# IMPACTS OF CLIMATE CHANGE ON FRESHWATER AVAILABILITY IN INDIA

**Aastha Gulati**
**Arun Rana**
**Wafa Singh**
Department of Natural Resource Management,
TERI University,
10, Institutional Area, Vasant Kunj,
New Delhi 110 070, India
wafasingh86@gmail.com

## ABSTRACT

The world's surface temperature has already increased at an unprecedented rate due to global warming and these changes have caused a predicted shift in the hydrological cycle. As a result of this important implication for fresh water supply for drinking water, rain-fed agriculture, groundwater supply, biodiversity, and sea level have been indicated. The variability of temperature as an impact of global warming plays a crucial role on the river basins of India. This paper assesses and offers a future projection of water availability scenario of two such river basins of India- Krishna river basin and Mahanadi river basin. These river basins carry large quantity of fresh water throughout the year. The variability of precipitation as an impact of increased GHG scenario over the river basins may affect the fresh water resources. The decline of water in Krishna river basin, with occurrence of severe drought conditions (as indicated by Palmer Drought Severity Index (PDSI)), and increased precipitation over the Mahanadi river basin, with occurrence of severe flood conditions, has been indicated as a response to the doubling of $CO_2$. This would have a direct impact on the lives of millions of people who depend on these rivers and there would be great economic losses linked with it. The simulated data is derived from the SWAT (Soil and Water Assessment Tool) model and analyzed. In the period of 2041-2060, the rise in temperature and the corresponding change in the fresh water availability show a trend similar but sharper to that observed during the baseline period of 1981 - 2000.