



Research Article

ANALYSIS FOR THE IMPACT OF INCREASING URBANIZATION ON RIVER VALLEY STUDY

Naval Kishor Dhillol¹, Ved Prakash Nayak² and Shubhum Yadav³

¹Master of Urban Planning, UTD, CSVTU Bhilai, Chhattisgarh, India

^{2,3}Department of Master of Urban Planning, UTD, CSVTU Bhilai, Chhattisgarh, India

ARTICLE INFO

Article History:

Received 06th October, 2021

Received in revised form 14th

November, 2021

Accepted 23rd December, 2021

Published online 28th January, 2022

Key words:

River belt, city river basin, urbanization, land cover model, diversion, hydrology, geophysics

ABSTRACT

Rapid changes in river basins result in dramatic changes in the pattern of land use and areas around land because of population, hence the assessment of many dire consequences due to increased health surveys in the river basin and river basin system. Is done because of these harmful effects identified by citizenship, the biggest change is taking place due to continuous decline in hydrology and geological streams and water quality. The difference is found after doing

River basins provide opportunities for river water planning engineers and environmental activists to explore the effective relationship between citizenship and river basins or to further study river basin management and research. Will help improve?

Copyright©2022 Naval Kishor Dhillol et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

As people move from rural areas to urban areas, there is the intellectual development of urban areas which eventually leads to citizenship. Human activities affect river valleys around the world. River valleys are changing because of urbanization, industrialization, and population growth. Any natural structure in a river is a beautiful path, a kind of unnatural system of biological and physical elements are connected and related study is called environment so when any component is suppressed disturbs the whole system the landscape formed through rivers and their tributaries is called river bed or helps to maintain river water circulation It is believed that life and other types of dumping are helpful in maintaining the form. Most of the people in the world live in different bones of the river, so there is a need for extensive research to convert the activities of anthropologists into river valleys in rural areas. Uncontrolled migration of people to big cities in People migrate to the city in search of modern facilities and better life, work, technology, and food. Natural rivers are deteriorating the environmental quality of the basin because of displacement Urban development does not change the land use, the reduction of river water quality generates post-flood increase and legalization of natural river basin environment-related floods in big cities like Mumbai floods in 2005 and Delhi floods in 2010 have left natural drainage systems. The critical question of citizenship in the river basin posed the critical question of river fragmentation and regulating the river.

Morphological change of rivers and extinction of river channels

1. Severe water scarcity in the river basin.
 2. Lack of biological homogeneity and biodiversity in the ecosystem of the river basin.
 3. Increasing siltation and sedimentation in rivers.
 4. Frequent natural calamities like floods and droughts.
 5. Loss of aesthetic value or entertainment.
 6. Soil erosion due to increased river drainage.
 7. Unpredictable local climate.
 8. Deforestation and decline in the catchment of the river basin.
 9. Excessive exploitation of natural resources.
 10. Changes in the processes and stability of ecosystems.
 11. Environmental pollution.
 12. Residence and Community Modification.
 13. Changes in hydrology because of increasing severity of catchment area modifications in the aquatic ecosystem.
 14. Decreased water quality of rivers.
1. River basins affected because of urbanization Citizenship because of sustainable development. River basins require knowledge about river basin ecosystems and climate gender. River basins need better planning and management. Surveillance management and protection are required.
 2. Impact of Urbanization on River Valleys The effects We can broadly classify urbanization into three types of river channels: Physical effects, chemical effects, and biological effects. Other influences. include built-in

*Corresponding author: **Naval Kishor Dhillol**

Master of Urban Planning, UTD, CSVTU Bhilai, Chhattisgarh, India

areas, open vegetation, water bodies, natural or anthropogenic Elements.

Rapid urbanization is also changing the landscape structure. Then, major physical effects of urbanization are changing the landscape and The temperature of river basins and streams. It is like changing the. The landscape of open space, into an effective surface cover, which affects the Regional hydrology of a river valley. This creates various problems, like, degradation of water quality, closure of valleys, and frequent flood incidents In the area. Modification of drainage systems because urbanization shortens the. time lag due to soil sealing during rainfall in an urban drainage area, Accelerating the consequences of floods. Change of current flow is another. An important effect of urbanization. Some of the base flows are performing. Essential functions in the river basin for its proper ecosystem. They. over-exploit the basin's water resources to meet increasing anthropogenic water Demands, which result from the closure of the basin. Anthropogenic. Activities in the basin alter the morphology of the river. These changes are. because of the following changes such as river shape, flow pattern, sedimentation, And silt properties of rivers. Urban development increases river sediment. Production and deposition within channels. An increase in rivers follows this. Erosion blocks the channels. On the one hand, the construction of dams, changes in the land use of the entire basin, and the construction of flood protection structures change the behavior of the river system Recently many studies have been done to understand the effects of global warming on Aquatic Ecosystems. We may link this to the degradation of river water quality. Through river water. Urbanization raises the water temperature in rivers. either drawing hot water directly from furnaces or by connecting surface water With drainage during the summer. We find it to increase microbial activity. River water. Heat increases alkaline water growth in late spring and is. Responsible for phytoplankton mortality in summer. Because of urbanization, in. the river water, the load of nutrients, metals, organic contaminants,

Increases the chemical effects. The exit of municipalities and industrialists in urban banks changes their chemical properties. Dumping waste directly into river drainage and adding harmful chemicals from agriculture also reduces river pollution.

Pollution, salinity, total suspended solids, heavy metals, nitrates, organic microscopic pollutants, acidification, euthanasia, death of river dwellers, storage of heavy metals in the river (e.g., lead), high biological oxygen demand (BOD), and chemical oxygen demand (COD), etc.

There are positive correlations with the decline in urban land use and water quality. Because of eutrophication, urban river water bodies and COD move to the side, killing other aquatic organisms such as fish, and urban rivers face serious water pollution problems. A remedial measure may be the recycling of organic matter within biological communities.

Highly toxic organic pollutants such as polycyclic aromatic hydrocarbons (PAHs), and fecal coliform bacteria dissolve in river water during rains and floods from urban areas. It can cause cancer, the death of aquatic organisms, and diseases in humans.

Urbanization has biological implications for changes in the natural habitats of native flora and fauna of river basins, loss of rivers, biodiversity, and ecosystem functioning. Changes in

land-use patterns lead to loss of species stability, richness, and loss of ecosystems. The pattern of urban development and ecological conditions serve as indicators to provide a relationship between benthic macro-invertebrates and fish in the basins.

Methods and means of studying the impact of urbanization on river basins

There are different ways of studying urban river basins

Nature or anthropogenic drives their quality. The methods used for such traditional studies are biological indicators. Mathematical model. A variety of indicators or procedures are used to determine the health of a basin. River basins are sensitive because biological indicators have been well used to predict health status. Macro-invertebrates are highly sensitive to The Physics-chemical changes in fish, muscle, and river water quality. Monitoring the health of the river basin requires regular changes and developmental activities in the river basin. Nowadays, different sensors have facilitated the availability of spatial data and provide earthly access to different resolutions, such as air-borne sensors and space-borne sensors.

Sensing and Geographic Information System has emerged as a modern and efficient tool for collecting information on river basins. Store and manage data with these tools but with some limitations, it becomes very easy to analyze. Coverage, better sampling, easier areas to inaccessible maps, homogeneous quality, and satellite observation bring global benefits and less potential for human bias and instrumental error.

In remote sensing digital storage, data modes are reliable, easy to store, economical, and time-saving. But remote sensing has some disadvantages of its own, such as limited spatial and temporal resolution.

One study showed that surface geology, DEM, Landsat TM images, historical river flow data, rainfall, and temperature data from weather stations have been used as inputs to understand the distributed rainfall-up model, which can be used for catchment, also explains the relationship between runoff and River flow.

Existing Research Gaps

One of the major problems of urban river basins because of urbanization is insufficient knowledge about the management factors and dates that play an important role in affecting the river basin. I observed the following factors during the research interval.

Study Points

1. Research needs to be done considering the comparison between hydrology and geomorphology of urban river basins.
2. To understand this link of climate change, more research is needed to study the effect of temperature on soil and water.
3. The impact of urbanization on urban basins in tropical countries remains to be further explored as well as finding that soils of heavy rainfall and extreme weather in tropical regions are stronger because of sedimentary feedback.
4. Self-purification of the entire river network of river basin potential is an interesting problem map and prediction.

5. It required some investigation in the future. How do different questions such as urban surface runoff and sediment affect production?
6. A better eco-hydrological modeling system should be developed for river basins.
7. Sustainable development options for better river basin management are to be explored.
8. Ecological disturbance of urban river basins will be explored more

CONCLUSION

Rapid urbanization has occurred because of population growth near river valleys. Scenario change has substantially changed the river system. Urbanization has driven most of the changes in hydrology, with the pollution of urbanization having a continuous and harmful effect on water and water streams and rivers. Inadequate knowledge of river basins and major research areas has led to the detection of factors influencing their interrelationships.

By collecting the information about the study area, you can use this data to store this data and serve as remote sensing and GIS for further analysis and monitoring of the river drain conditions. Therefore, there is a need to plan an Integrated River Basin Management (PTTH) strategy for the river basin affected by the urban base.

References

- W. Ren, Y. Zhong, J. Meligrana, B. Anderson, W.E. Watt, J. Chen, and H. Leung, "Urbanization, land use, and water quality in Shanghai 1947–1996", *Environment International*, 2003, Vol. 29, pp. 649– 659.
- M.Singh, G. Muller, and I.B. Singh, "Geogenic distribution and baseline concentration of heavy metals in sediments of the Ganges River, India", *Journal of Geochemical Exploration*, 2003, Vol. 80, pp. 1 –1
- Y. Lian, I. Chan, J. Singh, M. Demissie, V. Knapp, and H. Xie, "Coupling of hydrologic and hydraulic models for the Illinois River Basin", *Journal of Hydrology*, 2007, Vol. 344, pp. 210–222

How to cite this article:

Naval Kishor Dhillon *et al* (2022) 'Analysis for the Impact of Increasing Urbanization on River Valley Study', *International Journal of Current Advanced Research*, 11(01), pp. 148-150.
DOI: <http://dx.doi.org/10.24327/ijcar.2022.150.0032>
