

Impact of LU/LC and catchment characteristics on Runoff and Groundwater Dynamics of Western Ghats, Karnataka

Abstract:

The project proposal aims to evaluate the controls exercised by Climate, physical characteristics and nature of land covers on hydrological processes and in characterizing the runoff process. One of the major focuses of the study is to bring out the groundwater dynamics with special reference to change soil and land use/land cover changes. The study involves a detailed field experiment which will be utilized of the development of regional ground water model for the purpose of prediction. The hypothesis will be examined through point and areal studies investigating the effects of forest/land cover changes on groundwater recharge. The project will involve selection of sites using remote sensing data and collection of extensive secondary data collected from different sources using GIS techniques which will be followed by a rigorous field visit and consultation with local community to finalize the sites. A detailed soil-hydrologic, groundwater, hydro-meteorological monitoring will be done to estimate the influence of the topographic and soil characteristics, as well the impact of forest cover/ land cover types on water balance components with special reference to groundwater recharges. Data collected during the project period will help in estimating the Evapo-transpiration and soil moisture characteristics which are the significant parameters required for hydrological modelling and thereby help in forest conservation and management. An estimate of the baseflow from different types of catchments under different climatic zones will be highly useful in planning and management of agriculture crops in those areas. The study involves development of a Regional ground water balance model which will help in greater understanding of the runoff processes and ground water response to changes in physical parameter.