**An Assessment of Dredging As a Tool for Managing the Effects of Sandbar Development at the Volta Estuary**

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2015

## ABSTRACT

The construction of dams on the Volta River and the consequent regulation of the river's flow pattern led to the development of a permanent sandbar at the Volta estuary that resulted in many problems for the estuary, with the major one being the disruption of salt water in-flow. Poor salinity conditions of the estuary resulted in, among other things, the development of freshwater plants which served as breeding grounds for some planorbid snails which harboured the parasites that cause schistosomiasis. Among the many efforts to solve the problem is the initiation of the ongoing dredging exercise at the estuary which started in 1990. The dredging project has been ongoing for more than twenty years now, but there exist little or no document for reference purposes. The purpose of this research therefore, is to assess the extent to which the exercise has succeeded in solving the problems. It sought to describe the dredging process since this is one of its kind in the country, examine the current trends in saline water intrusion, determine the density of snail vectors of the bilharzia disease as well as assess the impacts of the dredging exercise on the socio-economic lives of people resident on islands at the estuary. These objectives were met through the conduction of in-depth interviews and field observations, the analysis of salinity data from 2001 to 2013, the sampling of snail intermediate hosts of 'bilharzia at the estuary, as well as the administration of questionnaires to seek the perceptions of residents with regards to the dredging exercise. The results revealed that, dredging began in 1990 with the use of a cutter suction dredger. Dredging is done cutting through the sandbar every six years to create an opening for interactions between water from the river and sea. Silted channels are also dredged to enhance the free flow of water through them. The dredged materials are put to beneficial uses such as the nourishment of river banks. Trends in saline water intrusion, showed an improvement in the extent of seawater intrusion at the estuary. Sea water now travels to areas that are 14 km away from the sea at high tides. However, average salinity at certain points of the estuary seems to exhibit a downward trend over the years. Although the physical, chemical and biological parameters of the water at all the sites were within the ranges necessary for the proliferation of schistosome snails, no snail was found at the estuary. That could be attributed to the intrusion of saline water up the river during high tides. From the perceptions of the residents of island communities, the dredging exercise seems not to have any positive effect on their economic activities. The areas where dredging seems to be making positive impacts are tourism and health. It is recommended that, members of

the communities are engaged in discussions to help take decisions that will benefit them as far as the dredging exercise is concerned. Additionally, the local people especially those resident on the islands should be introduced to other means of making income to help them maintain a good standard of living. With regards to the intrusion of saline water, it is recommended that, further studies be conducted to identify the causes of declining salinity records at certain points in the estuary.

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