

**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.

The region is home to thousands of species of animals and fish, including migratory birds that use the coast as a feeding ground. More than 1,000 species of fish, several species of cetaceans, and five species of endangered marine turtles live off the West African coast.

## Challenges

Many factors are contributing to the destruction and degradation of coastal and marine natural resources. The clearing of land, changes in land use, and the use of coastal forests for biomass, building material, and medicines—all of which hurt natural resources—are occurring at an alarming rate. The increasing frequency of natural hazards – severe and extreme weather and climate related events – also puts immense pressure on coastal resources, often resulting in tremendous losses in a very short period of time.

West and Central Africa have lost 20–30 percent of their mangroves over the past 25 years (Wetlands International 2012). Guinea's mangroves—one of the largest in the region—reportedly shrunk 37 percent between 1980 and 2012 (Giri and others 2011; UNEP 2007). This loss is a problem because a large proportion of fish species require a habitat that includes mangroves, cold-water coral reefs, and seagrasses to reproduce. Mangroves and coastal forests also play a key role in protecting the

**FIGURE 1** Ecosystems provide many important services



shoreline against storm surges, other extreme weather events, and rapid erosion.

In several countries, the reliance of the construction sector on coastal sand mining activities is causing significant damage along the coast, including loss of land, ecosystem degradation, loss of coastal vegetation, and erosion. Dams built to produce hydroelectric power and provide irrigation trap sediment upstream, reducing the supply of sediment to the coasts. River systems, such as the Senegal, Volta and Niger, play an important role in the ecosystems of West Africa, where many tributaries enter the sea. The construction of dams, such as the Kindia and Konkouré dams in Guinea and the Akosombo dam in Ghana, alter the water and sediment discharge, reducing the sediment loads that reach the coast and exacerbating erosion.

## Solutions

A variety of interventions have proven successful in protecting coastal natural resources. They include the establishment of protected areas, the granting of Territorial Use Rights for Fisheries (TURFs), blue carbon trading, land use planning, regional environmental analysis, and strategic environmental assessment of major infrastructure investments.

Recognition of the crucial role of natural resources such as mangroves, coastal forests, and wetlands in disaster risk reduction is growing. Rehabilitation of mangrove forests and other forms of green infrastructure—as a stand-alone solution or in tandem with traditional infrastructure (often referred to as “grey infrastructure”)—can help reduce disaster risk and improve coastal management. It is often much less expensive than grey infrastructure (WRI 2012).

The destruction and degradation of coastal natural resources has transboundary impacts. Joint efforts are therefore needed to develop win-win solutions. Regional collaboration and integrated decision making on the part of West African coastal countries is paramount if long-term, viable solutions are to be identified and implemented.

Pollution—caused by the dumping of solid waste, effluent from raw domestic and industrial waste, and eutrophication caused by agricultural run-off—is degrading wetlands, mangroves, and coral reefs. Marine pollution, commercial fishing practices, and hydrocarbon exploration and production are degrading the extensive cold-water coral reefs in the archipelago of Cabo Verde. Hydrocarbon and mineral mining and production are contributing significantly to the degradation of coastal and marine environments.

Protection of these vital resources, from both natural and man-made risks, is key to the viability of economic activity on the coast, the protection of human settlements, and the survival of many plant and animal species.

## REFERENCES

- Giri, C., E. Ochieng, L. L. Tieszen, Z. Zhu, A. Singh, T. Loveland, J. Masek, and N. Duke. 2011. “Status and Distribution of Mangrove Forests of the World Using Earth Observation Satellite Data.” *Global Ecology and Biogeography* 20: 154–59.
- UNEP (United Nations Environment Programme). 2007. *Mangroves of Western and Central Africa*. Report produced for UNEP-DEPI under the UNEP Biodiversity Related Projects in Africa. [http://www.unep.org/regionalseas/publications/otherpubs/pdfs/Mangroves\\_of\\_Western\\_and\\_Central\\_Africa.pdf](http://www.unep.org/regionalseas/publications/otherpubs/pdfs/Mangroves_of_Western_and_Central_Africa.pdf).
- Wetlands International. 2012. *Mangroves and Coastal Conservation*. <http://africa.wetlands.org/Whatwedo/Mangrovescoasts/tabid/2943/language/en-GB/Default.aspx>
- WRI (World Resources Institute). 2012. *Green vs. Gray Infrastructure: When Nature Is Better than Concrete*. <http://www.wri.org/blog/2012/06/green-vs-gray-infrastructure-when-nature-better-concrete>.

The West Africa Coastal Areas Management Program (WACA) is a convening platform that aims to assist West African countries to sustainably manage their coastal areas and enhance socio-economic resilience to the effects of climate change. The program also seeks to facilitate access to technical expertise and financial resources for participating countries.



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