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THE RUNOFF SENSITIVITY OF THE GANGES RIVER BASIN TO CLIMATE CHANGE AND ITS IMPLICATIONS

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ABSTRACT

Results from General Circulation Models (GCMs) indicate that because of global warming, there is a possibility of changes in precipitation and evaporation in the future. On the other hand, increased atmospheric concentration of carbon dioxide may reduce plant evapotranspiration. These changes may significantly influence global hydrology and water resources. A runoff-climate model is used with observational and GCM data as input to investigate the sensitivity of annual runoff to climate change in the nine sub-basins of the Ganges River basin. The analysis indicates that runoff of a drier sub-basin will be more sensitive to climate change compared to a wetter sub-basin. All the sub-basins demonstrate increases in mean annual runoff. This may have wide-scale implications for the Ganges River basin where availability of the dry season flow cannot meet the demand. The possible increases in runoff may also introduce a new dimension in the water sharing problem between India and Bangladesh.

Reference: Mirza, M.M.Q.; The Runoff Sensitivity of the Ganges River and its Implications, Journal of Environmental Hydrology, Vol. 5, Paper 1, 1997.

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