to recovery and reconstruction. Based on its experience, Japan supports initiatives and programs around the world to strengthen DRR, based on the Sendai Framework for Disaster Risk Reduction.

A "Virtual Kickoff Meeting for Collaboration with Japan" was held in April 2020, to strengthen the partnership between the WACA Program and Japan, and to share basic information on program activities with Japanese stakeholders. About 50 participants from organizations including Ministry of Land, Infrastructure, Transport and Tourism (MLIT), Japan International Cooperation Agency (JICA) and research institutes, as well as researchers from the Coastal Engineering Committee of Japan Society of Civil Engineers (JSCE) attended. Based on this engagement, the WACA team and Japanese stakeholders are in discussions to identify themes that match the needs of the WACA Program, drawing on Japanese expertise to develop cooperative activities. At the same time, a more sustainable arrangement for Japanese expertise to feed into the WACA Program is being explored – perhaps using a Japan knowledge hub, a model which has proven successful with other programs. As part of support to the WACA Program, the Japan-funded "Japan World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries" will be mobilized to support the development of Multi Sector Investment Plans (MSIP) for Ghana and Nigeria.

Upcoming partners

WACA is keen to coordinate with many more partners, including Spain, the Africa Development Bank, the OPEC Fund for International Development, and UN Habitat.

At the regional level: supporting existing institutions and mechanisms

Supporting the WAEMU Mechanisms for Regional Integration

The WACA Program supports the strengthening of integration between regional institutions and countries. WACA activities contribute to:

- Entrenching the role of WAEMU as a regional lead in setting the strategic vision on coastal resilience, monitoring coastal risks and regional coordinating investments with ECOWAS;
- Strengthening the partnership with IUCN as a technical arm for the implementation of regional policies and to provide technical assistance for regional initiatives and national activities;
- Formalizing the mission entrusted to the Ecological Monitoring Center of Dakar (CSE) for the establishment of the regional coastal observatory; and
- Reaffirming the role of the Abidjan Convention and its additional protocols for the development of regional harmonized policies on coastal zone management.

The support provided for regional integration by the WACA Program, especially its Investment Project (WACA ResIP), has enabled the establishment of a framework for regular political and technical dialogue between coastal countries, to initiate the standardization of regional technical support for investments to the countries and to facilitate the mobilization of technical and financial international partners.

The integration process began in 2007 with the launch of the Regional Coastal Erosion Program, which led to the preparation in 2011 of the West African coastal Masterplan (the *Schéma Directeur du Littoral d'Afrique de l'Ouest*, SDLAO) and the 2016 State of the Coast Report. Several joint initiatives have been launched, notably the preparation of the



Senegal. Photo: Vincent Tremeau / World Bank

“

The role of projects like WACA is to raise awareness and bring solutions that can be adopted and supported by the states and adapted by coastal communities to guarantee sustainability and efficiency.”

Aliou Faye

PACO Regional Director, IUCN

How has the COVID-19 pandemic affected the program?

COVID-19 has caused the Program to increase its focus on livelihoods and social development activities.

2020 State of the Coast; the development of the strategic regional action plan for investments; the framework for a gender action plan for coastal resilience and the integration of the additional protocols of the Abidjan convention into WAEMU legal instruments. These initiatives strengthened and revitalized the existing regional committees by reaffirming their mandate.

Supporting the Abidjan Convention Protocols for the Marine Environment

The Convention on Cooperation for the Protection, Management and Development of the Marine Environment and Coastal Areas of the Atlantic Coast of the West, Central and Southern African Region (Abidjan Convention) has, for more than six years, accelerated the process of developing regional cooperation instruments. The cooperation agreements are as follows:

- Additional Protocol on pollution from land-based sources and activities (LBSA)

- Additional Protocol on environmental norms and standards for offshore oil and gas exploration and exploitation activities (Oil & Gas)
- Additional Protocol on integrated coastal zone management (GIZC)
- Additional Protocol on sustainable mangrove management (Mangrove)
- Regional Policy on integrated ocean management (IOM)

Fourteen out of nineteen Contracting Parties signed the Additional Protocols in Abidjan in July 2019 at the Conference of Plenipotentiaries, organized by the Secretariat. All of the Protocols have been the subject of national consultations with the aim of ensuring that national concerns, to the extent possible, are reflected in the Protocols documents.

The Abidjan Convention has also started drafting action plans for each protocol and for the Regional Policy in order to define a roadmap for the integration into national laws and implementation



of the additional protocols. The action plans present a list of activities to be implemented at the regional and national level to ensure the application of the Protocols. Four out of six countries - Benin, Côte d'Ivoire, Mauritania and Senegal - have already conducted their national consultations. Guinea, Liberia, the Republic of Congo and Sierra Leone have also adopted their action plans during their national consultations.

The Secretariat of the Abidjan Convention, in partnership with GRID-Arendal, organized a training course on marine spatial planning in February 2020 in São Tomé. The training was aimed at strengthening the capacity of WACA ResIP PIUs on Marine Spatial Planning (MSP) to facilitate the implementation of marine development plans for sustainable coastal management. It has helped the PIUs to understand the relevance of spatial planning, providing them with tools for the implementation of their National Components 2 "Strengthening national policies and institutions" and 3 "Strengthening physical and social investments at the national level", particularly on aspects related to multi-sector investment and spatial planning including the marine development plan.

Provision of Implementation Support via IUCN

Country operations are at the heart of WACA's projects, locally driven yet regionally informed, where ecologies, economies and societies are interlinked, requiring solutions that cross disciplines and borders. This means mobilizing a range of expertise



- including technical, fiduciary, and organizational - with different partners to share experience and knowledge and build capacities.

In 2018, to provide the capacity needed for this approach, the International Union for the Conservation of Nature (IUCN) established a regional implementation support unit (RISU) in Dakar. The RISU monitors and evaluates progress, shares results among the countries in the region, and ensures that environmental and social safeguards are understood, assessed and applied.



The Regional Implementation Support Unit at IUCN in Senegal is mentoring the national WACA teams in programming activities and effectively reporting and sharing results.

Planning and monitoring are crucial in ensuring that decisions and investments are appropriate, effective, timely and conducted in the proper sequence. The Regional Implementation Support Unit at IUCN in Senegal is mentoring the national WACA teams in programming activities and effectively reporting and sharing results. This is fundamental in helping decision makers determine the best use of resources and communicate verified changes to financial partners and the general public. At the country and regional level priority is already given to establishing safeguards for monitoring project activities and mitigating negative impacts while promoting positive ones. As WACA's Monitoring and Evaluation (M&E) system becomes virtual and regionally accessible in 2020, it will be possible to regularly track and compare project impacts on vulnerable households across the six countries.

To provide advice, and to evaluate and monitor proposals for coastal

green and mixed civil engineering, the development and execution of management plans, and institutional arrangements to share and act on the latest information, the RISU has engaged the Cerema, Centre for Studies and Expertise on Risks, Mobility, Land Planning and the Environment. This means engaging directly at country level with technicians and scientists, and also with the communities themselves. Cerema is providing advice on a mix of the lowest impact land works and dredging, mangrove regeneration, and collaborative planning, helping to reduce erosion and secure the coastline.

On Príncipe Island, in São Tomé and Príncipe, some beachfront families are starting to relocate their homes to adjacent locations less exposed to erosion and inundation. RISU is providing guidance, alongside the World Bank team, to the national WACA team to ensure participative planning, respect of land rights, and proper housing and common infrastructure. Safeguards respect local ecology and society, building on the precautionary principle and sponsoring local solutions to avoid harm, find ecologically friendly options, and attain sustainability.

National calls for evidence-based advice to decision makers led to a regional session on marine spatial planning hosted in São Tomé. A core group of four experts of complementary institutions from each of the six WACA countries reviewed the latest techniques for combining complex, overlapping data sets and geo-referencing to evaluate coastal conditions and define management scenarios, maximizing resources and reflecting real-time land use and occupation. Core country groups like these are developing national training programs and will join in data collection, sharing and mapping to mutualize planning and coordination of resilience initiatives across the region.

To receive and address community concerns or complaints, WACA partners are collaborating in establishing and managing a regionalized Grievance Mechanism, operating at the very

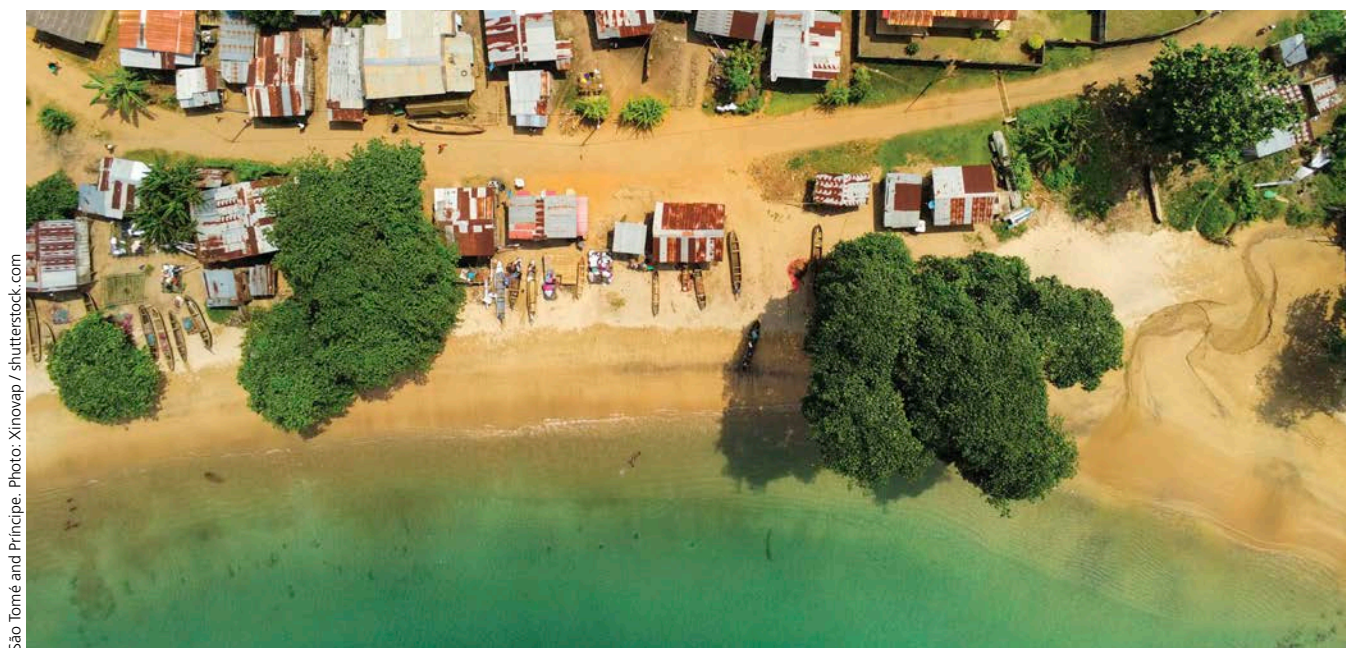
local level, with focal points to collect anonymous remarks and a dedicated number for mobile messaging and calls. Local committees comprising government, civil society and community associations invite expressions of concern or complaints, and establish procedures to address and resolve disputes at community, then local, and ultimately the national level as needed. The mechanism's scope is broad, encompassing concerns about environmental mitigation measures and civil works, voluntary relocation of the most exposed households, labor conditions, and gender-based discrimination and abuse. At the regional level, the RISU will host a repository to document cases. The RISU is also engaging other partners, such as the RAMPAO (Network of West Africa's Network of Protected Areas).

Supporting the West Africa Coastal Observatory and the Centre de Suivi Ecologique (CSE)

The CSE is a public utility institution under the technical supervision of the Senegalese Ministry of Environment. It works in close collaboration with WACA's Regional Implementation Support Office, focusing on:

- the design and implementation of the Regional Observatory for the West African Coast (ORLOA), consolidating the achievements of the West African Coastal Observation Mission (MOLOA) in regional cooperation in coastal monitoring and coastal risk reduction. ORLOA will be covering twelve countries, from Mauritania to Benin, and including São Tomé and Príncipe;
- the second update of the 2020 *State of the Coast* report for the West African coastline, which identifies the priorities for actions and monitoring-observation for the coastline, subdivided into sectors in the respective countries; and
- technical supports to the countries to build and strengthen their mechanism for coastal observation.

The CSE has started the feasibility study for ORLOA with the support of



Cerema and FFEM, and is currently at the diagnostic stage. A questionnaire has been sent to the countries to evaluate their coastal observation systems, assess the needs for equipment and the acquisition of marine and coastal data, and identify potential indicators for the monitoring of coastal risks in the region. To ensure consistency between the observation systems at the regional and national levels, a note defining ORLOA's main orientations has been drawn up.

The ORLOA will be connected to a database; an early warning system on coastal hazards; and a web platform for information sharing and dissemination linked to its website: <https://www.orloa.net/>. The communication system also includes a quarterly newsletter.

Concerning the 2020 *State of the Coast* report, following the formulation of the methodological note, the basic forms needed for the reporting have been updated. The mapping of the evolution of the different challenges and Intervention Monitoring priorities for the 179 sectors of the SDLAO, plus the additional sectors in São Tomé and Príncipe, is in progress with the involvement of country correspondents who have received capacity-building from the ESA on the use of Earth observation data, facilitated by the CSE.

The CSE also manages the WACA component supported by the French Facility for Global Environment (FFEM), which focuses on soft coastal protection solutions in three countries: Benin, Senegal and Togo. Nature-based solutions are being tested at fragile sites such as the Grand Popo area (Benin), the Langue de Barbarie (Saint-Louis, Senegal) and the Gbodjomé-Agbodranfo area (Togo).

Hydromet and early warning systems

Coastal inundation occurs on vulnerable coastlines throughout the world, and the combination of storm surge (typically from storm systems) with hydrological flooding at various tidal states, can regularly lead to major infrastructure damage, coastal erosion, and loss of life. The West Africa Coastal Inundation Forecasting Initiative (WA-CIFI) is designed to provide such a combined forecast and warning service. WA-CIFI is a joint initiative of the WACA Program, through the World Bank hydromet program in West Africa, with the World Meteorological Organization (WMO).

The pilot project helps the West African countries (through WACA and MOLOA) to operate and maintain a reliable forecasting system for coastal inundation from oceanographic or hydrological phenomena, supporting national and regional decision-making for coastal management. The project will facilitate the development of efficient and collaborative regional forecasting and warning systems for coastal inundation based on robust science and observations.

Building Capacity with the Africa Center of Excellence for Coastal Resilience (ACECoR)

The World Bank and the University of Cape Coast (UCC) have established the Africa Centre of Excellence in Coastal Resilience (ACECoR), with the support of the Government of Ghana and the Association of African Universities (AAU) under the Africa Centres of Excellence Impact Project (ACE III). The intervention promotes coastal resilience within West and Central Africa through the development of technical and scientific expertise of young African professionals to develop integrated solutions to address coastal degradation across the subregion.

ACECoR's success hinges on a strong partnership with WACA as the activities of the two institutions are complementary in supporting the coastal resilience strategies of West African Governments. The two share a vision of creating a regional network of academic and research institutions to promote long-term regional capacity. Short professional courses and modular masters, PhD and postdoctoral programs are being introduced in thematic research areas of coastal management; coastal geomorphology and engineering; ; climate change adaptation and mitigation; disaster risk management and migration; and ecosystems and biodiversity. ACECoR serves on WACA's interim Technical and Advisory Committee (iTAC), contributing to scientific reviews and MSIPs, and working with IRD to support the development of WACA's compendium of good coastal management practices. Through these platforms, WACA and ACECoR are engaged in exploring opportunities like the creation of an incubation hub to support talented youth with creative business ideas related to coastal resilience in Africa.

¹Scheren et al, 2002.

²Jambeck, et al. (2015). Marine pollution. Plastic waste inputs from land into the ocean. *Science* (New York, N.Y.). 347. 768-771. 10.1126/science.1260352.

³Lebreton, Laurent & Andrady, Anthony. (2019). Future scenarios of global plastic waste generation and disposal. Palgrave Communications.

⁴Lebreton, L. C. M. et al. River plastic emissions to the world's oceans. *Nat. Commun.* 8, 15611 doi: 10.1038/ncomms15611 (2017).

A regional response to marine plastics

Plastic pollution is a public health and food safety challenge in West Africa. For example, plastics have caused a reduced fish catch in polluted coastal lagoons in the Gulf of Guinea,¹ of concern as fish represent more than 50 percent of the protein intake in countries like Ghana and Sierra Leone. An increased risk of vector-borne diseases like malaria and dengue is shown to be linked to poor management of solid waste, including plastics.

The Africa region is the second-highest contributor to annual global plastics inputs from rivers into global oceans, with a share of 7.8 percent, after Asia at 86 percent,² and projections show that Africa could outstrip Asia as the major contributor to global mismanaged plastic waste generation by 2060.³ Three West African rivers are among the 20 most polluted rivers in the world: the Cross River (Nigeria & Cameroon), the Imo River (Nigeria), and the Kwa Ibo River (Nigeria).⁴

WACA draws upon its network for a collaborative approach to tackling this major challenge in sustainability, engaging both WAEMU and ABC in the "West Africa Regional Response to Marine Plastics" process. It will examine case-studies on different approaches, and support countries in refining the action plans and meeting obligations that have been made through regional mechanisms.

WACA also acts as a regional umbrella for the coordination of World Bank initiatives addressing marine plastic pollution in coastal West Africa, bringing together a series of ASA's, primarily sponsored by PROBLUE. To prevent overlap and maximize synergy, WACA works across multiple Global Practices at the World Bank, including Urban Resilience and Lands (URL), Finance Competitiveness & Innovation (FCI) and Environment Natural Resources and Blue Economy (ENB).

Addressing marine plastic pollution requires interventions all along the plastic value chain, and at different stages of the plastic life cycle. A grant provided to the ENB team enables a regional plastic value chain analysis supplemented by country case studies, and an economic analysis of plastic pollution. The analysis is to be presented as a Flagship Report which will inform decision-makers in West Africa, as well as investment planning underway by regional partners.

URL's portfolio of projects to strengthen solid waste management systems and reduce plastic and marine pollution across Africa include the Greater Accra Resilient and Integrated Development Project (P164330), Senegal Municipal Solid Waste Management Project (PROMOGED, P161477) and the Resilient Urban Sierra Leone Project (P168608).

FCI's work with the private sector contributes learning on technologies for the development of recycling and innovation in materials as alternatives to single-use plastics. The effort builds on the lessons learned from the IFC's policy interventions on plastics, which include the development of a circular economy in Côte d'Ivoire.





Mobilizing a comprehensive approach from the World Bank Group

As country governments strive to work across technical ministries, so too does the World Bank. WACA is supported by multiple Practice Groups including those working on environment and blue economy, social development, urban and waste management, transport and ports, climate change, disaster risk management, energy, finance, the private sector, and disruptive technology.

The intent is to optimize the implementation of the necessary technical approaches and innovation from these practices that the Bank provides in support of the WACA Program. This includes leveraging the already significant portfolio of investment projects in every country, and analytical work.

This section provides examples of initiatives and projects that support WACA's comprehensive, multi-sectoral approach to strengthening coastal resilience in West Africa. The projects described in this section are aligned with WACA's development objective of reducing the exposure of coastal communities and households to erosion, flooding, and pollution.

Senegal: Saint Louis Emergency Recovery and Resilience Project

The Saint-Louis Emergency Recovery and Resilience project (SERRP) has the development objectives of reducing the vulnerability of populations to coastal hazards along the Langue de Barbarie, and strengthening urban and coastal resilience planning of the city of Saint-Louis. The project primarily finances temporary accommodation of families displaced by ongoing storm surge disasters, and the planned relocation of the most vulnerable populations (about 5,000 people) living within a 20-meter wide band of the shoreline in the high-risk coastal zone. It also provides for urban and coastal resilience planning through reclamation of the liberated area, technical studies and planning



Sierra Leone. Photo: World Bank Group. 2017. Sierra Leone Rapid Damage and Loss Assessment of August 14th, 2017 Landslides and Floods in the Western Area. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/28836> License: CC BY 3.0 IGO.

documents for urban and coastal risk management, and capacity building.

The Project has been active since September 2018; as of May 2020, 692 people have been moved from the relief camp to the relocation site in Djougop, with temporary accommodation and improved living conditions. A second temporary relocation phase for 884 additional people is planned by December 2020. Planning and design of the permanent relocation site is well underway, with the government embarking on a thorough participatory process to engage beneficiaries in the planning activities. Regarding urban and coastal resilience planning in Saint Louis (Component 3), a study for the design a sustainable coastal risk management solution along the Langue de Barbarie is underway.

The SERRP and the Senegal West Africa Coastal Areas Management (WACA) projects are closely collaborating on

the implementation of the livelihood restoration strategy for the displaced populations. At the national level, many sectors are involved in the management of coastal areas, often with overlapping mandates, owing to lack of a coherent legal basis for coastal management. The WACA Program is implementing a National Integrated Coastal Zone Management Plan for Senegal to help address this challenge.

Sierra Leone: Freetown Emergency Recovery Project

In Sierra Leone, the World Bank has been supporting Greater Freetown to build disaster and climate resilience, most notably following the Sugarloaf mudslide of August 2017, through the Damage and Loss Assessment and associated recovery financing.

The ongoing Freetown Emergency Recovery Project (FERP) has supported interventions to rehabilitate landslide affected areas, through slope

stabilization, bridge and drainage infrastructure rehabilitation, and water infrastructure rehabilitation. It is also supporting capacity- building for disaster risk management and emergency preparedness and response at the national and local levels.

Looking ahead, the World Bank is preparing a new investment project to build urban resilience in Greater Freetown and across the country. The project will strengthen the institutional capacity of city councils in resilient urban planning, and own-source revenue mobilization. It will also finance infrastructure investments, in urban drainage, solid waste management, and in the upgrading of poor and vulnerable neighborhoods. The project will have a strong emphasis on eco-system-based approaches, including forest, mangrove and wetland protection, and tree-growing interventions. It will also build disaster risk management and preparedness institutional capacity and capabilities.

Côte d'Ivoire: Urban Resilience and Solid Waste Management Project

Côte d'Ivoire's \$315 million Urban Resilience and Solid Waste Management Project was approved in June 2020. The project is aimed at improving the management of rainwater and household waste to reduce the high flood and sanitary risks faced by poor urban households in mainly coastal areas.

The first phase of implementation, with a budget of \$37 million, will be devoted to the construction or rehabilitation of drainage systems for better channeling of rainwater in the most exposed neighborhoods such as Yopougon and Abobo, the two most densely populated areas of Abidjan, as well as Grand Bassam. In addition, the project will set up a flood early warning system and strengthen the capacities of the institutions in charge of sanitation and urban planning, through training and equipment in dedicated digital technologies.

Private Sector

The WACA team partnered with the International Finance Corporation (IFC) and Equitable Growth, Finance, and Institutions (EFI) to organize the first private sector dialogue in Ivory Coast in February 2019. The purpose of the event was to create a formal information framework, to encourage awareness, learning, the sharing of knowledge, and implementation of synergistic actions for improving the resilience of the area coastal adaptation and adaptation to climate change.

Participants made an inventory of private and public sectors actions for coastal resilience, and took stock of the impacts of coastal erosion, floods and pollution on investments. During the event, awareness was raised of the obstacles and constraints which slow down private sector investment in coastal protection measures and climate change adaptation infrastructure. This had the effect of encouraging private sector involvement in concerted actions such as the WACA Program. Frameworks were developed for partnerships between private sector and state actors around integrated coastal zone management. Experience and good practices were shared, and sustainable investment options discussed. Finally, the parties reached agreement on next steps for the implementation of solutions, including the creation of a working group comprising representatives of the public and private sectors.

As a result of the dialogue, WACA established a private sector consultative group that has been providing guidance and feedback to the WACA Platform and Program. This group has assisted in the submission of projects to improve the resilience of the coastal zone. Among the outcomes of the first marketplace was a commitment from one finance partner of \$35 million for a project in Côte d'Ivoire, and design for a mechanism to bring in Dutch expertise to West Africa.

The next marketplace (at the end of 2020), was dedicated to private sector projects, public-private-partnerships, and innovative project ideas in the port sector.

Among the outcomes of the first marketplace was a commitment from one finance partner of \$35 million for a project in Côte d'Ivoire, and design for a mechanism to bring in Dutch expertise to West Africa.

Coastal Voices: activating the private sector

Simeon Ehui is the World Bank's Regional Director for Sustainable Development for Africa. Born and raised in Côte d'Ivoire, he is deeply attuned to the challenges faced by West Africa's coastal regions.

"I know all too well how coastal livelihoods and communities have been shattered by intense flooding, poorly built infrastructure, pollution from untreated waste, and many other factors that could be aggravated by climate change," he says.

Tackling flooding and coastal erosion requires a mosaic of interventions. Agriculture, disaster risk management, environment and water teams must join forces to reduce risk, protect ecosystems, and improve infrastructure in order to build resilient livelihoods. This means mobilizing the financing and expertise needed to support countries in these efforts.

"At the (WACA) Marketplace in Abidjan, which brought together countries, donors and the private sector to find solutions to coastal issues, it was heartening to see the private sector and financiers listen to countries pitch projects on coastal resilience and express their willingness to invest in these projects," says Ehui.

The Marketplace is an innovative way to move from concepts to investment-ready projects that can be matched with interest from the public and private sector. At the inaugural Marketplace, countries supported by the WACA Program identified priority investments for coastal resilience and kickstarted a dialogue with financial and technical partners.

"I am energized to see the private sector ready to play its part and support a sustainable and prosperous Africa," Ehui concludes.



We need to find new ways to ensure the resilience of West Africa's coasts. The key to success remains the same: we need to deliver complete projects. Without building sea defenses, restoring mangroves, and bringing solutions, the livelihoods of coastal populations will not be protected."

Coralie Gevers

Country Director, World Bank

What is the role of regional institutions?

Regional institutions are mandated by countries to harmonize and advance policy for coastal resilience. The World Bank provides financing or analytical services to support these regional activities.

Are local communities involved in the WACA Program?

The Program is centered on the needs of coastal communities, which are engaged on a site-specific basis. The program is enhancing its partnership with communities and civil society through the Local Action and Citizen Engagement (LACE) Initiative.

World Bank Trust Fund Programs

Nordic Development Fund: The Nordic Development Fund (NDF) is a joint Nordic finance institution focused exclusively on climate change and development in low-income (LIC) and lower middle-income countries (LMIC). In April 2020, NDF adopted a new strategy to advance Nordic leadership in addressing climate change and development challenges through financing, knowledge, and partnerships.

In 2015, the NDF was the first external donor to support the idea of the West Africa Coastal Areas Program (WACA) with a small initial grant to the World Bank and the West Africa Economic and Monetary Union (WAEMU). As the program gained strength and further support with the World Bank IDA and the Global Environment Facility (GEF), a new NDF-funded program was approved in 2018, providing a €4.0 million loan to Benin, a €4.0 million loan to Senegal and a €5.1 million grant to the World Bank for a five-year project period from 2018 – 2023, for a total of €13.1 million.

NDF is providing finance to the Bank-executed part of the WACA Platform, supporting the generation of new studies and access to solutions, developing and testing new financing instruments such as PPPs, and supporting partnerships with regional institutions, countries and others needed to bring the WACA Program to scale. In parallel, and in direct liaison with the countries, it is providing loans to Senegal and Benin.

GFDRR: Managed by the World Bank, GFDRR is a grant-funding mechanism that helps developing countries better understand and reduce their vulnerability to natural hazards and climate change. GFDRR supports local, national, regional, and international partners with knowledge, funding, and technical assistance for disaster risk management (DRM), contributing to the implementation of the Sendai Framework for Disaster Risk Reduction.

GFDRR was one of the earliest supporters of the World Bank's engagement on coastal resilience in West Africa,

Since 2018, GFDRR and NDF have provided programmatic support for the design, launch and operation of the WACA Platform.

providing technical assistance grants for preliminary analytical work prior to the launch of the WACA Program. Since 2018, GFDRR has provided programmatic support for the design, launch and operation of the WACA Platform. GFDRR grants also support the Finance Marketplace; analytical work on the links between climate and coastal migration; the development of a compendium of solutions for common coastal erosion, flooding, and pollution challenges; and the ongoing development of WACA's Local Action and Community Engagement (LACE) initiative.

GFDRR support continues through its Japan program, which supports country engagements in Ghana, Guinea-Bissau, and Nigeria to identify investment priorities for resilient infrastructure.

PROBLUE: The World Bank's Blue Economy Program, PROBLUE, is a Multi-Donor Trust Fund, housed at the World Bank, that supports the development of integrated, sustainable and healthy marine and coastal resources. With the Blue Economy Action Plan as its foundation, PROBLUE contributes to the implementation of Sustainable Development Goal 14 (SDG 14) and is fully aligned with the World Bank's twin goals of ending extreme poverty and increasing the income and welfare of the poor in a sustainable way.

PROBLUE supports the coastal agenda by providing grants to project teams to deepen and leverage results in sustainable fisheries, marine pollution including litter and plastics, the sustainable development of key oceanic sectors such as tourism, maritime transport and off-shore renewable energy. It supports building government capacity for the integrated management

of marine resources, including nature-based infrastructure such as mangroves, to deliver more and longer-lasting benefits to countries and communities. WACA has leveraged resources from PROBLUE via several initiatives, including (i) West Africa Regional Response to Plastics (environment sector), (ii) Sustainable Ports Charter working with AGPAOC (transport sector), (iii) sustainable tourism for SIDS in Cabo Verde and The Gambia, (iv) urban waste and pollution management in Sierra Leone (urban sector); and (v) nature-based solutions and mangroves (environment sector).

Quality Infrastructure Investment (QII): The World Bank Group and the government of Japan established the Quality Infrastructure Investment (QII) Partnership with the objective of raising awareness and scaling-up attention to the quality dimensions of infrastructure in developing countries. These include maximizing the positive impact of infrastructure, improving economic efficiency as measured against life-cycle cost, integrating environmental and social considerations, building resilience against natural disasters, and strengthening infrastructure governance. The QII Partnership accomplishes this through financial support for project preparation and implementation, as well as knowledge dissemination. The QII Partnership aligns to the G20 Principles.

QII, along with the NDF, is supporting the WACA Call for Innovation which seeks innovation for specific, complex transport and navigation issues, including port infrastructure and lagoon or canal water flow management. The results of the Call will identify infrastructure and financing mechanisms for port management of sediment movements which lead to unwanted coastal erosion, upstream efforts to reduce environmental impacts, features of Public Private Partnerships (PPP) and contracting, and examples of good global practices in port management that could be proposed to West African countries to better manage the cumulative environmental impact of port operations.

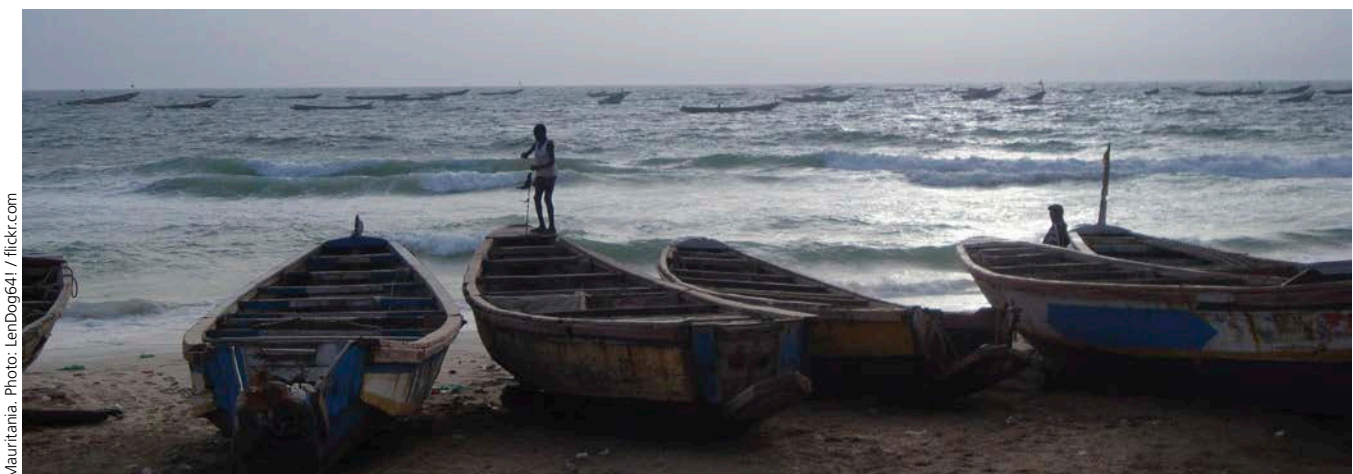
Global Program for Sustainability (GPS) and WAVES: GPS, a World Bank umbrella initiative, includes Wealth Accounting

and the Valuation of Ecosystem Services (WAVES) to promote sustainable development by ensuring that natural resources are mainstreamed in development planning and national economic accounts. Under GPS, resources have been provided to WACA to undertake studies on mangroves and nature-based solutions, and for establishing the cost of coastal degradation in four coastal states of Nigeria.

Korea - World Bank Group Partnership Facility (KWPF):

The KWPF is an initiative aimed at strengthening ties between Korea's Ministry of Economy and Finance (MoEF) and the World Bank. The facility assists developing countries in achieving inclusive and sustainable economic growth and fostering broader dialogue on economic development issues. The Facility, along with the NDF, provided resources to develop a climate change and coastal resilience assessment that suggests that by 2050, climate change will worsen the extent of floods and erosion on West Africa's coast, and explains the need for climate-resilient infrastructure, disaster risk management plans, and nature-based solutions for protection of coastal livelihoods.

Climate NDC Support Facility: The Nationally Determined Contributions Support Facility (NDC-SF) is a multi-donor trust fund created to facilitate the implementation of the Nationally Determined Contributions (NDC) pledged by countries under the Paris Agreement in 2015. The NDC Support Facility, along with NDF, provided financing for São Tomé and Príncipe to develop an online platform (DRCLima) to harmonize and share data and information on climate impacts, to train key actors on its use, and to develop concepts for three adaptation projects which were presented at the Marketplace. In Côte d'Ivoire, the NDC-SF contributed to the preparation of the pre-feasibility study for a coastal protection program in Port-Bouet, and provided funding alongside NDF for the preparation of the first regional WACA private sector dialogue, aimed at engaging private sector participation in coastal adaptation. The dialogue informed the ongoing development of a pipeline of PPP projects suitable for private sector participation, and a concept for an infrastructure and private sector facilitation fund.



Mauritania. Photo: LenDog641 / flickr.com

3.

REACHING RESILIENCE TARGETS

Overview of WACA ResIP results

Response to COVID-19: With the support of the Bank and the RISU, contingency plans have been prepared by the PIUs to assess the impact of the global and national restrictions on project activities and identify mitigation measures. Most of the technical studies can continue, as work is performed mainly remotely, but consultations with targeted communities, especially for social sub-projects, will need to be put on hold until normal operations are possible. In the meantime, World Bank teams and regional partners will continue to provide implementation support through regular virtual meetings and missions.

Two years into implementation, all country projects and the regional integration and support mechanism are well into implementation.

The national Project Implementation Units (PIUs) are harmonizing annual work plans, have adopted both regional reporting procedures and support mechanisms with the regional institutions, and have agreed to the regional integration performance tracking system. The organizational effectiveness of the PIU is improving and challenges are being addressed through capacity building and the support provided by RISU and the Bank team.

Regional Integration is working: the arrangement by which IUCN manages a Regional Implementation Support Unit (RISU) and WAEMU manages a Regional Management Unit (RMU) which is functioning well, and efforts have been undertaken to improve timeliness and reduce bureaucratic burdens. The arrangement is ensuring effective regional coordination and integration across country activities. Monthly reports are now submitted by the national PIUs which are now receiving, additional technical advice through the RISU on coastal protection infrastructures and the integrated coastal management plan from Cerema. This

arrangement will be replicated with the RAMPPO (Network of West Africa's Network of Protected Areas).

Key studies for the final designs of the major physical work, the social sub-projects and the setting up or strengthening of the national agencies responsible for coastal management activities are now, for the most part, on-going, and should enable the project to start physical interventions in the different countries by early 2021, COVID-19 permitting. The national project Implementation Units are assessing progress and challenges on a monthly basis.

In FY20 WACA ResIP provided support for a team-based effort in updating the five-year plan and the annual workplan. ResIP also supported the transition from a top-down management style to a results-based and team-based dynamic in the respective PIUs. Going forward, in collaboration with other specialists, the IDS will support external stakeholders engaged in implementing WACA ResIP activities. It will help establish and activate networks, such as the Mayors Network in Ivory Coast, and inter-agency coordination committees for coastal management or coalitions, such as public-private sector collaboration.



WACA supports institutional development aimed at engaging other related ministries and agencies.

“

When I was a child, our family compound was hundreds of meters from the beach. Because of the narrowness of the houses, the beach was a place of relaxation for the old people, playground for children and places for some family ceremonies. Our life was peaceful until 1960, the year when the impacts of coastal erosion began to be felt and to disrupt our daily habits.”

El Hadji Malick Ndoye
Thiawllène Digue, Senegal





Coastline:

125 km

Coastal population:

10.9 million

Major coastal cities:

Cotonou
 Porto-Novo
 Abomey-Calavi
 Seme-Podji

COUNTRY RESULTS:**BENIN**

Benin's coastline has around 10.9 million inhabitants, half of whom live in urban centers, mainly in the coastal municipalities of the Nok 'Grand Nokoué' including Cotonou (the economic capital), Porto Novo (the administrative capital), Abomey-Calavi and Sèmè-Podji. The coastal zone is characterized by lagoons and other wetlands, and has one of the highest rates of coastal erosion in the world, with the peripheral zones particularly affected. Rising sea levels and the increased frequency and intensity of extreme events are expected to increase erosion and flooding, which could reach 12 to 30 meters per year in certain critical areas.

The WACA-Benin project is aimed at reversing the country's current trends of coastal erosion and the degradation of coastal ecosystems and strengthening the resilience of communities and targeted areas including Hillacondji, Gbèkon, Avlo and Ouidah. The project supports Benin's national objectives; a set of key international water-related objectives; and commitments made by Benin within the framework of international conventions on the management of climate change, biodiversity and the protection of natural resources. It achieves this through activities focused on the restoration of mangroves; the adoption of alternative livelihoods; the control of invasive species; and support for the implementation of management plans for community protected areas and for the Mono Transboundary Biosphere Reserve, a Wetland of International Importance as identified by the Ramsar Convention.

Erosion control measures and protection works have been undertaken on the south bank of the Mono River, with the nourishment of the berms to slow the impacts of flooding and coastal erosion. The south shore at Gbèkon in the Avlo district has been protected against erosion through reforestation, which has prevented the destruction of the only road connecting a community of 25,500 to economic livelihoods and public health services. Co-financing agreements have been signed with 33 Biodiversity Community Conservation Areas cooperatives (75 percent of whose members are women) for



Benin. Photo: Mark Fischer / flickr.com

Income Generating Activities in the fields of animal husbandry, aquaculture, gardening, and agri-food processing. In addition, the process of protecting the Togo-Benin cross-border area from coastal erosion is underway, with technical feasibility studies for coastal protection currently in progress.

Response to COVID-19: To mitigate against the impacts of the COVID-19 pandemic on the population, IGAs were extended to communities economically impacted by the pandemic. In addition, a contingency plan was prepared that included the implementation of individual and collective protection measures.



Benin. Photo: Arne Hoel / World Bank

Co-financing agreements have been signed with 33 Biodiversity Community Conservation Areas cooperatives for Income Generating Activities in the fields of animal husbandry, aquaculture, gardening, and agri-food processing.



Coastline:

556 km

Coastal population:

8.2 million

Major coastal cities:

Abidjan

San Pedro

Grand-Bassam

COUNTRY RESULTS:**CÔTE D'IVOIRE**

Côte d'Ivoire has about 550 km of coastline, home to more than 35 percent of the national population, and to major socio-economic assets: the coastal zone produces around 60 percent of the real GDP, in an area which represent less than 7 percent of the territory. Around two third of this coastline is either exposed or highly exposed to the effects of erosion and risk of storm surges, due to the natural action of the Gulf of Guinea currents that create important longshore sediment transport. Erosion trends have been aggravated in recent decades by human interventions (for example, sand mining; the construction or expansion of ports; deforestation of mangroves and other trees for fuel or agricultural land clearance; urban and tourist development; or changes in the hydrographic regimes of rivers due to dams, disrupting the flow of sediment). In addition, extreme natural events have also had an impact.

Côte d'Ivoire has various policy documents relating to environmental management and climate change adaptation, but to make existing and future development in the coastal areas more resilient, a stronger multisectoral coordination framework and a comprehensive coastal master plan are necessary. Accordingly, a Multisectoral Investment Plan was developed for the Grand Lahou area as a pilot, and resilience projects are now under implementation. The MSIP needs to be expanded to other areas, and risk-informed spatial planning integrated in national and local development plans. The WACA ResIP is contributing towards this objective, through support to the preparation and implementation of the 2 main instruments from a newly approved coastal law; the creation and operationalization of the national agency for the integrated coastal zone management (ANAGIL); and the preparation of the coastal master plan (PAGLI). The decree of the ANAGIL has been enacted and is pending final signature while the scope of work for the PAGLI has been agreed and enactment is expected to start in fall 2020. In addition, a network of mayors of coastal municipalities has been established, to promote awareness and coordinate local actions.

The coastal zone produces around 60 percent of the real GDP, in an area which represent less than 7 percent of the territory.



Côte d'Ivoire. Photo: Charles O. Cecil / alamy.com



Côte d'Ivoire. Photo: Westend61 / alamy.com

Through physical investments, the banks of the Tiagba lagoon will be stabilized by reforestation and rehabilitation of mangroves. Technical studies for physical investments are being finalized for the project site in Grand-Lahou, one of the five national coastal hot spots, where interventions will be implemented to manage the movement of the river mouth to prevent lateral and frontal coastal erosion of the sand bar of Grand-Lahou. The project is implemented through the ministry of Environment and Sustainable Development. Numerical modelling is being used to validate the appropriate, long-lasting adaptation options for the sand pits of Lahou-Kpanda, where

construction should start in 2021. In parallel, mangrove conditions have been assessed there, as well as in the two national parks of Azagny and des îles Éhotilé, and restoration and management plans, have been prepared, to be implemented through the Office Ivoirien des Parcs et des Réserves (OIPR). Natural resources management efforts will also be supported through social sub-projects to strengthen social resilience of the most vulnerable population of Grand-Lahou sub-region.

WACA also collaborated with established, local committees in Grand-Lahou to support them in continuing to play their roles in collecting potential grievances and

informing beneficiaries, without putting anyone at risk. Priorities have been given to social sub-projects to achieve the objectives on natural resources management while contributing to the socio-economic recovery process.

Response to COVID-19: The PIU has prepared and adopted a contingency plan. Measures have been taken to protect staff and partners from exposure to the virus and to ensure continuation (as much as possible) of works and activities, despite Abidjan's isolation from project intervention sites and the difficulty of physical meetings.



Coastline:

754 km

Coastal population:

3 million

Major coastal cities:

Nouakchott
Nouadhibou

COUNTRY RESULTS:**MAURITANIA**

Mauritania's coastline possesses significant economic and ecological value. Despite its low population density, the coastline hosts major economic poles, including hydrocarbon and other extractive operations, fishing activities, and the two national parks - Diawling in the south and Banc d'Arguin in the north. Mauritania is known for its abundant fish resources thanks to an exceptional coastal ecosystem. Urbanization and industrialization are intensifying, and the "coastal poles" – the cities of Nouakchott and Nouadhibou – continue to grow rapidly. Over the past 30 years, climate events and human activities, including oil and gas exploration and exploitation, have impacted the productivity and health of Mauritania's low-lying coastal ecosystems, particularly in the south. Sand dunes have become more fragile, leading to coastal erosion and flooding, and poor management has led to contamination by urban waste and effluents. Climate change challenges are a real threat, and the capital Nouakchott is vulnerable to various risks including dune ruptures, flooding caused by abundant rains, inadequate drainage, high water table, and marine submersion.

The Mauritania Coastal Master Plan (PDALM), drawn up in 2005, was the first document to address sustainable coastal development from a national perspective. The PDALM was followed in 2007 by the promulgation of a coastal decree ("Ordonnance du littoral") and was updated in 2017. Together with the first multi-sectoral coastal investment plan (MSIP), it supports the design of climate smart coastal investment projects in Mauritania.

Some of the priority interventions from the PDALM are being implemented through WACA ResIP activities in Mauritania. These activities include providing guidance and strengthening multisectoral collaboration, and strengthening the legal framework including through the revision of the coastal law, to prevent further construction in the coastal areas. The impacts of activities such as mining are being assessed and environmental laws revised accordingly, to minimize the impacts of the growing pressures on coastal areas.



Mauritania. Photo: World Bank



Mauritania. Photo: World Bank

In Mauritania WACA has completed mechanical and biological fixation of more than 30 hectares of the coastal dunes and will restore weak sections of the dunes systems in 2021.

Local land-use plans are being prepared for the two major growth poles, to align the different sector strategies and to preserve spaces for crucial nature-based interventions. For example, while Nouakchott's dunes provide the protection of a natural barrier, they are becoming fragile because of human activities; WACA has already completed mechanical and biological fixation of more than 30 hectares of the coastal dunes and will restore weak sections of the dunes systems in 2021.

In addition, the project has been working with the National Park of Diawling to develop a resilience plan

and restore natural ecosystems by fighting invasive species including Typha, to maintain fishing as a source of livelihoods for the population, while preserving local and rich biodiversity.

Response to COVID-19: The PIU modified their working arrangement to adapt to the isolation of the capital and the restrictions on office attendance, and office rotation has been implemented to ensure the continuity of critical tasks. Activities have been reshaped to promote remote, virtual contacts.



Coastline:

209 km

Coastal population:

202 000

Major coastal cities:
São Tomé
Neves**COUNTRY RESULTS:**

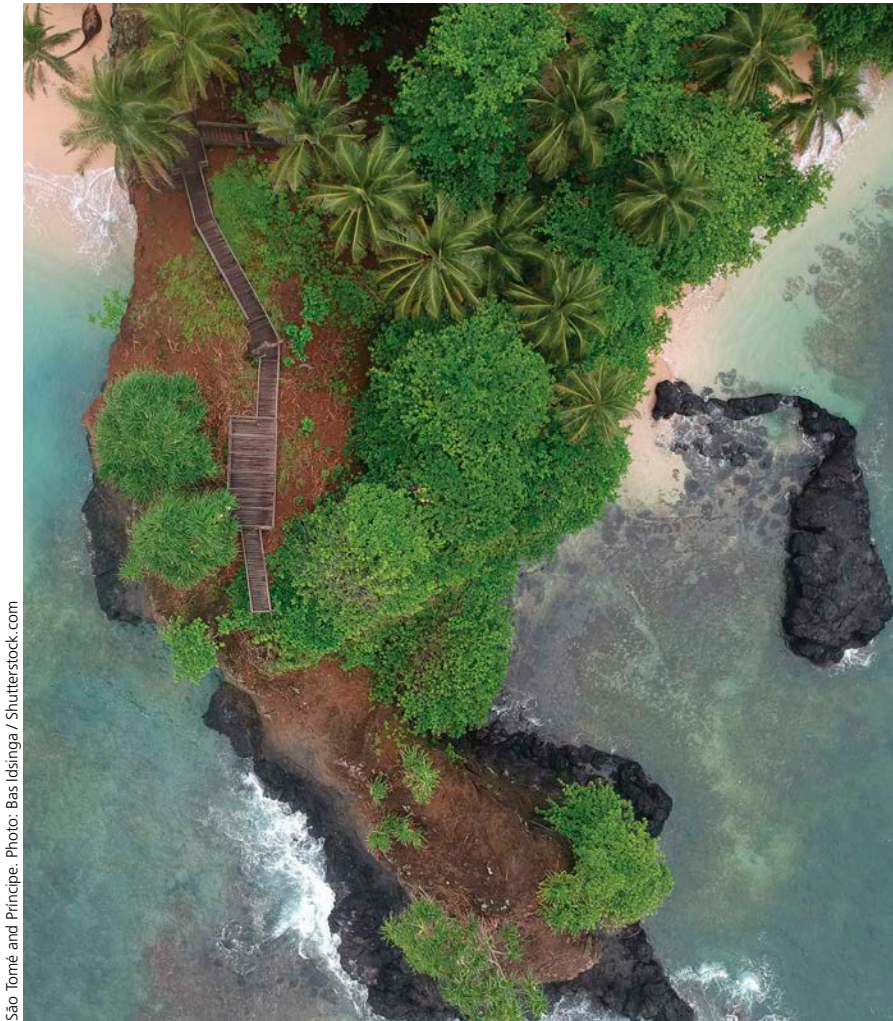
SÃO TOMÉ AND PRÍNCIPE

Isolated, exposed to hazards, and with limited institutional capacities, the small island country of São Tomé and Príncipe faces unique challenges in protecting its coastal zones and the population living there. Coastal areas are being affected by both climate change and anthropogenic drivers. Sea level rise and increasing intensity of rainfall, combined with poor coastal zone management, the degradation of coastal ecosystems and rapid and uncontrolled urbanization are increasing flood and erosion risks for human settlement and infrastructure along the coast.

One objective of the WACA Project in São Tomé and Príncipe is to reduce the exposure of vulnerable coastal communities and cities to extreme events related to climate change by promoting urban expansion in safer areas, while diversifying income-generating activities linked to the sustainable use of natural resources. It comprises four approaches:

- supporting urban planning while taking existing risks into account;
- planned relocation to safer areas;
- reducing risks through ecosystem- based approaches; and
- piloting the use of sustainable building materials produced by local residents as an income-generating activity and to reduce illegal sand use.

Through the WACA ResIP project and using a model-based participatory process, twelve of the country's most vulnerable coastal communities have developed and are implementing adaptation strategies specific to their needs. The impacts of flooding and erosion on households in the first four pilot sites have been mitigated with a combination of better land use planning, the construction of green and grey infrastructure, and tree planting to stabilize the shoreline, approaches which will now be replicated in the other eight other communities. All 12 communities have endorsed the adaptation strategies, urban plans have been formally approved in three



São Tomé and Príncipe. Photo: Bas Idsinga / Shutterstock.com

communities, and infrastructure has been built or restored in five.

Under the WACA project in São Tomé and Príncipe, patrols by trained volunteers are operated through local risk committees in all the 31 coastal communities to provide early warning of disasters, identify risks of flooding and landslides, raise awareness, and conduct maintenance on infrastructure. This helps to make coastal villages more secure, and reduces the probability of deaths.

The project also completed the first ever national census of artisanal fishermen and boats to define the equipment and trainings necessary for future project activities on safety

at sea. A diagnostic of the capacity of the national meteorological institute has been concluded, establishing the basis for the marine meteorological weather forecast service to issue more reliable early warnings to fishermen and coastal populations. Laws and regulatory frameworks will also be reviewed to reduce overlap and facilitate enforcement, while taking into consideration the inclusion of climate change and coastal disaster risks in various policies and master plans, including through the preparation of a spatial marine plan.

Response to COVID-19: WACA's ongoing commitment has proved effective in providing the needed

Patrols by trained volunteers are operated through local risk committees in all the 31 coastal communities to provide early warning of disasters, identify risks of flooding and landslides, raise awareness, and conduct maintenance on infrastructure.



São Tomé and Príncipe. Photo: Cristiano Dondo

support to the most vulnerable parts of the population during the COVID-19 crisis. The ministry of health is using the 31 coastal risk local committees, supported by WACA, to disseminate guidance and raise awareness, as these committees are both recognized and operational. In addition, through the social sub-project components, the WACA Project was able to support cooperatives of women in sewing protective masks, under the supervision of the Health Ministry, to build the resilience of the population, particularly women, through alternative income generation and skills building.

Coastal Voices: when resilience means making a new home

Along the beach in Mondouku, Côte d'Ivoire, a group of fishermen have just returned with their catch. Many of them come from neighboring Ghana; they come to the Ivorian part of the coast because there are more fish here. But the fish are smaller in size and number compared to previous years. The beach they are sitting on is lined with small hotels and cabanas destroyed in a storm surges over the past few years.

A little further south, near the Vridi Canal, Conde Abdoulaye runs the lobster restaurant that his father ran before him. Even at low tide, the water laps against the steps of the restaurant and a retaining wall which he has rebuilt numerous times. He says he knows it is inevitable that at some point the sea will swallow his restaurant, and he will have to leave. He believes that changing weather patterns and increasing storms have contributed to the damage.

In many communities along the West African coast, it is becoming increasingly dangerous, and in some cases impossible, to live close to the sea, because the beach is disappearing at an alarming rate. There is a growing recognition that the impacts of climate change will force some people to move and construct new communities and lives. Yet there are only a small handful of cases getting underway around the world where entire communities are being relocated on a voluntary basis to adapt to environmental and climate change. The WACA voluntary relocation framework is being developed

in partnership with the West Africa coastal countries to ensure that relocation is a pro-poor, people-centered process in which communities drive the decision making. It promotes a clear understanding of the social risk involved, in addition to transparency and accountability to stakeholders. Rather than provide prescriptive instructions, the framework will walk government and other stakeholders through the inputs they will need to make the decision, the questions to consider regarding who needs to be involved, and how to assess and identify the resources needed. From there, it will develop guidance around different potential pathways, including adapting in situ; encouraging self-relocation through the creation of positive "pull" factors; or initiating a full relocation program.

Sociologist Olivio Diogo works with the government of São Tomé and Príncipe to build trust with pilot communities to ensure their continuous participation. "We are talking about cultures, livelihoods, huge amounts of financing," he explains. "So there are no solutions, only trade-offs, with winners and losers."

The stakes are indeed high, and it is essential that WACA's interventions are effective. Facilitating an open dialogue on the tradeoffs and ensuring that communities drive the process in partnership with government is imperative to ensuring inclusive, resilient development in which people not only survive, but thrive.



Côte d'Ivoire. Photo: Tommy Trenchard / alamy.com





COUNTRY RESULTS:

SENEGAL

Senegal has 718 km of coastal zone and 198 000 km² of maritime area, comprising various ecosystems, including sandy and rocky coastline and islands, wetlands, and mangroves, inter alia. This coastal zone is home to 52 percent of the population and hosts a range of economic activities such as fishing, tourism and market gardening - 70 percent of vegetables consumed in the country are produced in the Niayes region in the north. 90 percent of industrial establishments are located in the coastal zone, which contributes 68 percent of GDP. This critically important area is highly vulnerable to the effects of climate change including erosion, flooding and the salinization of water and soil, and is undergoing rapid urbanization. The main objective of the WACA Senegal program is to strengthen the resilience of targeted communities and areas on the Senegalese coast.

To strengthen policy and institutional framework, the PIU signed an agreement with Gaston Berger University of Saint-Louis, to support the enrollment of Senegalese students in the GAED Masters course on strengthening national capacity to manage the impacts of extractive activities. It is expected that the contract for the National Integrated Coastal Zone Management (ICZM) Plan and the feasibility of creating the National Agency for Integrated Coastal Management will be signed by the end of October 2020. A contract for technical assistance is expected to be signed by the end of November 2020, covering:

- strengthening and extending the existing early warning system within the National Agency for Civil Aviation and Meteorology to also cover maritime phenomena; and
- operationalizing the existing Geographic Information System (GIS) in the Directorate of Environment to monitor the coastline and support the implementation of the ICZM Plan. The PIUs of Senegal and Mauritania are working to establish a bilateral committee for cross-border coastal erosion control activities.

Coastline:

718 km

Coastal population:

7.8 million

Major coastal cities:

Dakar

Saint-Louis

Rufisque

Mbour

This critically important area is highly vulnerable to the effects of climate change including erosion, flooding and the salinization of water and soil, and is undergoing rapid urbanization.



Senegal. Photo: Vincent Tremeau / World Bank

In support of physical investments, an action plan for the regeneration of ecosystems until 2023 in the Langue de Barbarie National Park and the Saint Louis protected marine area has been developed. Reforestation work was set to begin with the start of the rainy season in August 2020. A contract for studies of erosion protection works on historic Gorée Island, a UNESCO World Heritage site, and on the corniches east and west of Dakar is expected to be signed by the end of September 2020.

As the disbursement rate and the extent of technical execution remained very low after two years of project implementation, the Minister of Environment has taken steps to accelerate the implementation

of the project. A national coordinator, working full time on the project, has been onboard since April 2020. The staff of the Environment Directorate working on the project now spends 100 percent of their time on the project, instead of the previous 15 percent.

Response to COVID-19: The risk assessment for the COVID-19 pandemic show that most of the project's activities are affected; they will thus be postponed to the third quarter and some will likely be rescheduled for 2021. The PIU has endorsed the use of ICT during this health crisis to ensure the continuity of the work. Radio du Littoral, a

pilot project funded by the World Bank and the Nordic Development Fund, has provided support for coastal communities cope with the pandemic. The weekly show, broadcast on national radio, has built an excellent relationship with fishers and coastal communities who asked for the Radio's help in understanding and preparing for COVID-19. The Radio du Littoral organized shows on the pandemic and on how it affects fishing activities; and raised funds to purchase cleaning supplies distributed to 21 fishing piers along Senegal's coast in collaboration with the fisheries ministry and the council of artisanal fishers.



Partnering for impact

In Senegal, the WACA project and the Saint-Louis Emergency Recovery Project (SERRP) are together implementing livelihood restoration activities for fishing communities affected by coastal erosion while opening up social dialogue on resilience. The first people to benefit from livelihood restoration activities were those who had already lost their homes and were living in precarious conditions, having been temporarily relocated by SERRP. These livelihood restoration activities will now be extended to the most vulnerable fishing communities, comprising about 5,000 people in the high-risk coastal zone, who will be relocated by the SERRP.

The first livelihood restoration activity is the creation of a community purchasing center, in response to the needs expressed by the group of disaster women temporarily relocated in the Diougop site. The objectives are to:

- restore the sources of income of the women heads of households affected;
- generate economic micro-activities around the community commercial unit, with the participation of retail distributors;
- improve the purchasing power of relocated families and neighboring communities; and
- reduce housework by saving time spent on ensuring the daily supply of food.

Other sub-projects are under development to improve the artisanal processing of seafood and the conservation of fishery products.



West Africa's coast is already at a tipping point and the new risks brought by climate change can be catastrophic for coastal communities, their health, and their livelihoods. WACA provides decisionmakers with tangible information to support long term sustainability."

Maria Sarraf

Practice Manager, World Bank

Senegal. Photo: Vincent Tremeau / World Bank



Senegal. Photo: Vincent Tremeau / World Bank



Coastline:

56 km

Coastal population:

2.9 million

Major coastal cities:

Lomé
Aneho

COUNTRY RESULTS:

TOGO

Togo has a coastline of 56 km, home to almost 36 percent of the population, and with a concentration of major economic activities and urban areas. The coastal area faces a high rate of coastal erosion, reaching 20m per year in some critical places. Population growth with its associated anthropogenic stressors has imposed enormous pressure on coastal resources, and this exacerbates flooding, increases erosion, and causes pollution, all of which pose immediate and long-term risks to livelihoods, assets and natural resources. Sea-level rise is another major challenge.

Activities that WACA ResIP is implementing in Togo include:

- coastal protection against erosion on almost 18 km of coastline, from Agbodrafo to Aného;
- flood and pollution management, through coastal lakes and lagoon dredging and waste treatment;
- sustainable land and forest management, biodiversity protection and climate change activities via mangroves restoration, and community-based activities from existing forest management plans;
- strengthening the political, legal and institutional frameworks for integrated coastal management; and
- improving data collection and early warning system via implementation of a coastal observatory.

Coastal protection activities are shared between Togo and Benin and will be conducted together by the two countries. To facilitate the procurements necessary for cross-border activities, a Togo-Benin joint committee was set up and a Memorandum of Understanding was signed in September 2018 between the Ministers in charge of Environment and Economy and Finance of the two countries.

The technical feasibility study for coastal protection between Togo and Benin is ongoing. The next phase, requiring the collection of data on the ground in Togo and Benin has been



Togo. Photo: Muhammadhaha Ibrahim Ma'aji / unsplash.com

suspended because of measures against COVID-19. The recruitment process to hire a consultant for dredging of the Gbaga channel is ongoing.

To date, the financing agreements for 11 community sub-projects have been signed, and the activities associated with these sub-projects were officially launched in December 2019. Similarly, business plans have been prepared for seven income-generating activities (IGA) sub-projects. The cautious start-up of project activities has kept the disbursement rate low, but the implementation rate is increasing, with social sub-project and coastal protection components expected to start in March 2021, COVID-19 permitting.

The financing agreements for 11 community sub-projects have been signed, and the activities associated with these sub-projects were officially launched in December 2019.

As coastal protection activities between Togo and Benin can start only around the middle of 2021, an urgent action plan is needed for the protection of about 1,500 meters between Gbodjome

and Agbodrafo, with installation of juxtaposed well-type structures, to facilitate the accumulation of sand, while providing a physical barrier to protect the coast against wave action.

Response to COVID-19: A contingency plan has been developed to provide for barrier measures in the execution of all project activities; equipping the meeting rooms of the MEDDPN and the PIU of WACA for remote conferencing; and expediting the execution of community activities.

Gorée Island. Photo: Madjiguene Seck, World Bank



Gorée Island, a UNESCO World Heritage site is deteriorating because of coastal erosion. We do not have the means to rehabilitate the island and we are extremely hopeful that it is included in WACA's interventions' areas. Gorée is our heritage and we cannot let it disappear."

Annie Jouga

Deputy Mayor of Gorée Island

How do you tap local, regional and international expertise?

WACA is establishing a Helpdesk that connects to international expertise in West Africa, France, Japan, Netherlands and Nordic countries.

Overview of WACA Platform results

Since the inception of its design process in 2018, the WACA Platform has made significant progress in developing knowledge, leveraging investment financing, and facilitating regional technical and political dialogue on strengthening coastal resilience.

Knowledge Pillar Results:

- **Establishment of the Africa Center of Excellence for Coastal Resilience:** The WACA Platform leveraged financing to establish the ACECoR at the University of Cape Coast, Ghana. The ACECoR promotes coastal resilience in West and Central Africa through the development of technical and scientific expertise of young African professionals to develop integrated solutions to address coastal degradation across the subregion.
- **Development of a Compendium of Solutions:** In partnership with IRD and the ACECoR, the WACA Platform supported the development of a Compendium of Solutions, giving policy-makers a decision-making tool that provides tried and tested solutions to the complex development challenges of coastal erosion, flooding, and pollution.
- **Technical Advisory Committee:** An interim Technical Advisory Committee (iTAC), consisting primarily of regional scientists, was established and operated for a period of one year to provide technical advice and expertise to the World Bank and WACA countries, and to support the identification of a long-term mechanism for managing, cultivating, and advancing knowledge on coastal resilience in the region. In its year of operation, the iTAC developed a harmonized methodology for MSIPs, conducted scientific reviews of key WACA analytical work, and conceptualized a long-term vision for knowledge management and development for the region. Based on the iTAC experience, the WACA Platform will establish a West Africa Hub for knowledge management and scientific advice, to be anchored in a regional academic institution as part of the transition of WACA functions.

- **WACA Hubs for Scientific and Technical Expertise:** The conceptual design of WACA called for a “technical advisory committee”; from 2019-2020, an interim version of this committee (iTAC) operated on specific tasks relevant to advancing WACA. Given the vast technical areas needing special advice, WACA is establishing a Helpdesk that facilitates access to international expertise and resources in participating WACA Hubs. Building on the successful example of France, where Cerema acted as facilitator (and co-financer) to French expertise, this model expanded in 2020 to Japan (Ministry of Land, Infrastructure, and Transport, in the interim), the Netherlands (Netherlands Water Partnership), Nordic countries (Nordic Development Fund, in the interim), and in West Africa (proposed University of Cape Coast, Ghana). The engagement with the Netherlands has been formalized through a joint MoU, and discussions are ongoing with other partner country focal points.

Finance Pillar Results:

The WACA Finance Marketplace: Designed as the mechanism that introduces project ideas for financing, the first Marketplace was held in November 2019 in Abidjan, Côte d'Ivoire, convening financial partners and WACA country representatives to catalyze the investment process. Project concepts pitched at the Marketplace were based on comprehensive analyses of national investment plans and strategies from national Multi-Sector Investment Plans (MSIPs) and the Strategic Regional Action Investment Plan (SRAIP). The task team, with client counterparts from ministries of finance and environment, triage the concepts using a Finance Decision-Tree to identify which financing instrument is most suitable.

Subsequent Marketplaces will incorporate investment needs that are suitable for PPPs, as well as regional and transboundary investment needs.

Dialogue Results:

- **WACA Communique:** At the launch of the WACA Program in October 2018, thirteen countries jointly developed and signed onto the WACA Communique, promoting three key approaches to strengthening coastal resilience in their countries and across the region:
- Regional integration, working via regional economic commissions (WAEMU and ECOWAS), the Abidjan Convention and its protocols, and the pursuit of a regional observatory for coastal resilience continuing the work by the Centre de Suivi Ecologique.
- National scale-up, through expanding scope of investments in current countries and expanding it to other countries on the WACA MSIPs.
- Mobilizing financial resources from partners in support of new WACA projects, or to complement the existing portfolio of projects for strengthened coastal resilience.

Given the vast technical areas needing special advice, WACA is establishing a Helpdesk that facilitates access to international expertise and resources in participating WACA Hubs.

Lessons learned

Two years after Program launch, lessons are emerging from WACA operations, to be integrated into future projects as the Program extends its reach from the original six countries to the rest of the West Africa coastal region.

Two fundamental design features of WACA have received support from countries and partners alike. The first of these is the combination of a regionally-integrated portfolio of projects that offer economies of scale, and the scale-up platform that facilitates access to knowledge, accelerates finance, and deepens dialogue. The second is the execution of the WACA at the national level with country-led operations, at the regional level with existing mandated institutions doing their part, and internationally by the World Bank and partners in support of the program.

The Marketplace approach has also proved popular, as it is linked directly to Multi-Sector Investment Plans (MSIP/PIMS), from which governments selected priorities that they pitched to a group of technical and financial partners. The approach was welcomed by financing partners and donors, all looking forward to refining the approach and engaging more frequently on financing opportunities.

On regional institutions and integration, the take-away from the operation of the West Africa Coastal Observatory is that it has proven effective to have one coordinating institution working with a network of countries and partners to deliver key functions. The Observatory has mobilized data, developed analytical applications, used technology to develop an easy-to-use information system, and established several partnerships to make all of this work. With this approach, the duplication of work and the risk of system incompatibilities are avoided.

4.

LOOKING FORWARD

Scaling up
geographically

Which universities, academic and research organizations are involved?

WACA directly supports the Africa Center of Excellence for Coastal Resilience (ACECoR), hosted by University of Cape Coast, to develop a network of West African and global academic institutions.

As documented earlier, WACA aims to support the strengthening of resilience of coastal communities and assets in 17 western African countries particularly vulnerable to erosion, flooding, and pollution. The Program commenced with six initial countries in 2018 (Mauritania, Senegal, Côte d'Ivoire, Togo, Benin, and São Tomé and Príncipe). Three additional countries are also set to also benefit from national projects in 2021 (Ghana, Guinea, and Guinea-Bissau). In addition, Nigeria is currently receiving preparatory technical assistance.

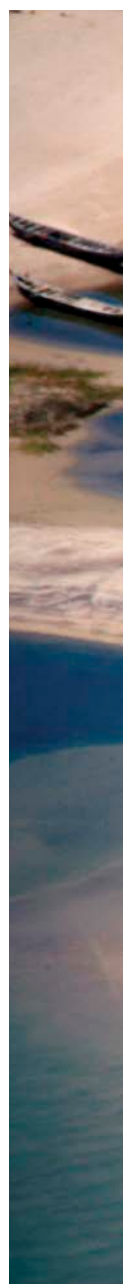
Ghana

Ghana has 550 km of coastline, a 20,900 km² continental shelf, and 218,100 km² of exclusive economic zone (EEZ). Coastal areas account for approximately six percent of Ghana's total land area and are home to one-quarter of its population and 80 percent of its economic assets. The coastline is exposed to low-to medium-energy waves generating strong nearshore currents that cause erosion and pose risks to coastal dwellers. Harbors, dams and coastal defenses along this coastline disturb its natural equilibrium and sediment transport. Despite some control measures, including

breakwaters, sea walls and groynes, coastal erosion continues to threaten many Ghanaian communities and economic assets.

Uncontrolled peri-urban development, including building in waterways, has contributed to flooding of coastal communities, with severe consequences. Flooding in coastal areas is compounded by inadequate solid waste management as well as sea-level rise, mangrove deforestation, tidal waves, and storm surges, and has downstream effects on cultural heritage, biodiversity, and livelihoods. With no active management, sea-level rise alone could contribute to the movement of Ghana's eastern shoreline approximately 50 to 250 m landward over the next 50 years in different locations. Marine pollution is also an increasing cause for concern in Ghana, especially due to the high economic dependence on coastal industries such as fisheries and tourism.

Ghana signed onto the WACA Communique in November 2018, and in late 2019 formally requested that the WACA Program be engaged for technical assistance to inform potential World Bank and partner investments for



With no active management, sea-level rise alone could contribute to the movement of Ghana's eastern shoreline approximately 50 to 250 m landward over the next 50 years.





The Netherlands Water Partnership is working hard to help the Dutch water sector create impact abroad by solving global water challenges and contributing to building more resilient societies. At the same time, we aim to grow the sector's global reach and business success. Close collaboration with the WACA Program and its international partners will allow us to do exactly that – to share our knowledge and expertise and work together on improving the coastal resilience of West African communities.”

Bianca Nijhof

Managing Director,
Netherlands Water Partnership

What nature-based solutions does WACA promote?

Active WACA projects include re-vegetating dunes and river banks, re-planting and protection of mangroves, and sand nourishment.

Is climate change a factor in coastal resilience?

Climate change exacerbates the processes of coastal erosion and flooding, due to sea-level rise, and extreme weather events.

coastal resilience. Technical assistance has commenced on two activities: (i) an economic analysis of the value of mangrove forests as a resource for coastal flood management, including modeling reforestation and impacts on flood risk, and proposed nature-based interventions for flood risk management; and (ii) identification of hotspots for coastal flooding, erosion, and pollution, and the subsequent development of pre-feasibility studies for the three highest priority sites.

The proposed interventions for coastal resilience from both activities will form the basis of Ghana's coastal Multi-Sector Investment Plan (MSIP), which will serve as a decision-making tool for the government and its partners to mobilize financing for site-specific interventions. The MSIP will be based on the findings of the two activities, on the development objectives of the Government, and on extensive consultations with coastal communities. A World Bank investment operation for coastal resilience in Ghana is currently under preparation, and is expected to begin in 2022. A national working group consisting of the multiple Ghanaian agencies working on coastal development, the WACA Program, and their development partners is being launched in late summer 2020 to identify opportunities for collaboration and joint project financing.

Guinea

Guinea is endowed with rich coastal and marine ecosystems, some of them still well-preserved, including large mangrove zones and rich natural resources waters. The coastal area is subject to multiple development challenges in the country's key economic sectors (agriculture, fisheries, mining, infrastructure); some of these challenges jeopardize sustainable development.

Guinea has been involved in regional coastal resilience initiatives since its contribution to the development of the West African coastal masterplan (SDLAO) in 2011 and its participation

Since 2018, GFDRR has provided programmatic support for the design, launch and operation of the WACA Platform.

in the regional coastal observation mechanisms. The World Bank has been engaged for several years with Guinea in various sector reforms that have paved the way for a transition to a bluer economy, in particular support for the management of fisheries, mining governance, and local development. Guinea has also signaled its commitment to addressing key environmental issues by requesting an IDA loan from the World Bank for the Ministry of Environment, Forests and Water. This loan will assist in building the capacity of the Ministry to address tradeoffs for achieving sustainable development with economic growth, including in coastal areas. The intersectoral approach of this Natural Resources, Mining and Environment Management Project (P168613), currently under preparation, constitutes an opportunity to support the first steps toward an integrated coastal & marine planning and the integration into the WACA Program.

Guinea-Bissau

Guinea-Bissau has significant natural coastal resources. The archipelago hosts endangered species, and the mangrove forests serve as a nursery for many species including fish, from which neighboring countries also benefit. The pristine coast is subject to degradation including coastal erosion in the northwest, mangrove habitats and sea-grass beds have been shrinking, and there are reports of saltwater intrusion. A significant part of Guinea-Bissau's population depends on natural resources for their livelihood and food security. Managing the coastal assets sustainably is an essential element of the country's economic and social development.

The Implementation Progress Report of the Coastal and Biodiversity Management Project (P049513), (CBMP) recommended that Government should explore potential linkages with the Bank's coastal resilience efforts under the West Africa Coastal Areas (WACA) initiative to which Guinea-Bissau could adhere. The government of Guinea-Bissau signed on to the 2018 WACA Communiqué, and requested that the country become part of the Program in 2020. The World Bank is exploring the possibility of IDA financing for a project that would focus on policy for resilience, investments in coastal protection and restoration, as well as social and livelihood activities. The project would also support objectives towards a sustainable green, resilient and inclusive recovery following the COVID-19 pandemic.

Nigeria

The maritime zone of Nigeria is composed of 853 km shoreline on the Atlantic coast. The major economic activities in the zone include oil and gas exploration and exploitation, fishing industries, shipping, agriculture, sand-mining, and tourism. Some of these activities are exposed to persistent and increasing coastal risks, mostly related to pollution, erosion, fluvial and coastal flooding by anthropogenic activities such as rapid urbanization, oil spillage, poor waste management practices (municipal and industrial), mangrove depletion, sediment trapping by port or upstream dams, and more recently climate change-driven sea-level rise and intense precipitation.

In response to these development challenges, the WACA Program has launched an MSIP to address coastal degradation and hazards in Cross Rivers, Delta, and Lagos states. In an approach similar to that being taken in Ghana, the

development of the MSIP will proceed simultaneously with the development of pre-feasibility studies to identify potential interventions at the highest priority site in each state. The first results are expected in early 2021, and the WACA Program is working with its development partners to coordinate financing, expected to be mobilized in late 2022.

Sierra Leone

In Sierra Leone the World Bank has been supporting Greater Freetown in developing resilience to disaster and climate change, most notably through the Damage and Loss Assessment and the associated recovery financing following the Sugarloaf mudslide of August 2017. The ongoing Freetown Emergency Recovery Project (FERP) has supported interventions for the rehabilitation of landslide-affected areas, through slope stabilization, bridge and drainage infrastructure rehabilitation, and water infrastructure rehabilitation. It is also supporting capacity building for disaster risk management and emergency preparedness and response at the national and local levels.

Looking ahead, the World Bank is preparing a new investment project to build urban resilience in Greater Freetown and across the country, by strengthening institutional capacity of city councils in resilient urban planning and supporting own-source revenue mobilization. It will finance infrastructure investments, in urban drainage, solid waste management, and in the upgrading of poor and vulnerable neighborhoods. The project will have a strong emphasis on eco-system-based approaches, including forest, mangrove and wetland protection, and tree-growing interventions. It will also build institutional capacity for disaster risk management and preparedness.



Ghana. Photo: Andrea Borgarello / World Bank



Scaling up knowledge

Overview

In FY20, the design and operation of the first Pillar of the WACA Platform dedicated to Knowledge, was finalized, to facilitate and increase access to knowledge, expertise, regional and global good practices, and technical assistance programming for, and among, West African and other countries faced with the challenges of coastal erosion, flooding and pollution. Three key areas of engagement and related sets of activities were advanced in FY20: Knowledge Generation & Advisory Services, Knowledge Management, and Capacity Building.

Under Knowledge Generation & Advisory Services, an interim technical advisory committee (iTAC) was established and operated in FY19 to provide technical advice and expertise to WACA countries, identifying priority interventions for coastal resilience, based on an understanding of the risks, benefits, impacts, and urgency of various investment needs. iTAC members contributed to the Understanding Risk Forum in Abidjan in November 2019, assisted in the development of a harmonized methodology for MSIPs; conducted scientific reviews of key WACA Documents, and started a roster of experts in the region to support future operations of the WA Hub, and WACA Knowledge Helpdesk.

To support the sustainability of the Knowledge Pillar, the WACA Program is supporting the development of academic programs and a regional network of expertise with the University of Cape Coast's ACECOR has led a regional mapping of tertiary and academic research institutions. A compendium of solutions and good practices for integrated coastal zone management, based on global practices, is under development led by France's IRD jointly with UCC and was due for delivery by end-June 2020. A call for innovation has supported identification of key areas of frontier research to advance technical solutions for coastal resilience.

Finally, in the area of capacity-building, institutional stakeholder mapping was led by UCC-ACECoR to identify regional institutions for the eventual transfer of WACA Platform services.

Knowledge Exchange in the Netherlands

In October 2019, representatives of the Governments of Albania, Georgia, Ghana, Liberia, Romania, and Sierra Leone undertook a study tour of the Netherlands, aimed at leveraging Dutch expertise on nature-based solutions by learning about nature-based water management and flood control measures, and the exploring the potential of integrating nature-based infrastructure along with, or sometimes in place of, grey

infrastructure. The event was organized by the Netherlands Water Partnership (NWP), and sponsored by the Nationally Determined Contribution Support Facility (NDC Facility), the Global Facility for Disaster Reduction and Recovery (GFDRR), the Nordic Development Fund (NDF), and the World Bank.

Participants were struck by how similar their development challenges were, despite their bio-physical and socio-economic differences. The Dutch highlighted their experience with the ABCDE approach (System analysis, Political bargaining, Codification, Delegation, Engineering) a practical method of organizing the necessary conditions needed to developing solutions for sustainability and adaptation. It was clear that the Netherlands has very strong institutions in government and the private sector to serve the national goal of water management. Furthermore, the Dutch people are engaged in the national dialogue to live with nature, with significant stakeholder engagement at all levels.

The national government prioritizes research and provides resources to institutions - an important example for ACECoR and similar networks. Climate change and other challenges are seen as opportunities to generate other benefits and environmental services. All projects visited involved a consortium of

Mauritania. Photo: MasterlessFootage / shutterstock.com



The need for a “Compendium of Solution” emerged that would describe existing and potential solutions to curb coastal erosion, prevent flooding and mitigate damage on society.

stakeholders, deployed in collaborative arrangements according to their expertise. Finally, in the area of financial sustainability, the Netherlands has three levels of water taxes, with maintenance incorporated into the financial models.

Compendium of Solutions

One of the main challenges initially for coastal countries was that there was no easy access to good practices for coastal management in West Africa. The need for a “Compendium of Solutions” emerged that would describe existing and potential solutions to curb coastal erosion, prevent flooding and mitigate damage on society.

The Compendium of Solutions is a key initiative under the WACA Platform’s Knowledge Pillar, to guide future investments and inform regional political dialogue. The WACA Compendium will

support decision makers in ensuring that proposed technical options address their priorities, and that they are resilient to predicted climatic and non-climatic stressors, both current and future.

The first phase of the Compendium was conducted by the French National Research Institute for Sustainable Development (IRD) and UCC - ACECor. Co-funded by the WACA Platform and IRD, this work was reviewed by the iTAC, contributing to the establishment of a network of academic and research institutions on coastal resilience in the region. Coastal management practices currently applied in West Africa and other parts of the world were analyzed based on a review of scientific literature. Good practices in the region were identified, and potential solutions from global practices not yet applied in the region explored. The Integrated Coastal Zone Management (ICZM) approach is proposed as an overarching principle for implementing the solutions, with special emphasis on ecosystem-based management and nature-based solutions.

2020 West Africa State of the Coast Report

As part of the WACA ResIP project, a 2020 West Africa State of the Coast Report is to be developed in 2020 and published in 2021 (Bilan 2020). The Report is an update of the West Africa Coastal Master Plan (SDLAO) published in 2011 by WAEMU

with the technical assistance IUCN and the Ecological Monitoring Center of Dakar (CSE), within the framework of its Regional Program for Coastal Erosion Control (PRLEC). The first update was published in 2016, as part of the West Africa Coastal Observation Mission (WACOM) and validated in July 2018 in Abidjan by the Ministers in charge of the environment of the different countries. These publications have been instrumental in creating and maintaining momentum on coastal risk management in West Africa and for funding mobilization.

The 2020 assessment will focus on the main changes in coastal areas in the period 2016-2020; these changes include pressures on coastal systems and the responses implemented by the States and their partners in response. This edition will draw on mechanisms that have allowed for the development of previous versions and highlight the important work and initiatives that have been achieved and committed to through the WACA Program and partner initiatives. These include:

- Preparation of the detailed assessment;
- Integration of MSIPs and the PARSI at the regional level;
- Regulatory and legislative reforms at the national and regional levels;
- Sectoral mechanisms for collaboration and integration;



As the sea level rises, so does the likelihood that the success of these burgeoning regions will be washed away as food production will decrease, access to clean water will be curtailed, and catastrophic storms will become more prevalent.”

Ahmadou Aly Mbaye
Senior Fellow,
Africa Growth Initiative

How do you make sure vulnerable and marginalized populations also benefit from the program?

WACA ResIP applies a social inclusion and community engagement approach to ensure that communities – and especially marginalized or vulnerable groups – are consulted about project design and potential impacts.

How do you work on governance in the program?

Support for improved coastal governance is integrated into all WACA projects, as it is a necessary complement to physical and social investments that address erosion, flooding, and pollution.

- Initiatives to identify existing and innovative solutions;
- Coastal risk observation and assessment processes;
- Enhancing knowledge on sediment dynamics, land use and coastal ecosystems;
- Initiatives to develop data presentation and sharing platforms; and
- Coastal areas Earth Observation mechanisms and tools for sustainable development.

The 2020 WA State of the Coast Report is being developed collaboratively, involving partners producing coastal and marine data and information in West Africa. The CSE at Dakar is taking the lead in delivering the Bilan 2020 update. They will be acting as stakeholders and partners coordinators, assembling and harmonizing the final document.

The WACA Climate Change Assessment

The WACA Climate Change Assessment consolidates relevant information on climate change in Mauritania, Senegal, Togo, Benin, and Côte d'Ivoire to describe potential changes in the coastal climate, as well as related hazards, in an organized and quantitative manner at different time horizons. Temperatures in West Africa are expected to rise by 2°C in 2050 and by almost 4°C in 2100 over most of the region under one scenario, with temperatures increasing by approximately 4.6°C in Mauritania by 2100. Although precipitation is expected to be less frequent, extreme precipitation events are expected to occur more often. By 2050 sea levels on the coasts of Mauritania and Senegal could rise by 0.6 m; in Côte d'Ivoire, Togo and Benin the rise could be 0.3m. By the end of the century in all countries, increases of over one meter in sea levels are projected. When only sea level rise is considered, the total potential inundated areas in the five countries is estimated at about 6,650 km² in 2100, of which 5,260 km² is in Mauritania and Senegal combined. When the effects of tides

Temperatures in West Africa are expected to rise by 2°C in 2050 and by almost 4°C in 2100 over most of the region under one scenario, with temperatures increasing by approximately 4.6°C in Mauritania by 2100.

and extreme events are considered, the potential inundated areas are larger. The assessment provides a quantitative estimate of the potential changes and hazard exposure, which can guide the design of future coastal investments.

Mangroves Study

West Africa's coastal areas host an abundance of mangroves along the coast where ocean, freshwater, and land meet. Estimates indicate mangroves along the coast in West African coastal countries cover more than 20 thousand square kilometers. Common mangrove species found in West Africa include three types of red mangrove, black mangrove, white mangrove, buttonwood, nypa palm and leather fern. These mangroves provide wood and non-wood forest products, contribute to conservation of biological diversity by providing habitat for birds, fish, shellfish and amphibians, help in salt production, protect adjacent coastal areas from erosion and flooding, and sequester carbon. However, in general, the ecosystem services of mangroves are context-specific. Hence, the identification of location-specific benefits of mangroves and valuation of ecosystem services of these natural resources is critical for the Natural Capital Accounting of West African Coastal Areas.

WACA has enabled a study into the ecosystem services provided by mangroves to communities and countries in the region. A comprehensive methodology is being developed for





the estimation of the total economic value of ecosystem services of current mangrove plantations in the West Africa coastal region, taking into consideration the whole range of benefits provided by mangroves. Additionally, a framework is being established for comprehensive costing of replanting or creation of additional mangrove plantations in suitable locations.

Scaling up communications

Given its transboundary scope, the WACA Program brings together communities with different needs, stakeholders across a range of arenas, and partners with distinct priorities. To reconcile these, there is a need for stakeholder engagement, donor relations, and expectations management. These efforts must be coordinated and sustained, as the complex interventions needed to build coastal resilience take time and dedication.

WACA's network of communications specialists from countries' project implementation units and partner agencies have prepared a regional communications strategy with which they align their work program, delivering together on the objectives, approaches, actions and outcomes outlined. This strategy combines activities at the national and institutional levels that ladder up to support WACA's objective of transforming coastal livelihoods in West Africa.

Studies show the direct links between project performance and communications activities, which are a determining element of a results-oriented strategy. WACA sets itself the imperative of conducting impactful communications focusing on the results of projects, the participation and satisfaction of coastal actors, and the sustainability of the interventions.

The communications strategy brings a human narrative on coastal livelihood to the discourse; activates influencers who can advocate, engage and activate their networks; and builds partnerships that secure support for coastal resilience.



This helps position WACA as a partner of choice, and places coastal resilience at the center of global, regional, and country development. Regional integration and African ownership are both key factors of success. This strategy supports the creation of coherent regional policies and promotes strong support from leaders in the region.

The strategy enables adaptive execution, taking into account emerging needs as WACA evolves and scales up from six to 17 countries and from an envelope of \$220 million to the target of \$2 billion.

Scaling up dialogue

Private sector

WACA is engaging with the private sector to leverage the sector's knowledge and finance and to build a network of support for the development objectives of coastal areas. Private sector involvement would result in greater collaboration and planning between key actors, including governments, civil society, and academia.

Twelve projects have been identified as potential PPP projects, to be presented after consultations with the government at the next WACA marketplace.

WACA will seek private sector solutions by, inter alia:

- engaging entrepreneurs to present innovative ideas for fighting coastal erosion through their businesses;
- establishing a forum led by the private sector on coastal erosion;
- developing or expanding on the Blue Economy in relevant countries; and
- raising sovereign bonds or creating an enabling environment for raising bonds on coastal management.

For this purpose, WACA has launched a study in collaboration with the firm CPCS to identify a pipeline of projects that will include private sector investments. Twelve projects have been identified as potential PPP projects, to be presented after consultations with the government at the next WACA marketplace. Based on the assessment of viable projects in this pipeline, WACA is also looking at various instruments that would provide sustainable financing for these projects.

The WACA Platform has already conducted and completed a study on innovative financing that has led to the design of a potential private sector regional fund. The fund would provide financing for pre-feasibility studies for the projects in the pipeline. Additionally, national funds will be established to further develop and implement the projects. These facilities will be developed through pilots either in Ivory Coast or Ghana. The latter would be conducted in partnership with the Climate adaptation team of the World Bank.

Finally, the WACA Platform has launched a call for innovation aimed at finding innovative engineering solutions to build sustainable ports. Through this initiative, the Platform is also seeking new PPPs that could be developed to ensure the sustainable management of ports.

Local Action and Citizen Engagement (LACE)

WACA seeks to mobilize communities' capacities to protect the coast and enhance resilience. Organized communities have a wealth of risk management knowledge based on their lived experience and should be engaged as partners in resilience building rather than beneficiaries. Research has shown that community leaders can set priorities, influence government policies, and design and implement investment programs that are responsive to community needs. Communities can lead the way, but need to be connected to higher-level policy, technical assistance and information for sustainable impact.

To advance this agenda, WACA is working with civil society partners to develop a Local Action and Citizen Engagement (LACE) initiative. The LACE initiative will focus on three main activity areas:

- facilitate community-led partnerships for coastal resilience: This will identify and support local innovations and good practice for coastal resilience building and promote collaborative relationships between communities and local authorities to address coastal risk management through direct funding and partnerships with grassroots groups, civil society and/or other local entities. Good practices will be documented and shared across countries through the Knowledge Sharing function of the Platform.
- promote public participation and citizen engagement in WACA: Activities will support awareness raising and engagement of the public in WACA communities on issues of coastal protection and climate change. This may be done through activities such as social

Coastal Voices: youth outreach

Youth outreach is a key component of WACA's efforts to crowdsource homegrown solutions. The World Bank Africa Region has provided platforms where youth across the region can champion coastal resilience and mobilize local action. Kevin Adantchede lives on the coast in Benin, and won the 2019 Blog for Development Competition (Blog4Dev) – extracts from his winning post appear below.

Be Your Neighbors' Heroes

It was Monday. My watch showed 2.34 am. It was raining like never before. I was in the middle of the night, thinking about how I would get ready for the day. To kill time, I was posting status updates on WhatsApp. As soon as I finished, I got a reply message from a friend.

Their house fence had just collapsed. There was no one to help at this time of the night. She told me that their living room and bedrooms was flooded, and the water was rising. The books, the television, the computers, and the car were already inundated. She and her sister and mother had to climb up on top of a wardrobe to get out of the dirty water. She was sending me those messages from there.

I thought of all the families in the neighborhood and elsewhere who had been affected. Those who got help in time were able to make it, but others have not been that lucky. Because of global warming, the weather is behaving like a hungry madwoman. Doing whatever pleases it and being aggressive. This is our responsibility! My neighborhood or my country is not the only one experiencing this. Have you already forgotten what happened in Côte d'Ivoire and Sierra Leone?

Fortunately, there are organizations like the World Bank, working for resilience to pollution, flooding and coastal erosion through its West African Coastal Area Management Program (WACA). I think that, just as WACA is doing, we must continue to raise awareness among people living in areas exposed to flooding or coastal erosion about the dangers they face and prepare them to develop sustainable solutions and adopt a resilient attitude in the face of extreme natural events.

We must also keep on involving the youth in local development by supporting their citizen's initiatives related to flooding, pollution and coastal erosion. The circular economy makes it possible to reduce waste generation, encourage recycling and re-using of waste. It should be the focus of any local development and be promoted through regional contests.

Many people are losing their lives, their families, their homes and their jobs. There are millions of them on the West Africa coasts. This damage results not only in natural but also in economic consequences. Just because we live in the North of the country does not mean that the problems of the South do not affect us.

"We must also keep on involving the youth in local development"



There is financial and social urgency to strengthen the resilience of millions of people living on the coastline. Countries need to work together to find common solutions and crowd-in the finance needed to protect their coastline and avoid future damage.”

Benoît Bosquet

Regional Director for East Asia and Pacific at the World Bank

media campaigns on coastal care; training and engaging local media on responsible reporting related to coastal erosion, disaster risk management and climate change; raising awareness on regional/transboundary issues and a culture of coastal protection; training and nurturing community leaders (women, youth, elders) to lead local efforts related to WACA objectives; crowdsourcing data collection to inform WACA activities and participatory socio-environmental monitoring, among others.

- promote social inclusion: This will support knowledge sharing and capacity building around the social dimensions of risk. It will also support analysis and activities to promote social inclusion and empowerment of women's, persons with disabilities, traditional communities, etc.

The WACA team is conducting further design consultations with civil society partners to identify priority activities for a LACE workplan to carry out in the coming year.

Scaling up finance

From the outset, the World Bank has been committed to helping countries mobilize finance for coastal resilience, which is a complex development challenge with costly solutions. In its first two years of operation, the WACA Program has made significant progress on this commitment, leveraging public finance via traditional development projects, engaging the private sector, and developing new financing instruments. Through the WACA Platform, the World Bank and its partners support the preparation of new projects for coastal resilience.

The Finance Marketplace

At the heart of these efforts is the Finance Marketplace, the primary mechanism to introduce project ideas for financing. The objective of the marketplace is to simplify the means by which countries' priorities and needs can be matched with public and private sector interest. At the Marketplace, the WACA Platform leverages the

technical expertise and resources required to take project concepts presented by governments and turn them into investment-ready designs project ideas come from national Multi-Sector Investment Plans (MSIP) and the Strategic Regional Action Investment Plan (PARSI), and are triaged using a finance decision-tree to identify which financing instrument is most suitable.

The finance decision-tree, developed by the World Bank's Infrastructure Finance, PPPs & Guarantees (IPG) group, determines the suitable choice of financing instrument, and stems from an assessment of parameters such as profitability and return on investment. There may be a residual need to develop new instruments, and a need to have a facility or a fund to stimulate and facilitate private sector engagement and finance.

WACA convened the first Marketplace in November 2019 in Abidjan, Ivory Coast, aimed at catalyzing the dialogue among countries, potential financial partners, and the WACA Platform, to accelerate implementation and action on coastal resilience. An investment portfolio of about 12 projects with a total value of about \$1.6 billion was presented by the ministries of finance and environment of each country to attract potential investors. The event resulted in one offer of specific finance and one transformative offer of technical collaboration, both of which are now being pursued.

While this first Marketplace focused on project ideas for traditional development financing, including concessional loans, credits, and grants, WACA is currently working with countries and partners to identify opportunities for investment by the private sector, public-private partnerships, and new financing instruments.

Engaging the Private Sector

Rallying the private sector to help deliver on climate-resilience infrastructure and on overall development goals is a significant challenge. Adapted, efficient and resilient infrastructure is a key component for coastal resilience, and requires managing the footprint of ports, roads, and urban

What are the financing needs?

As of December 2020, WACA has catalyzed \$650 million in investments and commitments and aims to scale this amount to an indicative \$2 billion.

How is the private sector engaged?

The private sector has been engaged through national and regional consultations, and a private sector working group for sustainable ports is being formed. The next Marketplace will focus on financing for PPPs.

infrastructure. It is also about understanding the risks to the environment, and the cost of inaction. Therefore, engaging the private sector is on the critical path for an in-depth understanding of the innovations and financial tools that must be deployed and scaled up to bring change. Even more progress is possible when private sector actors commit firmly to sustainability and corporate social and environmental responsibility.

The WACA Call for Innovation closed at the end of last year and some transformative private sector-related ideas emerged, including the three winners: (i) the WAC-App which is an interactive coastal planning tool to explore the impacts of coastal interventions; (ii) the Trans-Sand which is an idea for a transnational bypass scheme funded by a public-private dredging fund; and (iii) the SA-POD which is a systematic integrative approach for port development.

Public-Private Partnerships

WACA has also reviewed national investment strategies for projects that could be developed into public private partnerships, and a number of ideas have been identified, some of which are in the process of detailed financial analysis, and to be presented at an upcoming Marketplace. The World Bank IPG and WACA have committed to work together to increase the feasibility of these innovations and PPP ideas, and to develop upstream business cases for public-private partnerships. IPG is keen to push for innovations and even more for their replicability.

Looking Forward

As a result of the Bank's engagement with development partners and the first Marketplace, a total of \$650 million has been leveraged for approval or in the pipeline of donors. The WACA

Program expects that with the existing engagement of the private sector, the infrastructure finance partners, that private sector finance could materialize. Through these efforts, WACA hopes to maximize the positive impact of infrastructure, raise economic efficiency, and integrate sustainability in infrastructure investment in order to truly transform coastal livelihoods.

Financial Reporting

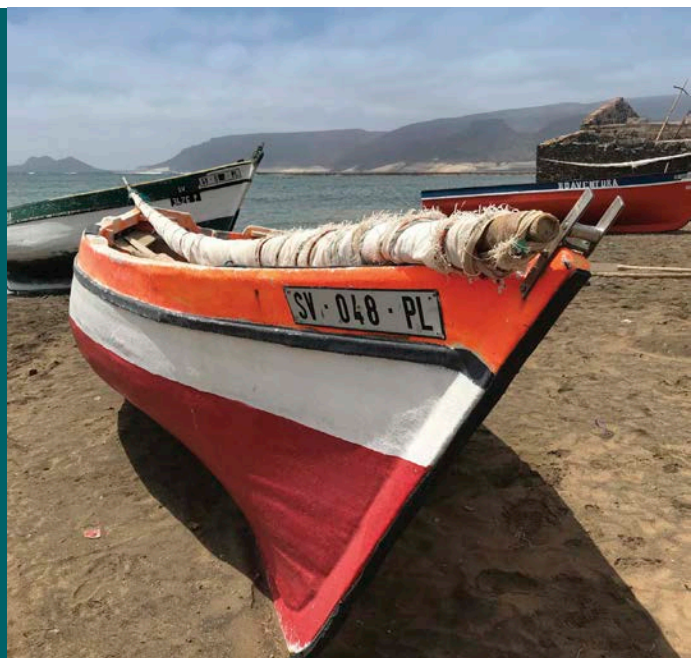
Because the WACA Program is a combination of both interventions and finance from many partners, traditional financial reporting on operations is both complex and not entirely helpful or relevant. Reporting on World Bank finance to countries is provided through a different mechanism, and funds provided by donors to the WB-executed activities are also accounted for elsewhere. For many activities implemented by partners, again, other reporting mechanics are in place.

However, in collaboration with partners the WACA Program will deepen analysis in the next financial year, and is looking into reporting on financing in the following dimensions:

- the financing needs for the management of coastal erosion, flooding and pollution and coastal resilience in West Africa;
- the ratio of investments to erosion, flooding and pollution obtained;
- the cost of knowledge activities – e.g. MSIP, PARSI, and feasibility studies;
- capacity-building and knowledge exchange;
- investments in dialogue, harmonization and policy; and
- the costs associated with WACA's secretariat function.

The Cabo Verde Blue Bond

The World Bank supported the preparation of the Cabo Verde Blue Bond Note. Cabo Verde recognizes the growth potential of its coastal and marine natural capital and the need to preserve it. The sectors best fitted for Blue Bond financing in Cabo Verde could be ecotourism, marine plastics, and sustainable fisheries, as they would be most likely to combine development impact, revenue generation, preservation of the coastal and marine environment, and attractiveness to blue investors. The Note concluded that a blue bond, in the order of \$10-15 million, would be a suitable instrument for Cabo Verde, although it would not in itself be sufficient as an instrument to cover all aspects of coastal resilience.



Cabo Verde. Photo: WARFP / World Bank

ACRONYMS AND ABBREVIATIONS

ACECoR	Africa Center of Excellence for Coastal Resilience
ANAGIL	National agency for integrated coastal zone management (Côte d'Ivoire)
BRGM	French Geological Survey
CBMP	Coastal and Biodiversity Management Project, Guinea-Bissau
Cerema	Center for Studies and Expertise on Risks, Environment, Mobility and Development
CSE	Centre de Suivi Ecologique
ECOWAS	Economic Community of West African States
FERP	Freetown Emergency Recovery Project, Sierra Leone
FFEM	French Facility for Global Environment
GFDRR	Global Facility for Disaster reduction and Recovery
GIS	Geographic Information System
ICT	Information and communications technology
ICZM	National Integrated Coastal Zone Management, Senegal
ICZM	Integrated Coastal Zone Management
IDS	Specialist in institutional development
IGAs	Income Generating Activities
IGN	French National institute for Geographical and Forestry Information
IPG	World Bank's Infrastructure Finance, PPPs & Guarantees group
IRD	French National Research Institute for Sustainable Development
iTAC	interim Technical Advisory Committee
KWPF	Korea-World Bank Partnership facility
LACE	Local Action and Citizen Engagement
MEDDPN	Ministry of Environment, Sustainable Development and Nature Protection (Togo)
MOLOA	Mission Observatory for the West African Coast
MSIP	Multisectoral investment Plan
NWP	Netherlands Water Partnership
OIPR	Office Ivoirien des Parcs et des Réserves
PAGLI	Côte d'Ivoire's coastal master plan
PDALM	Mauritania Coastal Master Plan
PIUs	Project Implementation Units
PROBLUE	The World Bank's Blue Economy Program
RAMPAO	Network of West Africa's Protected Areas
RISU	Regional Implementation Support Unit
RMU	Regional Management Unit
SDLAO	West African coastal masterplan
SERRP	Saint-Louis Emergency Recovery Project (Senegal)
SHOM	French Naval Hydrographic and Oceanographic Service
SRAIP	Strategic Regional Action Investment Plan
UCC	University of Cape Coast
UNESCO	United Nations Educational, Scientific and Cultural Organization
WACA	The West Africa Coastal Areas Management Program
WACA ResIP	WACA Resilience Investment Project
WACOM	West Africa Coastal Observation Mission
WAEMU	West African Economic and Monetary Union

IMPLEMENTING PARTNERS



DONOR PARTNERS



PROGRAMMATIC AND FINANCING PARTNERS





West Africa Coastal Areas Management Program

For more than a decade, the West African coastal countries have suffered from the adverse effects of coastal erosion exacerbated by climate change, jeopardizing the high socio-economic, environmental, and cultural potential of their coastal zones. If nothing is done, the vulnerability of the socio-economic infrastructure, natural resources and coastal populations will only grow, leading to an ever-increasing loss of wealth in the region.

The West Africa Coastal Areas Management Program (WACA) is a convening Platform that assists West African countries in sustainably managing their coastal areas and enhancing their socio-economic resilience to the effects of climate change, facilitating access to technical expertise and financial resources.

In this Annual Report, you will read about the emphasis on livelihoods and social development that the WACA Program offers, in parallel with physical and green investments to combat coastal erosion, flooding and pollution that are entry points to sustainable development in coastal countries.

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