

**BAR BEACH VICTORIA ISLAND EROSION PROBLEM: A CRITICAL
ASSESSMENT AS AT OCTOBER 30TH 2002 AND NEED FOR URGENT
MITIGATING MEASURES**

BY

Larry Awosika, C. O. Dublin-Green and Regina Folorunsho
MARINE GEOLOGY/GEOPHYSICS DIVISION
Nigerian Institute for Oceanography and Marine Research, P.M. B. 12729,
Victoria Island, Lagos

INTRODUCTION

The Bar Beach in Victoria Island Lagos, the foremost leisure beach in Lagos with its prime real estate and commercial activities is in a precarious state as erosion has already gulped the Ahmadu Bello dual road thereby threatening the socio-economic activities of Victoria Island.

THE PROBLEM

The Bar Beach on Victoria Island has been the scene of very active erosion in the past since the construction of the east and west moles between 1908 and 1912. The moles were constructed to protect the dredged deep (Commodore Channel) entrance into the Lagos harbor from intense wave action and the silting up of the channel. The construction of breakwaters interrupted the long-shore transport of sand from west of the west mole to the east along the shoreline.

The interference has resulted in the trapping of about 0.5 and 0.75 million cubic meters of sand per year behind the west mole leading to an accreting Lighthouse beach on the western side of the harbour entrance. However, the Bar beach on the down-drift side is starved of sediments. Studies carried out by beach erosion experts at the Nigerian Institute for Oceanography and Marine Research Lagos revealed the nature and dynamics of erosion at the Bar beach following several beach nourishments programmes in the past.

The Bar Beach erosion problem has over the years been aggravated by periodic ocean storm surges. From observation by the Nigerian Institute for Oceanography and Marine Research, the months of April to June and August to October are known as the peak periods when ocean storm surges occur along our shoreline. Between three to four major storm surges are experienced annually during these months. Sometimes, the onset of storm surge is a month earlier and or a month later than expected while the cessation period could also be a month later. During such periods, there is a sudden rise in sea level that result in high plunging waves which top the beach and spill ocean water on to the streets of Ahmadu Bello Way and beyond. When this happens, large amount of beach sediments are eroded and washed away leading to flooding of large parts of the Victoria Island.

In recent times, rate of beach erosion has been observed to double as a result of increased storm surges and wave activities. The increased nature of plunging waves as against spilling waves (80% - 20%) contribute to the high rates of beach erosion (averaging 25-30m annually).

PRESENT SITUATION

Results of the beach and ocean monitoring programme by the Nigerian Institute for Oceanography and Marine Research showed that nearly all the 2million cubic meters of sediments used to nourish the beach between 1999 and 2000 had been eroded away. The Ahmadu Bello way has now been cut off and waves are now threatening the houses and facilities facing the beach. The situation is very precarious, hence urgent action must now be taken by government.

To avoid the imminent collapse of commercial buildings, Federal and State government offices and the disruption of socio-economic activities on the Lagos Island, there is need for urgent stop-gap action and a permanent solution to the erosion problem at the Lagos Bar beach.

RECOMMENDATIONS

The Nigerian Institute for Oceanography and Marine Research had in the past made recommendations aimed at solving the erosion problems on the Lagos Bar beach. The Interministerial Committee on the erosion Problem of the Bar beach set up in 1999 by the President of the Federal Republic of Nigeria His Excellency Chief Olusegun Obasanjo made very comprehensive assessment of the problem and gave concrete recommendations. The committee considered the construction of groynes only, breakwaters only and a combination of groynes and offshore breakwaters to break the waves. The committee considered the merits and the de merits of the above solutions and decided that a combination of groynes and breakwaters was probably the option that could be more effective. This is because this option could address the inadequacies of groynes alone or breakwaters alone. For example, the use of groynes alone would result in the deficit of sand on the down drift side, and the development of erosional and depositional cells within the groyne field. The use of detached breakwater to control drift overcomes this latter problem and also provides a measure of protection to the beach face against direct wave attack, especially if the breakwaters are situated farther out in the nearshore.

The studies conducted by the Lagos State Consultants recommended the use of groynes only. The numerical model focused on the effects of groynes on the beach. While this study provided more information and data necessary for a permanent solution, the use of groyne alone does not appear to be the best option. There is need hence now for the Federal Government and the Lagos State government and experts to work together on this subject matter.

On the interim, there is need to embark on a stop-gap mitigating programme which should involve:

- Immediate sand nourishment to extend the beach-width to between 100 – 150 meters. The beach nourishment should ensure foreshore lowering with appropriate surf zone gradients to accommodate wave energy dissipation before manifesting on the berm crest. It is also important that the correct grain size should be used, while the sand to be used for the nourishment should be taken from offshore locations away from the immediate Bar beach. Effective monitoring of this sand monitoring project is hence paramount.
- Immediately after the nourishment, construction of permanent structures should be embarked upon which should be implemented both by the Federal government and the Lagos State government under strict monitoring by credible experts.

CONCLUSIONS

The entire Bar beach in Victoria Island needs urgent sand replenishment to prevent the obvious impact of severe erosion and flooding. Any delay in the sand nourishment program could result in flooding of large parts of the Victoria Island. Such flooding had in the past caused widespread suffering to residents and dislocation of socio-economic activities on the Island. Any such flooding now could lead to loss of lives, property and a destabilization of the socio-economic life wire of Lagos, the economic nerve center of Nigeria.