

Fluvial Systems and their Impact on Urbanization in Haryana

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There is a definite and intricate relationship between urbanization and the control of surface and ground water resources. The geological, lithological geomorphic and hydrological conditions not only influence an assured surface and ground assured water supply but are also supportive of an ongoing processes of urbanization as it is noticed in case of Haryana. Thus, the study of water bearing zones in alluvium and hard rock strata in geological and geomorphologic landforms emerges as an integral branch of urban planning to decide locational suitability of new townships in Haryana.

Aims and Objectives

- 1- To investigate the geology of the study area.
- 2- To study the different types of fluvial landforms in relation to distribution of ground water resources.
- 3- To analyze the processes of urbanization in its various perspectives.
- 4- To evaluate the ground water quantities and qualities in Haryana.
- 5- To examine the role of fluvial system components in aggregate in relation to urbanization and to evaluate the possible effects of the natural processes and human impact through urbanization on the fluvial system in return.
- 6- To give recommendations for directing the course of future urban development based upon the planning of the fluvial system components especially the ground water resources.

Data Base and Methodology

The study is based upon secondary data. The indicators pertain to Fluvial System indicators and Urbanization indicators

To work *the impact of fluvial system on urbanization and vice-versa* different parameters like the availability and quality of safe drinking water, ground water potential (balance), depletion of ground water table, and the stage of ground water development are considered.

An Index of Vulnerability is worked out and all individual ranking of the districts is added up to arrive at a *composite index*. Maps with isopleth, choropleth techniques along with located diagram under GIS environment were prepared

The Plan of the Study consist of four main chapters in addition to introduction and conclusion. The *I chapter* deals with the environmental setting of the study area. The *II chapter* mainly focuses upon the analysis of fluvial systems in Haryana. The *III chapter*, deals with the urbanization scenario in Haryana. The *IV chapter*, is devoted to the impact assessment of the fluvial system on urbanization and vice-versa. The summary of major findings of the research conducted is presented under conclusion.

Haryana is basically a water deficit state. The basic problems are related to the scarcity of fresh surface water and abundance of brackish to saline water under ground. The ground water quality in about two-third of its area is poor especially in the south and south-western districts of the state like in Faridabad, Bhiwani, Mahendragarh, and Sirsa, where the development of urbanization and human activities have affected and changed the water quality which were available for use with high concentration of salinity, fluoride, potassium, nitrate.

The suggestions are covering a wide range of applications from the view point of urban planning to fluvial system development and sustainable ground water management in Haryana. Thus, recharging of ground water reservoirs in areas with declining water table and depleting aquifers like in the eastern and southern parts of the state through empty/injection wells, installation of skimming wells to tap good quality water; installation of deep tube-wells; diverting run-off from adjoining wasteland area and rechanneling of excess water through the existing drainage channels by putting bunds at appropriate places and massive reforestation of hilly areas to enhance the water supply and to control ground water contamination under watershed management is a pre requisite.