



Building Climate Resilience of Coastal Areas in West Africa

Towards COP22: African Ministerial Conference On Ocean Economies and Climate Change

Mauritius, September 1-3, 2016

Journalists Workshop

Mauritius, August 29 – 31, 2016

Context

- Coastal areas home to **31% of West Africa's population** (51% of its urban population - including Nigeria) and generate 56% of the region's GDP
- Home to major industries, including agro-industry, fisheries, offshore petroleum exploration and production, and tourism, as well as city and seaside residences.
- Significant natural and anthropogenic pressures: overexploitation of fisheries; rapid urbanization and unsustainable land use; marine and coastal pollution
- Coastal floods affecting an average of **500,000 people** per year in West Africa
- **One-meter rise in sea level** is projected to result in land loss of 18,000 km² along the West African coast
- The **cost of degradation in Togo** as a result of coastal losses due to erosion and associated economic opportunity losses estimated to about US\$ 295 million, equivalent to 2.3 percent of GDP in 2013.

Coastal health, an indispensable resource

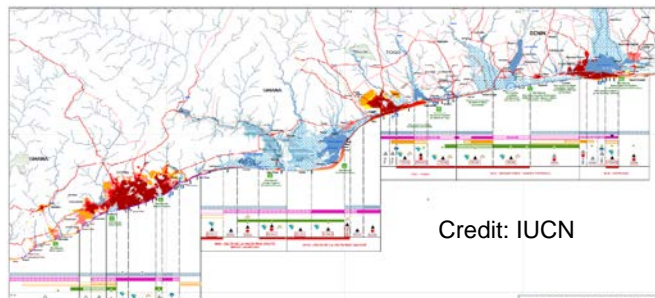
West Africa Coastal Areas Management Program (WACA)

WACA is the strategic foundation for WBG's work on coastal erosion and coastal zone management in Africa

The Program works on country demand to create multi-country coastal management initiatives implemented in stages (analysis, plan, investment) in collaboration with development partners and civil society.

WACA is designed to improve the livelihoods of coastal communities in West Africa by reducing the vulnerability of its coastal areas and promoting climate-resilient integrated coastal management.

For more information:
www.worldbank.org/waca



Loss of Land, Assets and Livelihoods

Cotonou, Benin

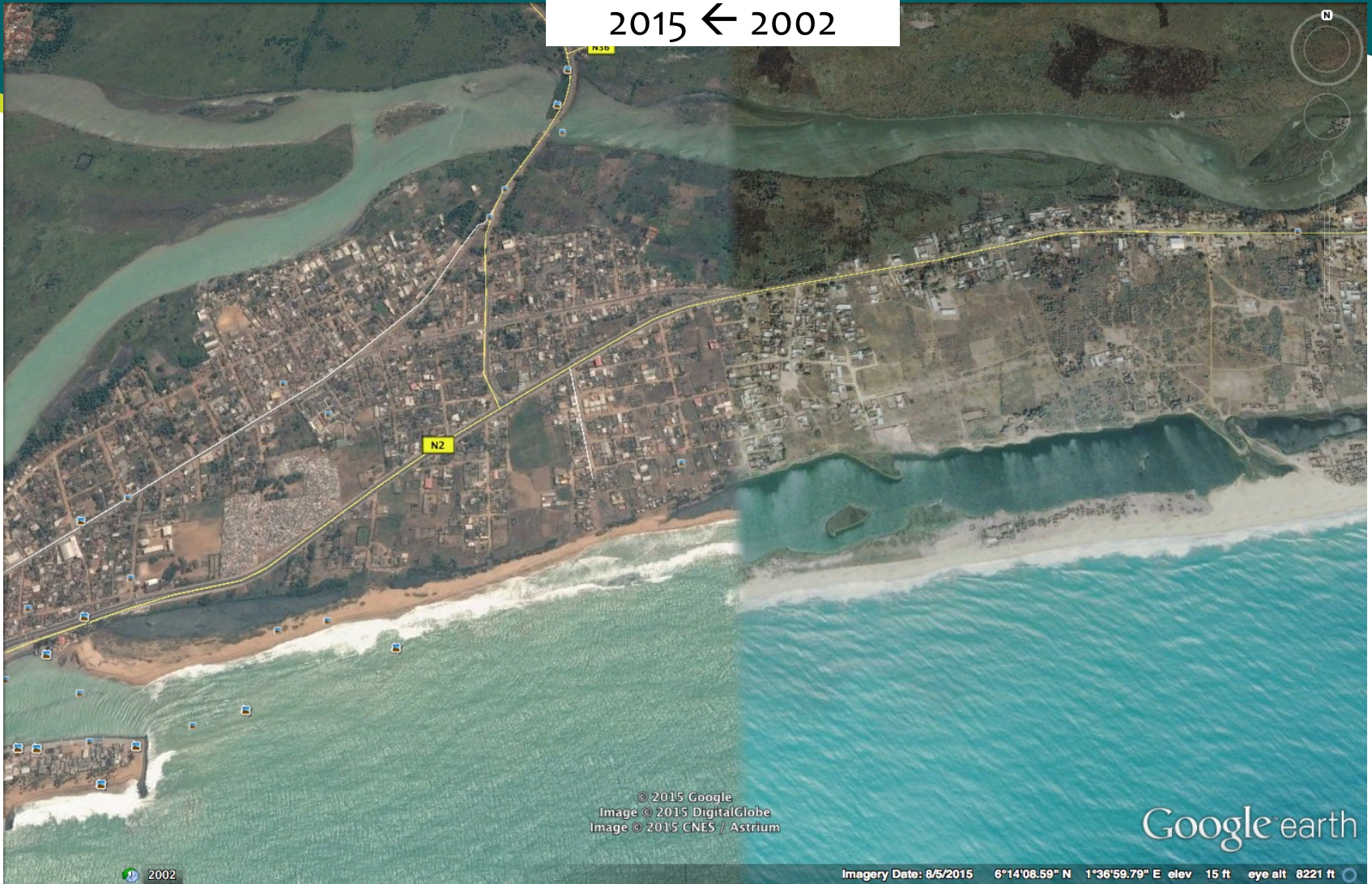
2002 → 2013



Loss of Land, Assets and Livelihoods

Aného, Togo

2015 ← 2002



Loss of Land, Assets and Livelihoods



Mauritania



Guinea-Bissau



Senegal



Ghana



The Causes: Man-Made Port Construction

Coastal Change after Lome Port Construction



The Causes: Man-Made Legal or Illegal Sand Extraction

Sierra Leone



Togo



The Causes of Coastal Degradation: Natural & Man-Made

Natural

- Waves
- Tides
- Winds
- Near-shore currents (“sand river”)
- Storms
- Slope processes
- Sea level rise
- Changing precipitation patterns
- Higher temperatures
- Increased salinity of coastal estuaries

Anthropogenic

- Construction of ports
- Construction of groins and jetties
- River water regulation works
- Construction of sediment-trapping upland dams
- Hardening of shorelines with seawalls or revetments
- Destruction of mangroves and other natural buffers
- Sand mining or water extraction
- Marine and coastal pollution
- Onshore and offshore oil exploration

Solutions: Hard, Green, Retreat

Hard Infrastructure

- Groins
- Sea walls
- Revetments
- Geotextiles
- Crushed basalt rock
- Sand replenishment (pumping from deep sea)

Green Infrastructure

- Mangrove restoration
- Dune restoration

Policy/ Regulatory

- Land-use planning
- Impact assessments
- Enforcement of ban on sand extraction
- Strategic retreat / relocation

Regional and National Engagement to Integrated Coastal Management

Productive Marine and Coastal Fisheries

Functioning Coastal Ecosystems

Sustainable Infrastructure and Cities

Natural Risks and Climate Resilience

Others (TBD)

Cross-cutting themes: Effective Regional and National Coordination & Efficient Governance System

Current Issues

Overexploitation
Offshore and onshore
Pollution

Degradation of green infrastructure (mangroves, watersheds, etc.)

Poor sanitation
Unplanned urban growth
Land based pollution

Country Entry Point
(combat coastal erosion, support fisheries sector, combat pollution, etc.)

Cross-cutting issues: Insufficient coastal monitoring; Insufficient Coastal legislation; Lack of planning and implementation capacity; Need for more efficient regional integration programs

Areas of Engagement

- Fisheries
- Aquaculture
- Water pollution Control
- etc

- Nature-based tourism
- Marine Biodiversity
- Marine Conservation
- Pollution control

- Infrastructure
- Ports
- Roads
- Tourism
- Smart Cities
- Coastal Protection

- Disaster Risk Management
- Flooding Control
- Hydromet's
- etc

Cross cutting Areas of Engagement:

- Institutional Strengthening
- Capacity Building
- Land Use Planning
- Regional Cooperation
- Monitoring Programs
- Regional Coastal Observatory
- Research Programs
- etc

Why a Regional Approach?

- Similar causes and stresses
- Need for regional support systems (Regional observatory)
- High costs of investing in sustainable coastal management
- Existence of relatively small coast lines (Togo, Benin, Guinea)
- Absence of national and regional dialogues
- Upstream-downstream trans-boundary water dimensions
- Sectoral inter-linkages at regional, national and local levels (fisheries, transport, trade)

Response to date

- UEMOA/IUCN study & update
 - Dakar Declaration, May 18 2011 (*Establishment of Regional Observatory*)
- GEF Guinea Current Large Marine Ecosystem Program
- USAID Studies and Project
- Country specific investments, limited sea defenses
- National strategies and plans but unimplemented (mainly lack of capacity or inadequate inst./regulatory framework)

Response to date *(cont'd)*

World Bank on-going activities

- Senegal Economic and Spatial Study of the Vulnerability and Adaptation to Climate Change of Coastal Areas in Senegal
- Senegal Stormwater Management and Climate Change Adaptation Project in Senegal
- Benin Emergency Urban Environment Project
- West Africa Regional Fisheries Program
- Wealth Accounting and Valuation of Ecosystem Services
- and the most recent: West Africa Coastal Areas Management (WACA) Programmatic TA

West Africa Coastal Areas Management Programmatic TA

- West Africa Coastal Area Erosion and Adaptation (NDF and WAEMU Funding)
- Multi Sectoral Investment Plans (MSIP): IDA 17 Policy Commitment (develop and implement country-led, multi-sectoral plans and investments for managing climate and disaster risk in development)
- Water Partnership Program: “Human Interventions and Climate Change Impact on the West African Coastal Sand River: A preliminary Quantitative Assessment”
- Togo Blue Economy Strategic Framework
- Beneficiary countries:
 - Benin, Côte d’Ivoire, Ghana, Mauritania, São Tomé and Príncipe, and Togo
 - Nigeria sent a request
 - Plans to start in Guinea, Guinea-Bissau and Cabo Verde
 - Associated activities in Senegal

West Africa Coastal Areas Management Programmatic TA

Partners

- World Bank budget allocations in FY15 and FY16
- Multi-donor Africa Climate Investment Readiness Partnership
- Nordic Development Fund: Regional Adaptation TA
- Memorandum of Understanding with WAEMU and WAEMU/IUCN, February 2016
- General MOU with IUCN, December 2015
- Administrative Arrangement with France (*signed on April 21, 2016*)
- On-going discussions with USAID, IUCN (through existing general MOU), BOAD, AU, EU, etc.

Africa Climate Business Plan:

Strengthening the Climate Resilience of Coastal Areas in West Africa

- Objective: to help increase the resilience of coastal assets in West Africa to climate and other natural hazards: preserve and rehabilitate natural coastal resources and ecosystems; spur economic development; increase social welfare and support the sustainable development of key growth sectors
- Expected Outcomes:
 - Measures in place to increase the resilience of coastal communities to climate hazards in particular flooding and coastal erosion in 30 percent of identified hotspots.
 - Decision-Support Coastal Information Monitoring System in place in all participating countries (Regional Observatory) and in coordination with regional institutions.
- Preliminary Estimated Budget: \$450 million, incl. \$150 million from IDA (still to be confirmed!)

Proposed Regional ASA

- In support of the Africa Climate Business Plan Program: Strengthening the Climate Resilience of Coastal Areas in West Africa
- Providing the climate change and adaptation dimension of the overall WACA Investment Program and leveraging additional climate investments as co-financing to Regional and National IDA financing
- Proposed deliverable: *(under discussion)*

*West Africa Coastal Areas Development and
Climate Resilience Action Plan*



Atelier sur la gestion intégrée du littoral mauritanien

Les travaux d'un atelier de concertation sur la gestion intégrée du littoral mauritanien et l'adaptation aux changements climatiques, ont démarré, mardi à Nouakchott.

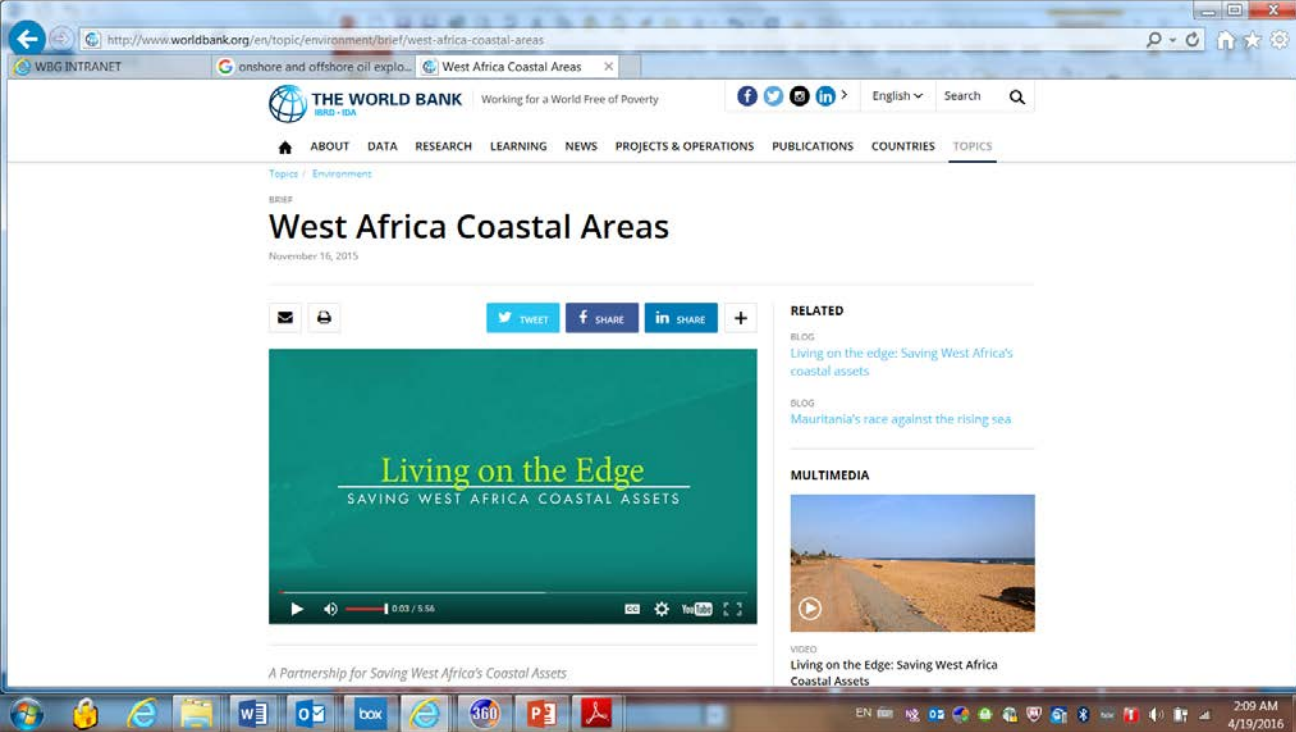
La rencontre, organisée par le ministère de l'Environnement et du Développement durable avec la collaboration de la Banque Mondiale, s'inscrit dans le cadre du Programme régional d'assistance technique de gestion intégrée du littoral ouest africain. Il regroupe 50 participants représentant les départements des Pêches et de l'Economie maritime, de l'Équipement et des



rieuse alerte pour les pouvoirs pu-

une démarche multisectorielle de préservation des fonctions naturelles des écosystèmes côtiers et concerne la maîtrise des aménagements et la planification des zones d'habitation sur le littoral, la prévention des risques d'incursions marines ou encore la préservation de la capacité de renouvellement des ressources halieutiques.





WACA webpage and Knowledge sheets

WACA West Africa Coastal Areas Management Program

KNOWLEDGE SHEET 5

Reducing Marine and Coastal Pollution

The West African coastline is home to major industries, mining activities, peri-urban and agro-industry, and tourism, as well as urban and seaside residences, all of which generate waste and cause pollution. Many areas along the coast also lack adequate wastewater and solid waste management systems. As a result, large volumes of untreated wastewater and solid waste are dumped into the open, polluting the land and water.

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KNOWLEDGE SHEET 6

The Effects of Climate Change on Coastal Erosion in West Africa

The effects of climate change—from changing precipitation patterns to rising seas—will exacerbate the coastal erosion already affecting West Africa, increasing the exposure and vulnerability of the people and assets located there. Given the importance of the coastal zone to the region as a whole, it is critical that policy makers consider the effects of future climate change in the decisions they make today.

Challenges

Many factors, both natural and human related, drive coastal erosion. The main causes are the depositing and removal of sediment, which occur via natural processes, such as coastal drift and river discharge.

KEY CLIMATE IMPACTS ON COASTAL EROSION

- Rising sea levels, intensifying storm surge, and

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KNOWLEDGE SHEET 1

Strengthening Regional Collaboration and Integration

West Africa's coastal area is critical to the region, home to a third of its people and the source of about half of its GDP. Because most of it is composed of mangroves and sand formations, the area's coastline is also highly vulnerable to erosion caused by coastal currents and storm surges. Erosion is evident from Mauritania to Gabon—and the rates of erosion are increasing. Around the port of Lomé, for example, Togo's coastline is estimated to have receded by as much as 12–15 meters a year (UEMOA 2010).

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KNOWLEDGE SHEET 2

Improving Data and Information for Decision Making

Making evidence-based decisions regarding coastal environments, infrastructure, and natural resources and their interaction with people requires accurate data. Because of the nature of coastal phenomena and their impacts on livelihoods and the environment, integrated systems that collect and share data regionally and focus on coastal areas and marine conditions, land use, climate patterns, and natural hazards are needed.

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KNOWLEDGE SHEET 3

Managing Coastal Risks in West Africa

Coastal erosion is a naturally occurring processes that is accelerated by human impacts. Artificial stabilization of the shoreline, the deterioration of natural formations, the construction of infrastructure, the extraction of materials, and the proliferation of dams deprive fragile coastal areas of important sediment deposits, which leads to erosion. Degradation of the shoreline reduces the natural protection of coastal areas to storm surges, which, together with heavy precipitation, exposes low-lying areas to flooding.

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KNOWLEDGE SHEET 4

Protecting the Region's Natural Resources

The West African coastal zone hosts critical natural resources and habitats that provide important ecosystem services. The area's natural resources play vital roles in the functioning of the shoreline, providing natural protection against erosion, pollution, sea level rise, and extreme weather events. Coastal and marine ecosystems, including cold-water coral reefs, sea-grass meadows, mangrove forests, and coastal wetlands and lagoons, also provide indispensable ecosystem services for the fisheries sector, as spawning and nursery areas for fish.

Thank You!

www.worldbank.org/waca