EFFECTS OF SEA LEVEL RISE IN THE COASTAL AREAS OF BANGLADESH

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ABSTRACT

Due to the green house effect the mean sea level may rise globally by upto 1.0 m or more which may seriously affect the coastal belt of Bangladesh. To quantify the degree and extent of this possible effect of predicted sea level rise, an exercise has been initiated by simulating the effect with a computer based numerical modelling system of the hydrodynamics of unsteady flow in the river net works. In this exercise, a correction of 0.5, 1.0, and 1.5 m was added to the average conditions of the sea level at the coastal boundary and the effects of this rise to the flood level of the major coastal rivers, the Meghna, Arial Khan-Bishkhali, and the Gorai-Madhumati have been evaluated.

It has been observed that in the Meghna river the simulated effect of 0.5, 1.0, and 1.5 m rise penetrates about 200, 275, and 325 km upstream, respectively. In the Arial Khan-Bishkhali river the effect penetrates about 160, 210, and 250 km and in the Gorai-Madhumati system the effect goes upstream about 120, 150, and 180 km. The effect of this rise is also observed in the upstream of the confluence of the rivers Lakhya and Dhaleswari which are the tributaries of the river Brahmaputra. It is observed that the effect is more pronounced in the eastern side of the coastal belt where the major Islands of Bangladesh are located. This warns that these Islands are subjec to be seriously affected due to the predicted sea level rise. The predicted flood level contour maps, resulting from the sea level rise show that about one-third of Bangladesh will be submerged due to the predicted sea level rise.

INTRODUCTION

Bangladesh is the biggest delta formed at the confluence of the three large rivers: the Ganges, the