

3rd International Conference on **Hydrology & Meteorology**

September 15-16, 2014 Hyderabad International Convention Centre, India

Water resources conservation and management in Haryana State, India by using remote sensing and GIS techniques

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Remote Sensing (RS) and GIS are effective techniques in timely and efficient generation of database for water resource management. The synoptic view and multi resolution satellite data is helpful in generating information on various scales. The effective planning for water resources conservation and management at district level can be made if the data is generated on 1:50,000 scale or larger. Indian Remote Sensing Satellite data has been used in conjunction with ancillary data available on topography, ground water quality, depth and fluctuations. Hydrogeomorphological maps showing different ground water prospective zones have been prepared for different districts in Haryana State, India. The other maps such as land use/land cover, geomorphology, drainage/canal network and soils etc are consulted for preparing water resources action plan for different areas. The maps thus prepared depict different units for further ground water prospecting. Surface water resources map has been prepared by taking into consideration satellite data, topographic sheets and ground information. GIS based integrated maps have been prepared for both surface and ground water action plans. Various sites have been suggested for site specific water resources conservation measures such check dams/gully plugging, earthen dams etc for recharging the ground water. The information thus developed was supplied to various government departments, district agencies and NGOs involved in the planning and management of natural resources for further implementation of the activities suggested. The present paper gives details about various such activities undertaken and future planning at the state level.

Biography

B S Chaudhary completed MTech (Applied Geophysics) from Kurukshetra University Kurukshetra in 1985 and PhD from University of Rajasthan, Jaipur. He is presently working as Professor at the Department of Geophysics, Kurukshetra University, Kurukshetra (Haryana), India. Before joining Kurukshetra University, he worked as Scientist (Geology/ Geophysics) at Haryana Space Application Centre (HARSAC), Hisar from 1990 to 2004. He is working in the domain of Remote Sensing and GIS applications for natural resources mapping and management specializing in water resources, geo-environmental studies and disaster management. He has 4 PhD's to his credit and supervising 5 PhD's at present in the domain of ground water, snowmelt runoff, snowpack characterization, watershed conservation and management. He has over 50 publications in various national/international journals and conference proceedings. He is the Fellow of Indian Water Resources Society, South Asian Association of Economic Geologists and the Society of Earth Scientists and life member of ten national/international scientific societies/academic associations. He is the recipient of DAAD (German Academic Exchange Services) fellowship at University of Freiburg, Germany from 1997-1999 and visited the countries like USA, UK, Austria, Germany, the Netherlands, Switzerland, Poland, China, Indonesia, Bangladesh and Thailand for various academic/ scientific assignments and conferences. He is a member of the Editorial Board of prestigious national and international journals.

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Groundwater quality in the residential areas of Ujjain

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Groundwater is ultimate, most suitable fresh water resource with nearly balanced concentration of the salts for human consumption. Due to over burden of the population pressure, unplanned urbanization, and unrestricted exploration policies and dumping of the polluted water at inappropriate place enhance the infiltration of harmful compounds to the groundwater. The present study was aimed to assess the groundwater quality of some residential areas of Ujjain. The physico-chemical parameters were analyzed by following the standard methods of APHA and results were compared with BIS, WHO, ICMR standards for drinking water. Groundwater samples were collected in the month of June. The results were analyzed comparatively and conclusions. Regarding the suitability of the use of such waters were made.

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