



West Africa Coastal Marine Environment: Challenges on Sustainable Management and Development

by

S. Diop

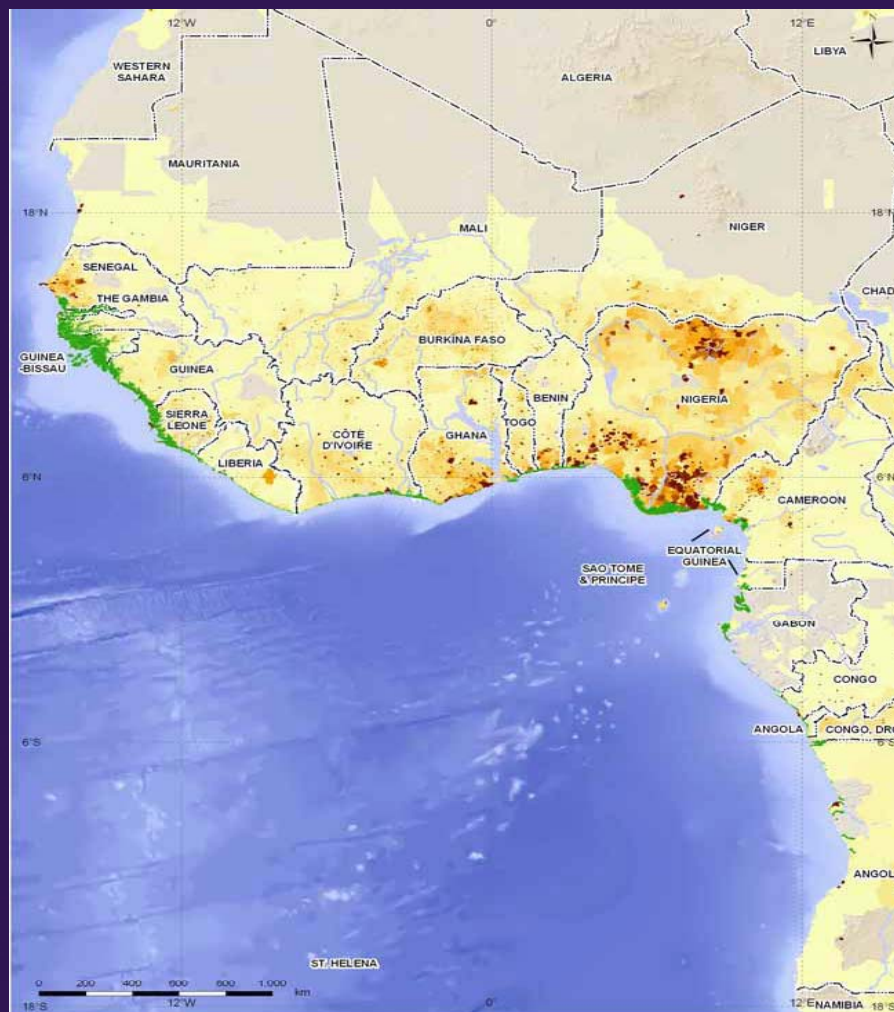


Introduction

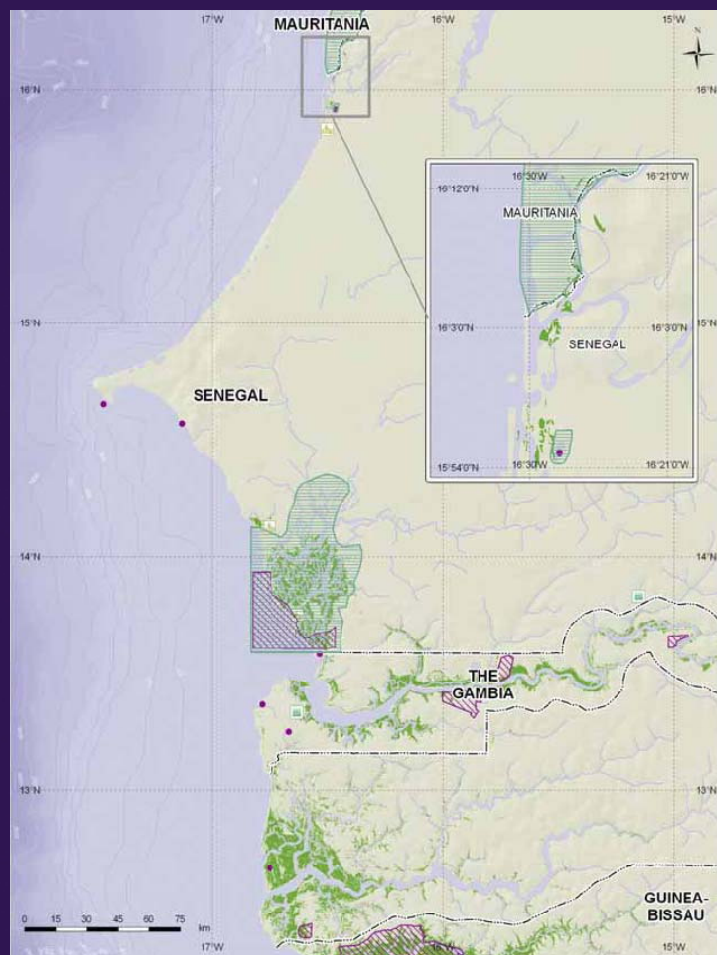
1. Main Features and characteristics of WACM environment
 2. Endowments and opportunities
 3. Challenges v/s Development Opportunities
 4. Challenges to improve Development opportunities
 - 4.1. Linking institutional response from National to Regional level
 - 4.2. Freshwater systems and access to safe drinking water
 5. Policy Options for Action

Conclusion

Mangrove cover in relation to population density



Mangrove environment in Senegal









Tree mangrove species across Africa

True mangrove species present across Africa

Region Countries in Analysis	Associated mangrove species
West Africa (8) Angola, Benin, Cameroon, Congo, Côte d'Ivoire,	Acrostichum aureum
Democratic Republic of the Congo, Equatorial Guinea,	Avicennia germinans
Gabon, Ghana, Guinea, Guinea Bissau, Liberia, Mauritania,	Conocarpus erectus
Nigeria, Sao Tome and Principe, Senegal, Sierra Leone,	Laguncularia racemosa
Gambia, Togo	Nypa fruticans
	Rhizophora harrisonii
	Rhizophora mangle
	Rhizophora racemosa
East Africa (9) Kenya, Madagascar, Mozambique, Seychelles, Somalia,	Avicennia marina
South Africa, Tanzania	Avicennia officinalis
	Bruguiera gymnorhiza Ceriops tagal
	Heritiera littoralis

Protected Areas in West Africa

International protected areas in Western Africa

Country	Biosphere reserves		World heritage sites		RAMSAR sites	
	Number	Area ('000 ha)	Number	Area ('000 ha)	Number	Area ('000 ha)
Benin	1	623	0	0	2	139
Burkina Faso	1	186	0	0	3	299
Côte d'Ivoire	2	1 480	3	1 504	1	19
Gambia	0	0	0	0	1	20
Ghana	1	8	0	0	6	178
Guinea	2	133	1	13	6	225
Guinea Bissa	1	110	0	0	1	39
Liberia	0	0	0	0	0	0
Mali	1	2 349	1	400	3	162
Mauritania	0	-	1	1 200	2	1 231
Niger	2	25 128	2	7 957	4	715
Nigeria	1	<1	0	0	1	58
Senegal	3	1 094	2	929	4	100
Sierra Leone	0	-	0	0	1	295
Togo	0	0	0	0	2	194
Total	15	31 111	10	12 003	37	3 674

data for Cape Verde not available

Source: Data from Wetlands International undated, UNESCO 2006a, UNESCO 2006b

Scientific and common names of West African mangrove Species

Scientific Name	Common Name
Acrostichum aureum	Golden Leather Fern
Avicennia germinans	Black Mangrove
Conocarpus erectus	Buttonwood Mangrove
Laguncularia racemosa	White Mangrove
Nypa fruticans	Mangrove/Nypa Palm
Rhizophora harrisonii	Red Mangrove
Rhizophora mangle	Red Mangrove
Rhizophora racemosa	Red Mangrove



Distribution of mangrove species throughout West Africa

Country	Acrostichum Aureum	Avicennia germinans	Conocarpus erectus	Saguncularia racemosa	Nypa fruticans	Rhizophora harrisonii	Rhizophora mangle	Rhizophora racemosa	Total Species
Angola		X					X	X	3
Benin	X	X	X	X		X		X	6
Cameroon		X	X	X		X	X	X	6
Congo	X	X	X	X		X		X	6
Côte d'Ivoire	X	X	X	X				X	5
Congo (DR)	X	X	X	X			X	X	6
Equatorial Guinea		X						X	2
Gabon	X	X	X	X		X	X	X	7
Ghana	X	X	X	X		X		X	6
Guinea	X	X	X	X		X	X	X	7
Guinea Bissau		X	X	X		X	X	X	6
Liberia	X	X	X			X	X	X	6
Mauritania		X	X					X	3
Nigeria	X	X	X	X	X	X	X	X	8
Sao Tome & Principe	?	?	?	?		?			4?
Senegal	X	X	X	X		X	X	X	7
Sierra Leone		X	X	X		X	X	X	6
The Gambia	X	X	X	X		X	X	X	7
Togo		X	X					X	3





Example map to show improvements in mapped mangrove data from UNEP-WCMC global mangrove layer from Spalding et al.(1997) to UNEP-WCMC global mangrove layer 2006

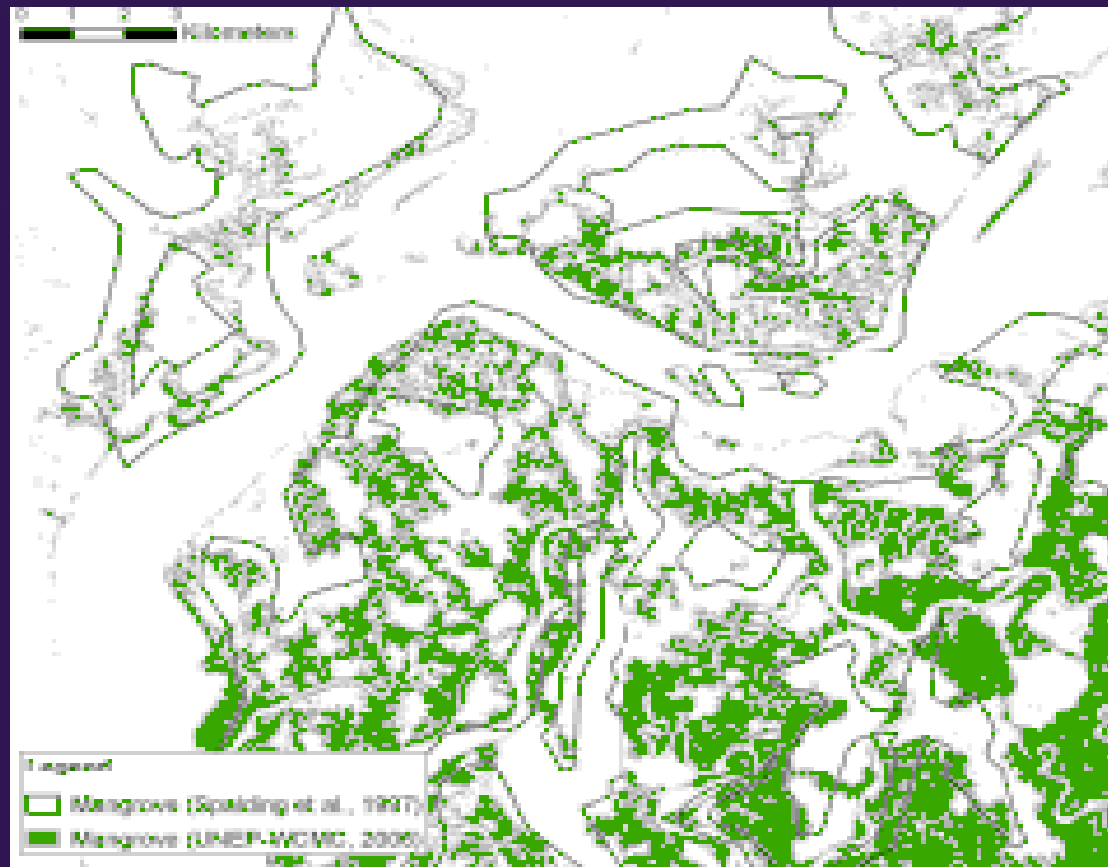
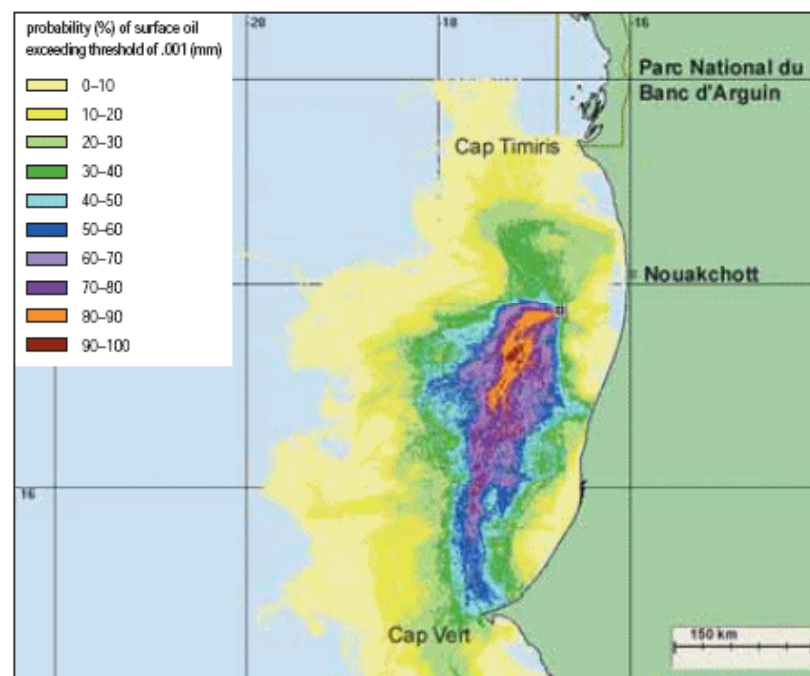


Figure 11: Modelling oil spills in Chinguetti field, Mauritania



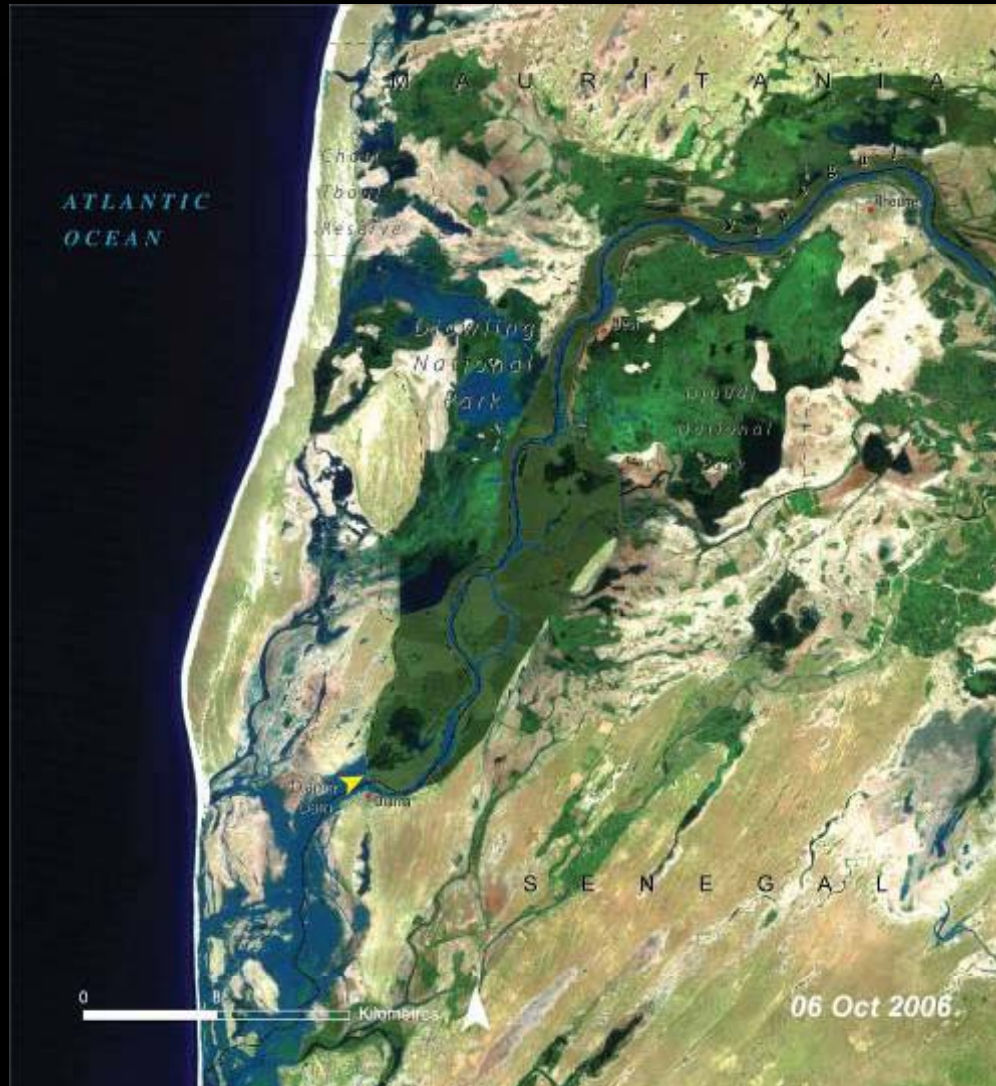
Conditional probability of exposure from a 140 000 barrels (22 260 m³) sea-floor release of crude oil over 14 days from the Chinguetti field, in winter (assuming no intervention).

Source: APASA 2004

Delta of Senegal River: Wetlands in Diawling NP



Wetlands around Diawling National Park



Drought had already begun to impact the wetlands before construction of the dams in the 1980s (1979 image)

The construction of the Diama Dam in 1986 (yellow arrow) disrupted the cycle of flooding and evaporation in the Senegal River delta wetlands

The 2006 image shows the restored wetlands in and around Diawling National Park



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Urbanisation of Cap Vert Peninsula: Dakar, Senegal

Like many West African cities, Senegal's capital city of Dakar has grown dramatically over the past several decades. Growth is expected to continue. While birth rates have begun to decline, natural growth still accounts for much of Dakar's expansion. In addition, Dakar experienced a large rural-to-urban migration beginning in the 1960s, when Senegal suffered from declining precipitation and periods of extreme drought. By 2005, Senegal's urban population exceeded its rural population. By 2030, two-thirds of the country's population is expected to be urban.

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21 Dec 2006 - 26 Mar 2007
2 image mosaic

Roughly half of Senegal's urban population lives in the greater Dakar metropolitan area. Urban population growth has turned the Cap Vert Peninsula into a sprawling metropolis, where settlements reach even further inland and onto the prime farmland that has historically supported the city. Pikine, initially begun as a resettlement of urban slum dwellers 15 km west of Dakar, has grown to over one million people. Its location in the fertile Niayes region displaced large areas of urban and peri-urban agriculture that once provided livelihoods for a substantial portion of the population.

In the aerial photo mosaic from 1942, Dakar is concentrated at the southern tip of the peninsula, with only the airport and a few scattered roads and settlements to the north. The 2006/2007 image shows only a portion of the greater Dakar area, which currently stretches another 14 km to the city of Rufisque (not shown).



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Satellite imagery of Archipelagoes of Guinea Bissau...



Mangrove forests (dark green) fringe estuaries and tidal creeks in Guinea-Bissau.

Source: NASA Earth Observatory

Republic of Mali



The Drying Up of Lake Faguibine



Water levels have fluctuated widely in Lake Faguibine since the beginning of the 20th century

In the late 1980s, an extended period of reduced precipitation led to a complete drying up of the lake in the 1990s

As global warming intensifies, there may be more change in store for the people who depend on water resources such as Lake Faguibine for their livelihoods

Example of coastal erosion in W. Afr. Coasts



Coastal erosion caused by the interruption of beach sand supply by longshore drift due to nearby port construction at Cotonou, Benin.

Source: R. Arthurton



Canary Islands Workshop – Nov 2008

Thank you