OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference on
Hydrology & Groundwater Expo
August 26-27, 2013 DoubleTree by Hilton, Raleigh, NC, USA

Observations for change detection in water flow over two decades and assessment of impact of urbanization on surface and sub-surface hydrology cycle

Sheetal Sharma, A. Bharat and V. M. Das
Maulana Azad National Institute of Technology, India

In natural, undeveloped areas, a large percentage of relatively uncontaminated precipitation infiltrates the ground, thus recharging the ground water; the remaining runoff flows to nearby water bodies or evaporates. Urban Development alters natural systems as vegetation and open spaces are replaced with new areas of impervious surfaces such as roads, parking lots, roofs, and turf, which greatly reduce infiltration and thus ground water recharge. Uncontrolled stormwater runoff develops into Floods, even in normal intensity of rainfall causing loss of water recharge levels. The main carriers of water that is the natural Drainages are either blocked completely of partially or forced to change their direction, in the process of Urbanization. Thus water availability, water recharge and water Cycle all are destabilized in course or urban Development. The paper is an attempt to closely identify the periodical changes in water cycle, drainages and recharge of Ground water and Water resources during urbanization of Bhopal City, India for Last twenty years and above. The observations made rely on GIS Mapping, Rational Method of Runoff Calculations, Recharge methods and statistical analysis of related built-up areas, the recharge, runoff changes. Also Change in Natural course of Drainages with help of GIS imageries during twenty years have been detected that help to observe the adaptation of natural system to urban course. Also a Comparative study of above changes and geological Characteristics of area have presented an interesting correlation of Water Recharge, urbanization and Geological responses. Thus a model is developed to study and analyze the effects of urbanization and to have guidelines for planning considerations of urban areas.

ar.sheetalsharma@yahoo.com