Name: Anjan Roy
anjanrroy@gmail.com
Indian Institute of Technology Bombay
Centre of Studies in Resources Engineering, IIT Bombay, Mumbai -400076
Country: India
Title: Climate Change and Vulnerability Assessment in an Urbanized River Basin Environment - A Framework
Additional authors: Arun B Inamdar
Additional Affiliations: +91-9930782338
Abstract:
 The effect of climate change on hydrology and forestry at numerous regions are severe and essentially leads to desertification in some particular urbanized river basins. The micro-level demand and supply estimation of water, for the usage of agriculture, household and industrial purpose; analysis of past demand and supply narration, growth rate and future vulnerability at the village level for the entire river basin area have been estimated. It is showing from the analysis that the present demand is high and hydrological availability is lesser comparative to past demand and supply ratio. The core work is planned in several stages; firstly, geospatial technology which is consisting of two sub-parts i.e. remotely sensed data analysis & application of GIS; followed by SWAT modeling and lastly, analysis of meteorological and climatic data to assess the vulnerability and future projection. As the meteorological factors are the prime indicators of the climate change; so the rainfall, temperature, relative humidity, evapotranspiration are analyzed at GrADS and ArcGIS, for 56 years (from 1951-2007) by observed APHRODITE (0.25 degree resolution) and NCEP (2.5 degree resolution) reanalysis dataset. For the past scenario, present spread and future projections of hydrology and forestry in the study area, knowledge driven natural resource potential modeling coupled with soft computing tools i.e. ANN and FIS have been applied at MATLAB to model and predict surface and ground water and project vulnerability in the Shivna River Basin; Maharashtra, India.
End