REVIEW OF RESEARCH
ISSN: 2249-894X
IMPACT FACTOR : 5.7631(UIF)
VOLUME - 11 | ISSUE - 1 | OCTOBER - 2021

LAND USE CHANGE DUE TO URBAN TRANSFORMATION ALONG RIVER SINA AROUND AHMEDNAGAR CITY

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ABSTRACT:

Urban transformation is a process which is a part of anthropogenic activities, and result of process of urbanization. Now a days it is very alarming state throughout the world.

Urban geomorphology is defined as where human activities change the natural environment and natural environmental restricts and alters the human interventions. Natural asset of any city is always river which is source of many types of developments of the places.

KEYWORDS: *Urban transformation, natural environment and natural environmental restricts.*

INTRODUCTION

Human intervention on the environment may leads to increasing vulnerability in the urban landscape mainly urban rivers. Pressure of population growth is an anthropogenic impact; this pressure affects social and economic environment of the urban regions. But when we considered the development of the region, we cannot ban on the process of urbanization which disturbs the city landscape. Therefore, these two things are going together or hand in hand.

AIMS AND OBJECTIVES:

1) To study the geomorphological characteristics of the study area.
2) To study the change in the land use.

River Sina is originating 959 m height at Sasewadi near Jeur in Ahmednagar district. Total length of the river is 339 km. River Sina is a main tributary of river Bhima. Ahmednagar city is located on the left bank of River Sina.

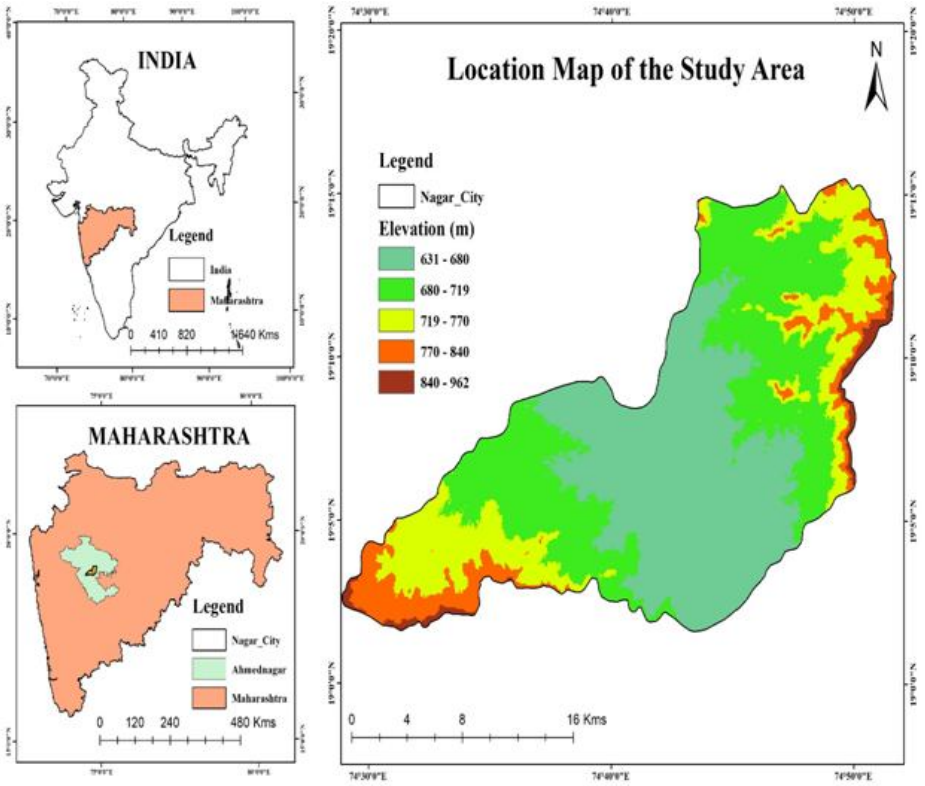

Fig:- 1- Location map of the study area.

PHYSIOGRAPHY AROUND THE AHMEDNAGAR CITY

Ahmednagar plateau forms a small part of Balaghat surface forming major water divide. The area is called as interfluve area between Godavari and Krishna basin. It is Balaghat plateau of the Deccan trap area in which limestone, sandstone and kankar is commonly associated with soil. Black cotton soil, river alluvium is more in close vicinity of the river channels.

METHODOLOGY:

Methodology includes the collection of the data, analysis and interpretation of the data. Primary data of related to cross section is collected during the field visits. Land use data is taken from district profile and from the satellite images. The study area is focused on the River Sina in Ahmednagar City. Overall analysis is based on spatial data.

The process of urbanization has led considerable change in the land cover and land use in Ahmednagar district along the all major streams under study area. This change is analyzed for the period of 30 years in Ahmednagar along river Sina.

1) LISS III satellite images acquired from USGS website for the year of 1998, 2009 and 2018 of Ahmednagar City.
2) Urban expansion of process is analyzed with help of ERDAS-2014.

A large numbers of researcher have studied the impact of urbanization on various parameters among which land use is most prominent which includes almost all the sectors of the aspects. The measure change occur in under land use roads built up area and agriculture land .

Leenaers, H., Rang, M. C. and Schouten, C. J. (1989): Variability of the Metal Content of Flood Deposits. Env. Geol. and Wat. Sc., **11**, (1): 95-106. Has concluded that because of the change in land use concrete roads leads to peak floods in urban area.

Overland, H. and Kleeberg. H. B. (1991): Influence of Land Use Change on Discharge and Sediment Transport of Floods. Sediment and Stream Water Quality in a Changing Environment: Trends and Explanation (Proceedings of the Vienna Symposium, August 1991) has significant conclusion that a small change in channel geometry affects largely leads to peak floods in the area which are still in the process of urbanization. This totally fits to Ahmednagar city which is developing on the bank of river Sina and still is in the process of Urbanization.

Most of the researchers have common conclusion that encroachment along the river sites reduces the channel with to carry the flood discharge and hence peak flash floods develop in the residential part of the urban Places

Ahmednagar city Land Use Land Cover Area in %

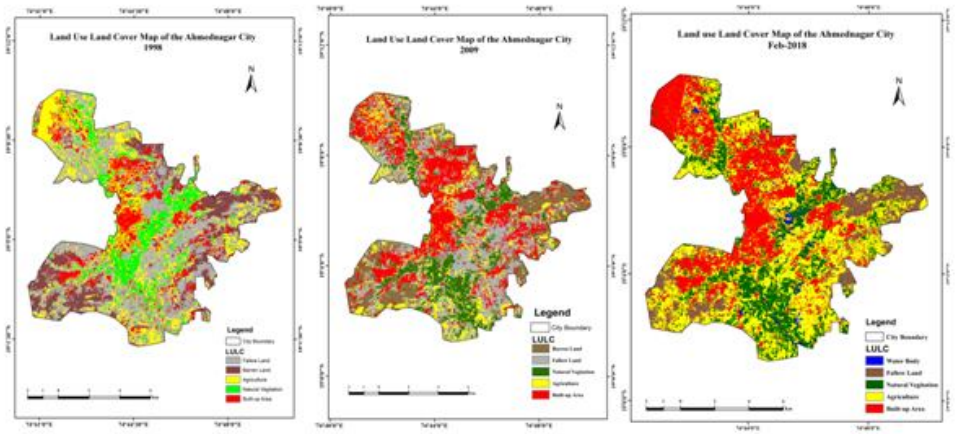

Fig.2- Land use land cover area in percentage

Table No. 1- Ahmednagar City Decadal-Wise Area in %

Area in %			
	Feb-18	**May-09**	**May-98**
Built-up Area	28.40	26.80	13.29
Agriculture	10.20	12.88	22.84
Natural Vegetation	19.40	14.31	11.26
Water Body	1.10	0.00	0.00
Fallow Land	31.90	32.06	37.95
Barren Land	0.00	13.94	14.66
Total	**100.00**	**100.00**	**100.00**

For the land use purpose satellite images have been downloaded from USGS website for the year 1998, 2009 and 2018. For Analysis of these images ERDAS 2014 software is used.

On the basis of analysis land use images of the same years have been prepared. Six Classes have been prepared. Among six classes built up area is the prominent class which includes roads and buildings, which is the signs of impervious surfaces. It is found that from 1998 to 2009 there is almost double increased in built up area. This is the period most of the villages on the fringe area are accommodated in the municipal boundary and hence the built up area increased more. In the next decade the urbanization in the progress built up area increased only 2% because of the stagnant growth of the city. As the built class is decreased obviously there is decreased in fallow land. Most of the Ahmednagar city is expand in north direction so the convergent of land use is significantly high in area like Savedi, Wadgaon gupta, Bolhegaon and MIDC industrial area.

Most of the population working in MIDC and from core of the city is settled along the complexes developed along the river Sina. Hence land use under built up area is increased and agriculture land is

decreased. At few patches it is observed that natural vegetation is increased it might be the effect of plantation awareness program, smart city program, Green city etc.

CONCLUSION

- Urbanization lead to change in land use due to number of natural and manmade factors.
- Land use change has two types Positive and Negative. Positive change leads to urbanization whereas negative change is lead to the Barren land.
- Finally we can say that process of urbanization should be at optimum level for the development of the region as well as to reduce the adverse effects.

ACKNOWLEDGEMENT:

We would like to acknowledge the financial l support by the ICSSR, IMPRESS Scheme to provide financial support for field work and publication of the paper entitled " Land Use Change due to Urban Transformation along River Sina around Ahmednagar City".

REFERENCES

Alansi, A. W., Amin, M. S. M., Halim, G. A., Shafri, H. Z. M., Thamer, A. M.,Waleed, A. R. M., Aimrun, W. and Ezrin, M. H. (2009): The Effect of Development and Land Use Change on Rainfall-Runoff and Runoff- Sediment Relationships under Humid Tropical Condition**:** Case Study of Bernam Watershed Malaysia. European *Journal of Scientific Research*, **31** (1): 88-105.

Leenaers, H., Rang, M. C. and Schouten, C. J. (1989): Variability of the Metal Content of Flood Deposits. Env. Geol. and Wat. Sc., **11**, (1): 95-106.

Natural Environment Research Council, (1975): Flood Studies Report. Institute of Hydrology, Wallingford, UK. Five volumes.

Ostric, M. and Horvat, B. (2007): Land cover/Land Use Change Impact on Surface Runoff in Small Catchments. Croatian Waters. Institute of Water Management, Zagreb, Croatia.

Overland, H. and Kleeberg. H. B. (1991): Influence of Land Use Change on Discharge and Sediment Transport of Floods. Sediment and Stream Water Quality in a Changing Environment: Trends and Explanation (Proceedings of the Vienna Symposium, August 1991) IAHS Publ. no. 203.

Rai, S. C. and Sharma, E. (1998): Comparative Assessment of Runoff Characteristics under Different Land Use Patterns within a Himalayan Watershed. Hydrological Process, **12**: 2235-2248.

Samant, H. P. and Subramanian, V. (1998): Land use/Land Cover Change in Mumbai- Navi Mumbai Cities and Its Effects on the Drainage Basins and Channels- A Study Using GIS. Journal of the Indian Society of Remote Sensing, Vol. **26**, No. l & 2.

Schumm, A. H. and Schultz, G. A. (2000): Detection of Land Cover Change Tendencies and Their Effect on Water Management. Remote Sensing in Hydrology and Water Management, Chapter 19, Springer-Verlag.

Strahler, A. N. (1964): Quantitative Geomorphology of Drainage Basins and Channel Networks, In. Handbook of Applied Hydrology, McGraw Hill Book Company, New York, Section 4II.