

« Deltas and Estuaries in Peril: Towards a global CoP on the EBM of Deltas under global CC - Case-studies in West and Central Africa»

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Some key elements of estuaries and deltas – because of their position as Land/Ocean Interface Systems

- The issues of interlinkages and cross-cutting **among water systems** (Interface between fresh and marine coastal waters in general); it is critical to properly understand their nature and functioning, as connectivity within water systems are **diverse and complex**;
- Because of the complexity of such systems and in presence of various sub-systems (river flow, aquifers, lacustrine and coastal waters inflow...); the **resulting impacts of their functioning** need to be addressed properly, including issues related to **discharge, productivity, excess of sedimentation, subsidence in some cases that at time are made more complicated by sea level rise (SLR); and the impacts to humans and to health**;

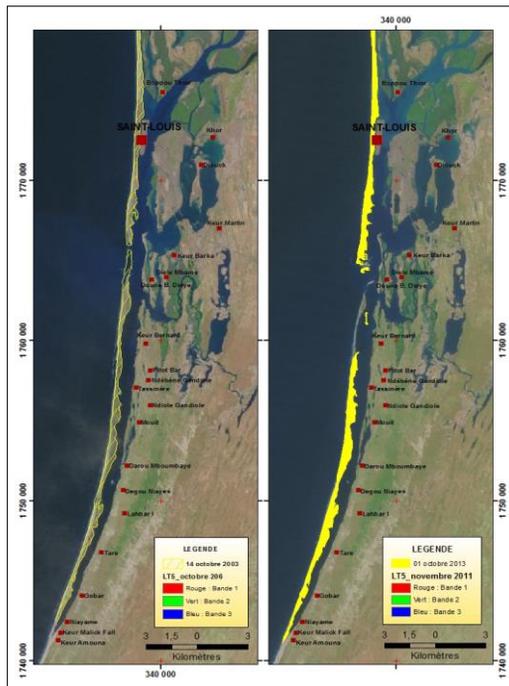
Some key elements of estuaries and deltas – because of their position as Land/Ocean Interface Systems

- Addressing the sustainability and the EBM/Ecosystems Based Management of estuaries and deltas imply to fully consider **common issues that connect one system to another**, considering not only the **physical and ecological aspects**, but also the **socio-economic, the influences of human uses and governance aspects**.
- Interlinkages and cross-cutting issues should consider **spatial scales, numbers and geographical distribution of water bodies within each water systems**;
- Because of estuaries, deltas and their **systems provide substantial goods and services** to their populations, there is a need to address **ecosystems services and EBM for SD/Sustainable Development of Deltas and Estuaries**.

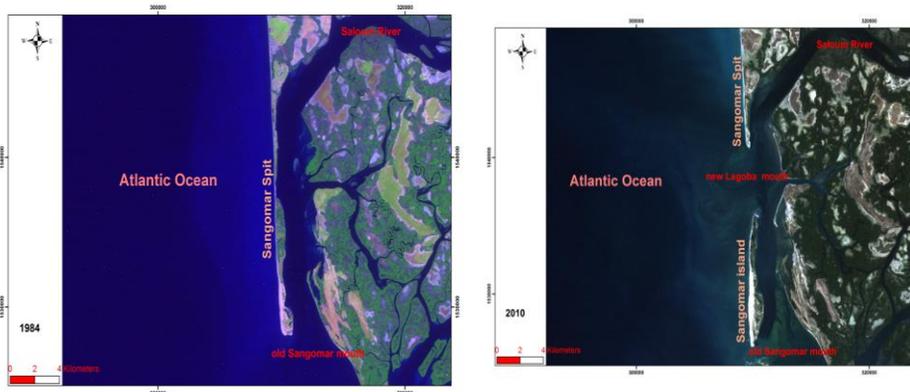
Continental shelf from Mauritania to Benin (blue shading from 0 to -300 metres)



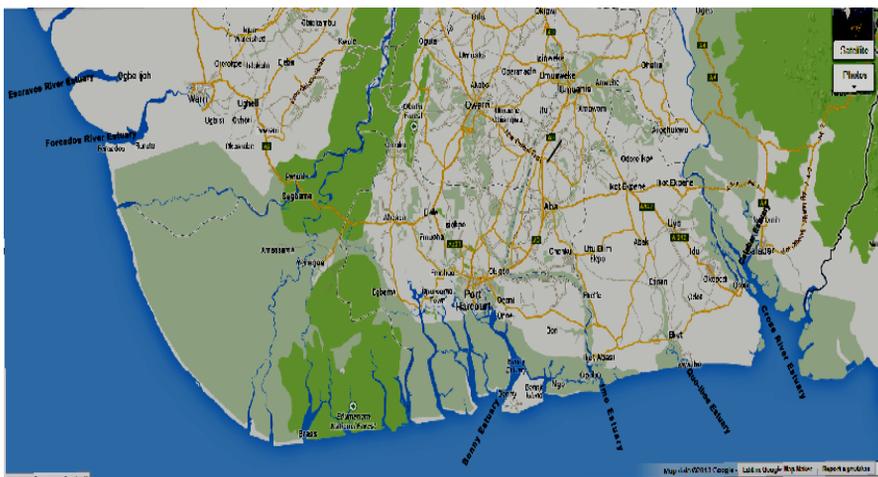
L'estuaire du fleuve Sénégal et la brèche sur la Langue de Barbarie en octobre 2003



Evolution of the Sangomar Sand Spit between 1984 and 2010, Senegal.



Niger Delta including various estuaries



Quelques flèches littorales sableuses sur la côte sénégalaise, entre Saint-Louis et la Casamance

Bassin / Cours d'eau	Vue et position géographique	Nom de la flèche littorale	Bassin / Cours d'eau	Vue et position géographique
sénégal	 13°59'28.91"N 16°27'31.85"O	Sangomar	Delta du Saloum	 13°49'49.93"N 16°41'16.86"O
omone	 14°29'36.89"N / 17°04'58.90"O	Niodior 1 & 2	Delta du Saloum	 13°51'01.47"N 16°47'22.75"O
agune de Mbodienne	 14°12'28.24"N 16°52'08.08"O	Dionewar	Delta du Saloum	 13°52'08.45"N 16°47'26.71"O
Delta du Saloum	 14°08'34.96"N 16°48'54.66"O	Presqu'île aux oiseaux	Casamance	 13°02'56.67"N 16°43'49.29"O
Delta du Saloum	 13°56'24.44"N 16°44'32.52"O		Casamance	 12°42'37.57"N 16°44'38.36"O

Main Features for SD of Estuaries and Deltas in West Africa

Some examples:

- Significant role of ***mangrove ecosystems in terms of ecological functions***, flood control, groundwater replenishment, coastline stabilization and protection against storms, retention and export of sediments and nutrients, carbon storage capacity, water purification;
- Such ***hydrological and ecological functions explain the various provisioning and supplying services*** mangrove ecosystems within such estuarine environment provide to riparian communities who draw significant income from fishing, rice production, tourism, salt extraction and other resources activities exploitation, including honey harvesting and medicinal plants

Main Features for SD of Estuaries and Deltas in West Africa

Among actions required:

- *It is critical to address the **severe decline and degradation experienced today by estuaries, deltas and other coastal ecosystems** in West and Central Africa is critical for the local communities, with their consequences as **resources are becoming scarce, biodiversity erodes with their negative impacts on local communities and resource dependence is increasing** (Series of drought events, important climate variability and inter-annual variations and rainfall deficits that alternate at time with sporadic floods ...). **In time of disaster, human and property losses within those deltas and estuarine environments are important and deserve particular attention.***

Main Challenges for SD of Est. & Deltas in Africa

- **To Address fundamental environmental challenges and associated issues within estuaries and deltas:** these include degradation of land, water and biodiversity resources.
- **To Develop holistic strategies:** aimed at alleviating wide-spread poverty, improved human well-being, restored ecosystem services and increased productivity.
- **To Enhance the riparian community's ability to cope and adapt to change:** through application of alternative livelihoods aimed reversing the downward poverty-ecosystem degradation in the basin.

Main Challenges (current and future) to SD of Est. & Deltas in Africa

- **Interrelated problems:** linking environmental, economic, socio-cultural, and political dimensions;
- **Land degradation** in areas of very few space;
- **Conflict over resources** – fishing areas, grazing lands, water;
- **Freshwater abstraction** for irrigation and damming and problem of inadequate infrastructures;
- **Degradation of freshwater quality** – potential significant threat of water pollution;
- **Groundwater resources** : little is known about aquifer systems within wider basins;
- **Fragmented Water Management Systems;**
- **Climate-induced change, SLR impacts, etc...**

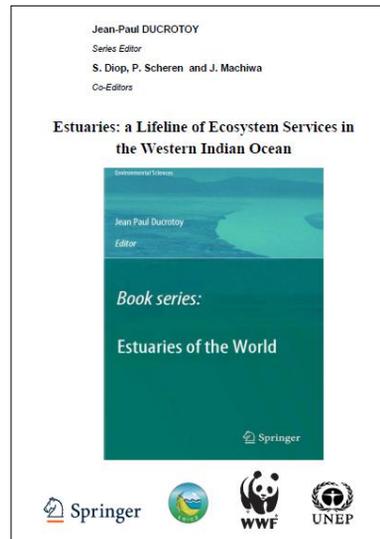
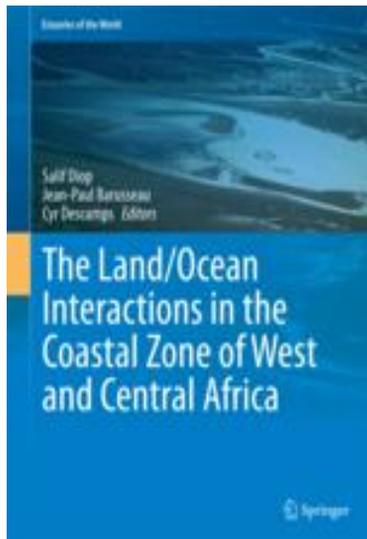
Main Challenges for SD of Est. & Deltas in Africa

- Improving the **use of resources in term of sustainability of the supply and withdrawals of resources and in terms of sustainable infrastructures;**
- Achieving **eco-efficient and effective resources use, especially given the potential effects of climate change and the ability to meet the growing demand of many economic activities;**
- Ensuring food **security and reducing poverty and hunger;**
- Ensuring **the capacity of communities to manage environmental changes;**
- Pollution reduction, especially minimizing **soil erosion and reducing high suspended sediment loads in the affluent rivers;**
- Improving the **health and diversity of ecosystems as well as the supply of ecosystem services.**

Main Challenges for SD of Est. & Deltas in Africa

Assessment of the ecosystems and ecosystems services,
in terms of:

- **Status of Est. & Deltas** ecosystems
- **Impacts of natural and human activities on the ecosystem and human well being**
- **Valuation of ecosystems services:**
 - Assessment of agricultural production and potential
 - Fish resources and fisheries
 - Water potentiality and exploitation, including water quantity and quality
 - Damming of rivers in wider basins
- **Governance status** and issues in various basins (**Natural resources use and ownership the governing legislation, including availability, sustainability and resilience of space**).



Thank you for your attention

(The second book is under preparation for the WIO and EAF Region)