

## The Changing Climate and the Niger Delta

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### The Niger Delta

The Niger Delta, located in the Atlantic Coast of southern Nigeria, is the second largest delta in the world<sup>1</sup>. The region spans over 20,000 square kilometers hosting about 25% of the Nigerian population (from 2006 census, the total population of Nigeria is about 140 million people). About 2,370 square kilometers of the Niger Delta area consist of rivers, creeks and estuaries and while stagnant swamp covers about 8600 square kilometers. The delta, with mangrove swamps spanning about 1900 square kilometers has the largest mangrove swamps in Africa<sup>1</sup>. The region falls within the tropical rain forest zone. The ecosystem of the area is highly diverse and supportive of numerous species of terrestrial and aquatic flora and fauna and human life. Resources (oil and gas) from the region are the main source of revenue for the Nigerian state, accounting for about 97% of the country's total export.

Economic activities of the people in the region include fishing, farming and trading. Very few are employed in the civil service and companies. GNP per capita in the region is below the national average of US\$280. The rural population commonly fish or practice subsistence agriculture, and supplement their diet and income with a wide variety of forest products. Education levels are below the national average and are particularly low for women. The poverty level in the Niger Delta is exacerbated by the high cost of living. In some parts of the Niger Delta, the cost of living index is the highest in Nigeria

### Climate Change and Impacts in the Niger Delta

Costal Erosion and Floods: The Intergovernmental Panel on Climate Change has link the rise in sea level to climate change. Between 1960 and 1970, a mean sea level rise of 0.462m was recorded along the Nigerian coastal water<sup>2</sup>. Flooding of low-lying areas in the Niger Delta region has been observed. Settlements in the coastal region have been uprooted by coastal erosion. In some places, especially in Forcados, some oil wells have been lost to the ocean due to erosion<sup>1</sup>. The inundation arising from the rise in sea level will increase problems of floods, intrusion of sea-water into fresh water sources and ecosystems destroying such stabilizing system as mangrove, and affecting agriculture, fisheries and general livelihoods<sup>3</sup>. Coastal vegetation especially the mangroves have been lost to coastal erosion. The Niger Delta could lose over 15000 square kilometers of land by the year 2100 with a one meter rise in sea level. Moreover, it is predicted that Nigeria will lose about \$9 billion as a result of the sea level rise while at least 80% of the people of the Niger Delta will be displaced due to the low level of the region<sup>4</sup>.

Table 2.1: Total land loss (km<sup>2</sup>) due to coastal erosion and inundation estimated from different scenarios of sea level rise<sup>4</sup>

	Low Estimate				High Estimate			
Sea level rise	0.2m	0.5m	1.0m	2.0m	0.2m	0.5m	1.0m	2.0m
Niger Delta	2,846	7,453	15,125	18,398	2,865	7,500	15,332	18,803

General Flooding: While climate change will lead to increase aridity and desertification in northern Nigeria, it will lead to flooding in the southern part especially in the coastal regions. In many communities in the Niger Delta region, several houses have been abandoned by the owners due to

floods resulting from heavy and brief rainfall, and many more areas in the region are vulnerable to floods. Owners of the affected houses did not anticipate the problem they now find themselves when their houses were being built. For occupants of some of the affected houses who are unable to relocate for financial reason will have to cope with the situation. This makes them vulnerable to different kinds of water-related disease such as malaria, dysentery, cholera, and diarrhea. Trauma resulting from the problem can lead to non-pathogenic diseases such as hypertension and diabetes. In some other instances, some areas are cut off from other parts of the community as a result of flood. Moreover, flood and erosion remove top soil, destroy roads, affect fresh water resources and threaten lives and properties<sup>5</sup>.



Change in Rainfall Pattern: Meteorological data have shown that rainfall pattern in Nigeria has changed in the past decades<sup>6</sup>. The decline in rainfall in Nigeria started at the beginning of the 1960s when a decade of relatively wet years ended. The persistence decline in the last two decades in Nigeria is an indication of an abrupt change in climate. Moreover, there is change in the timing of rainfall and farmers can no longer predict the rain and know precisely when to plant their crops. This is already having impact on food security especially in southern Nigeria where rain-fed agriculture is mainly practiced.

Farmers in the region begin cultivation at the end of the dry season, when the rain begins to fall. They plant their crops after the first or second rain in the month of March, and sometime in April. After the first rain, the rain falls periodically till the months of June/July (the peak of the rainy season). The amount of rainfall within the period before the peak is needed for the optimum performance of many crops. Because of the change in rainfall pattern, farmers who plant after the first or second rain run into huge loss when the rains are delayed beyond the usual due to climatic changes. The crops are scotched causing huge economic loss<sup>5</sup>.

### **How Communities Adapt to the Climatic Changes**

Change of Occupation: Many people in the Niger delta whose source of livelihood once depended on natural sectors such as farming and fishing had to change their means of livelihood. Because of the degradation of their environment, they can no longer engage in farming and fishing. For this reason, many are now traders, dealing on different kind of goods. Few persons work in the civil service, still fewer ones are employed by the multinational oil companies operating in the area. Many engage in multiple activities in other to increase their income. Change in means of livelihood has led to the rate of rural-urban migration, particularly affected the workforce in the rural communities subsequently affecting agricultural production.

Coping with Floods: To cope with the persistent flooding in the region, the use of pedestrian bridge has been developed locally so that the affected areas can have access to other parts of the community to enable them carry out their daily activities. The pedestrian bridge are made of wood, in some other cases they are constructed with earth materials such sand, pieces of broken building blocks or some cases large granite stones. The bridges are constructed on community efforts and

initiative, usually after waiting for the government for a long time without results. The bridges constructed with wood have one disadvantage; wood is biodegradable and thus have short life span. Those constructed by heaping sand are soon eroded by water.

#### Coping with Changes in Rainfall Pattern

Because of the uncertainties in predicting the rain, farmers now delay their time of planting. After the first or second rain, they watch the rain for sometime to ensure that the rain fall regularly enough before planting. They do this to prevent their crops from being killed when rain is delayed. Another way farmers in the region are overcoming this problem is by the use of fast-maturing varieties. Fast-maturing varieties of maize with high yields have been introduced and are being used by farmers. The risk involved in this strategy is that local species are being displaced by these species, though some farmers still cultivate the local ones. In future, new species may completely displaced local species; this may lead to the extinction of local ones. It is important that the right mechanisms are put in place to protect local species from extinction.

**Campaigns:** Some NGOs working in the region, notably the Community Research and Development Centre (CREDC) and the Environmental Rights Action/Friends of the Earth Nigeria (ERA/FoEN) are creating awareness on climate change among stakeholders. CREDC, earlier in 2007 published a report that highlights in details the climatic and environmental changes that have occurred in the Niger Delta region.

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*The Community Research and Development Centre (CREDC) is a non-governmental, non-profit organization registered in Nigeria to provide services that ensure the sustainable management of the environment and environmental resources.*

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