

HIGH POPULATION GROWTH AND BASNA DRAIN IN PHAPHAMAU REGION, ALLAHABAD, UTTAR PRADESH

Bechan Yadav*

ABSTRACT

The present study is related to high growth of population and its impact on Basna drain in Phaphamau region. In this study there is a description of Population in year 2001 and year 2011 in Phaphamau region. After comparison of population in year 2001 and 2011, it's clear that there is a high growth rate of population in the region. The average growth rate of population is 75.33 percent from 2001 to 2011 and the annual growth rate is 7.533 percent. Thus there is a heavy burden of population on the resources of the suburban area. There is an imbalance relation to population and number of houses. Hence, the burdened population needs a lot of houses for their shelter. For their needs the people of the region is destructing the basin of the drain by building houses in the basin. Thus there is a shrinking in the width and depth of the drain. After all above happening there is no more existence of the drain in future. For the long life of the drain the people and government should be conscience. Allahabad Development Authority should regulate the direction of Allahabad high court to demarcation of 500 meters no construction zone along the both side of the Basna drain. ADA should also develop the 10 meter plantation strip along both side of the Basna drain.

INTRODUCTION

The already densely populated developing countries contribute to over 95% of the population growth and rapid population growth could lead to environmental deterioration. Developed countries are less densely populated and contribute very little to population growth; however, they cause massive ecological damage by the wasteful, unnecessary and unbalanced consumption the consequences of which could adversely affect both the developed and the developing countries. The review on "Promotion of sustainable

* (Research Scholar-S.R.F.), Department of Geography, University of Allahabad

development: challenges for environmental policies" in the Economic Survey 2017-18 had covered in detail the major environmental problems, and policy options for improvement; the present review will only briefly touch upon some of the important ecological consequences of demographic transition.

In many developing countries continued population growth has resulted in pressure on land, fragmentation of land holding, collapsing fisheries, shrinking forests, rising temperatures, loss of plant and animal species. Global warming due to increasing use of fossil fuels (mainly by the developed countries) could have serious effects on the populous coastal regions in developing countries, their food production and essential water supplies. The Intergovernmental Panel on Climate Change has projected that, if current greenhouse gas emission trends continue, the mean global surface temperature will rise from 1 to 3.5 degrees Celsius in the next century. The panel's best estimate scenario projects a sea-level rise of 15 to 95 centimeters by 2100. The ecological impact of rising oceans would include increased flooding, coastal erosion, salination of aquifers and coastal crop land and displacement of millions of people living near the coast. Patterns of precipitation are also likely to change, which combined with increased average temperatures, could substantially alter the relative agricultural productivity of different regions. Greenhouse gas emissions are closely linked to both population growth and development. Slower population growth in developing countries and ecologically sustainable lifestyles in developed countries would make reduction in green house gas emission easier to achieve and provide more time and options for adaptation to climate change.

Rapid population growth, developmental activities either to meet the growing population or the growing needs of the population as well as changing lifestyles and consumption patterns pose major challenge to preservation and promotion of ecological balance in Phaphamau region. Some of the major ecological adverse effects reported in Phaphamau region include:

- Severe pressure on the width and depth of the drain due to both the rate of building houses and the nature of settlement. The per capita number of houses in the region is very low.
- Adverse effect on species diversity of the drain.
- Conversion of habitat to some other land use such as agriculture, urban development, forestry operation. Some 70-80 % of fresh water marshes and lakes in the Gangetic flood plains have been lost in the last 50 years.
- Intense grazing by domestic livestock

- Poaching and illegal harvesting of waterlife.
- Imbalance in agricultural area, high use of chemical fertilizers pesticides and weedicides; water stagnation, soil erosion, soil salinity and low productivity.
- High level of biomass burning causing large-scale indoor pollution.
- Encroachment on habitat for rail and road construction thereby fragmenting the habitat. increase in commercial activities such as mining and unsustainable resource extraction.
- Degradation of aquatic ecosystems from domestic sewage, pesticides, fertilizers and industrial effluents.
- Over fishing in water bodies and introduction of weeds and exotic species.
- Diversion of water for domestic, industrial and agricultural uses leading to increased drain pollution and decrease in self-cleaning properties of drain.
- Increasing water requirement leading to tapping deeper aquifers which have high content of arsenic or fluoride resulting health problems.
- Disturbance from increased recreational activity and tourism causing pollution of natural ecosystems with wastes left behind by people.

The United Nations Conference on Environment and Development (1992) acknowledged population growth, rising income levels, changing technologies, increasing consumption pattern will all have adverse impact on environment. Ensuring that there is no further deterioration depends on choices made by the population about family size, life styles, environmental protection and equity. Availability of appropriate technology and commitment towards ensuring sustainable development is increasing throughout the world. Because of these, it might be possible to initiate steps to see that the natural carrying capacity of the environment is not damaged beyond recovery and ecological balance is to a large extent maintained. It is imperative that the environmental sustainability of all developmental projects is taken care of by appropriate inputs at the planning, implementation, monitoring and evaluation stages.

OBJECTIVE

The following objective to the study of high population growth and Basna drain in Phaphamau region.

- To find out the population and population growth in Phaphamau region.
- To analyse the population data of the region.
- To describe the housing demand of population in the region.
- To comprise the number of houses in year 2001 and 2011 in the region.

- To describe the impact of high demand of houses on agriculture area.
- To describe the data related to the shrinking of Basna drain.
- To describe the causes of shrinking into the width and depth of the drain.
- To give a proper solution for saving the life of the Basna drain.

DATA SOURCES AND METHODOLOGY

The present study includes two data sources primary and secondary. The primary data is based on observation, questionnaire, schedule method and interview method. The secondary data have two methods of data sources published and unpublished data. On the basis of primary and secondary data the following methods have been used in the present study:

Firstly, the location map of the study area is based on toposheet no. 63G/14.

Secondly, the primary data is field-survey conducted and questionnaire based data collected.

Last, one is reference book and related study-area research consulted.

The methods of tabulation, data interpretation, data analysis have been used in this study.

In this research work the graphing of the concerned data have also done. The method of data expression through graph is done by Microsoft Office Excel 2007.

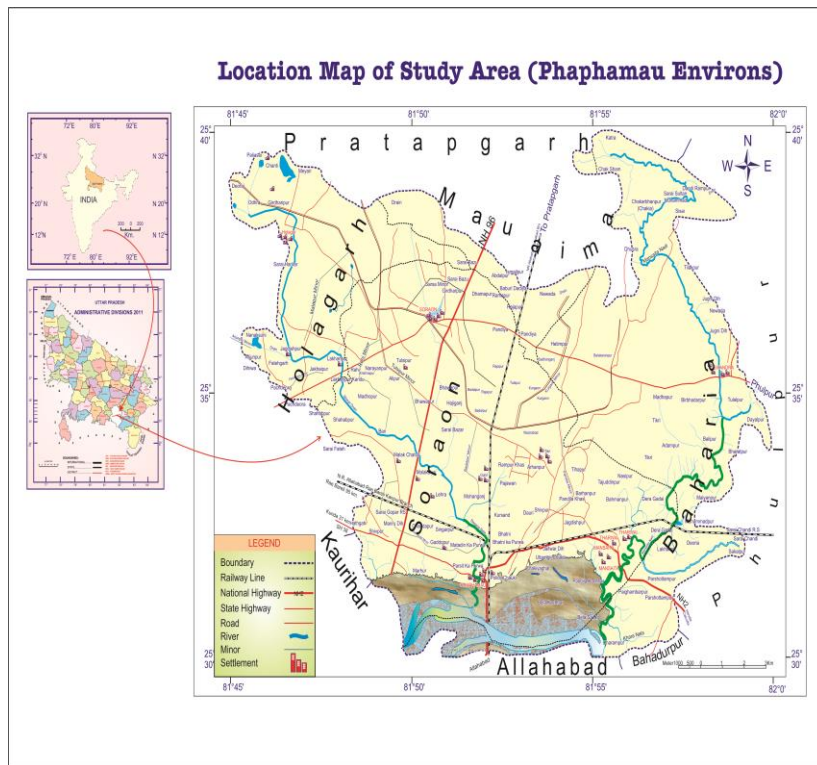
STUDY-AREA

The study-area extends from 25° 25'N to 25° 35' N latitude and 81° 50'E to 81° 57'E longitude. River Ganga and its tributary river Mansaita and Basna drain pass through this region. This region spreads over 31.45 km² geographical area. Geomorphologically, the region is a segment of “Upper Ganga Plain” and particularly is known as a part of “Avadh Plain”(Lucknow Plain), which is one of the most important micro-physiographic units of “Great Plains” of North India. Geologically, the region is filled up with younger and older alluvial deposits. These deposits are comprised of caliches formation, buried soil layers and current soil layers in sequential order from bottom to top ranging from upper Pleistocene to Holocene periods. The main constituents of lithology in the area are “Khather” and “Bhangar”.

The alluvial soil of the area are still largely immature and are of little pedogenic evolution, but have encouraged geomorphic agent 'man' to establish a close relationship with nature, which is the earnest necessity of the present geological era 'anthropocene'.

The region enjoy mild monsoon climate with long hot summer (maximum temperature 41.82°C and minimum temperature 24.91° C in May), medium rainfall generally from mid-

June to mid-October (55.28 mm in June, 177.44 mm in July, 231.78 mm in August, 197.82 mm in September and 24.88 mm in October) and dry winter (maximum temperature 23.50°C and minimum temperature 7.90°C).



RESULT AND DISCUSSION

COMPARATIVE STUDY OF POPULATION, NUMBER OF HOUSES, WIDTH AND DEPTH OF BASNA DRAIN IN PHAPHAMAU SUBURBAN AREA:

The study presents the relationship of high growth population and the width and depth of Basna drain. In this study there is a research on the rate of shrinking in Basna drain and growth rate of population in Phaphamau region. The study reveals the expansion of settlement area towards the basin of the drain, causes of expansion, methods to control the shrinking and expansion.

There are ten selected sites of villages/towns near Basna drain. These sites show the expansion rate of settlement area and shrinking in Basna drain. In this context first we describe the population and its growth rate, then demand of houses and finally shrinking in Basna drain. Then what are the causes of expansion and shrinking and how to control the expansion and shrinking.

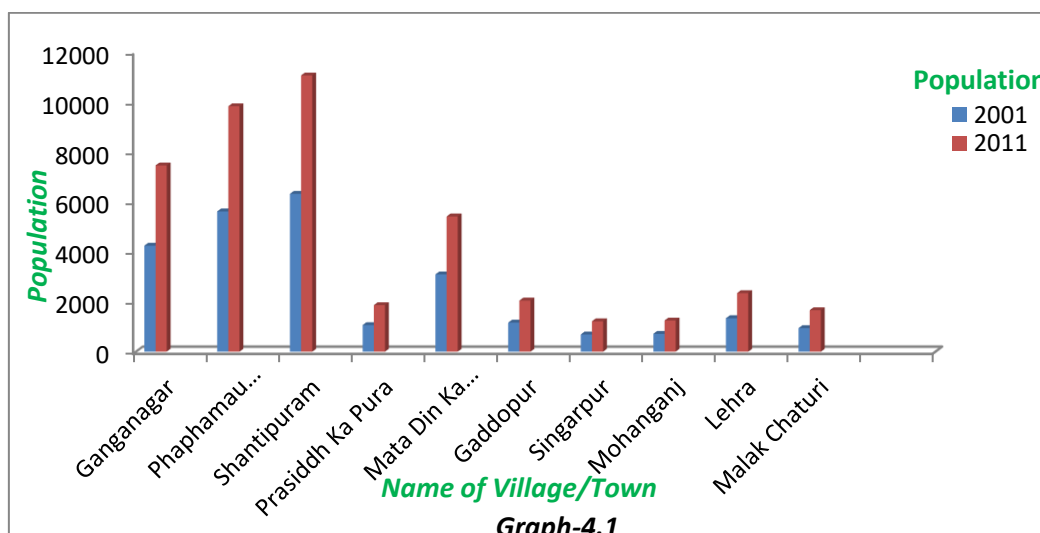
On observation of table number-1, the total population of the region is 25200 in year 2001 and 44123 in year 2011. The growth of 10 year population is 18323. Above rapid growth of population needs large number of houses. The total number of houses is 4955 in year 2001 and 8960 in year 2011. The difference between the numbers of houses in two times is

4005, shows a high growth according to the growth of above population in Phaphamau Suburban Area. The area of the region is limited, it cannot spread.

Table-1: Comparative Study Of Growth Of Houses In Relation To Population With Width And Depth Of Basna Drain In Phaphamau Suburban Area Of Allahabad City- (2001-2011).

S.N.	Name of Village/ Town	Population		Number of Houses		Width (in miter)		Depth (in miter)	
		2001	2011	2001	2011	2001	2011	2001	2011
	Ganganagar	4246	7460	849	1547	30.0	24.0	6.01	3.06
	Phaphamau Bazaar	5618	9831	1123	2048	-	-	-	-
	Shantipuram	6322	11063	1264	2304	15.0	7.6	5.72	2.3
	Prasiddh Ka Pura	1065	1863	213	388	-	-	-	-
	Mata Din Ka Pura	3095	5416	619	1128	-	-	-	-
	Gaddopur	1164	2048	228	372	-	-	-	-
	Singarpur	691	1216	115	221	-	-	-	-
	Mohanganj	714	1249	129	225	18.5	11.5	6.38	3.43
	Lehra	1341	2346	235	411				
	Malak Chaturi	944	1661	180	316	15.0	11.00	4.5	2.43
	Total	25200	44123	4955	8960	Aver. 19.5	Aver. 13.53	Aver. 5.65	Aver. 2.81

Sources- Drainage data based on field survey -Population data based on urban primary census abstract.



According to the above table the total population in Phaphamau region is 25200 in year 2001. It is the total population of ten selected village/town in the region. Shantipuram having highest population (6322) and Phaphamau bazaar second highest population town in the region in year 2001. Singarpur village having lowest population in the region.

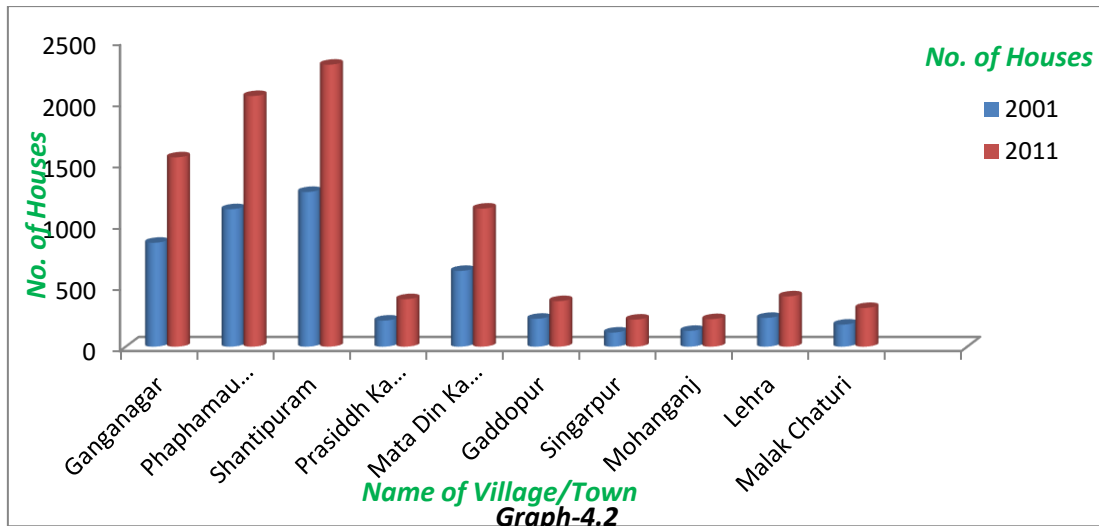
According to the above table in year 2011 the total population in the region is 44123. The population of Shantipuram is the highest population in the region. The lowest population of Phaphamau region is 1216 of Singarpur village. The decennial growth rate in year 2011 is very high. The average growth rate in the region is 75.33. Hence, the population density of the region is very high.

Year 2021 is the projected year of the study. The projected population of the region in 2021 is 117350. This population is very high. Hence, the population density of the region is very high. The population density of the region is 21.70. This projection is based on past population growth in the region and surveyed by urban primary census abstract. Like past and present decade Shantipuram will have highest population in the region in year 2021. And Singarpur will have lowest population in the region.

The past population of the region in year 2001 is 25200. The present population of the region is 44123 in year 2011. The difference of population from 2011 to 2001 is 18923. Thus there is an addition of 18923 people in the past population of Phaphamau region in year 2011. This population is approx double of the population of 2001. The exact average decennial growth rate of population in year 2011 is 75.33. The average decennial population growth rate from 2011 to 2021 will be 21.70. This growth rate is not high as like to the decennial growth rate of 2011. But it is higher than the growth rate of the country i.e. 17.64.

The current population in the region is 44123 and the projected population is 117350. The difference between the projected and current population is 32388. This difference is approximately as equal to the current population in the region.

Finally, the population density in the region is very high. In future the density will be higher than the present population in the region

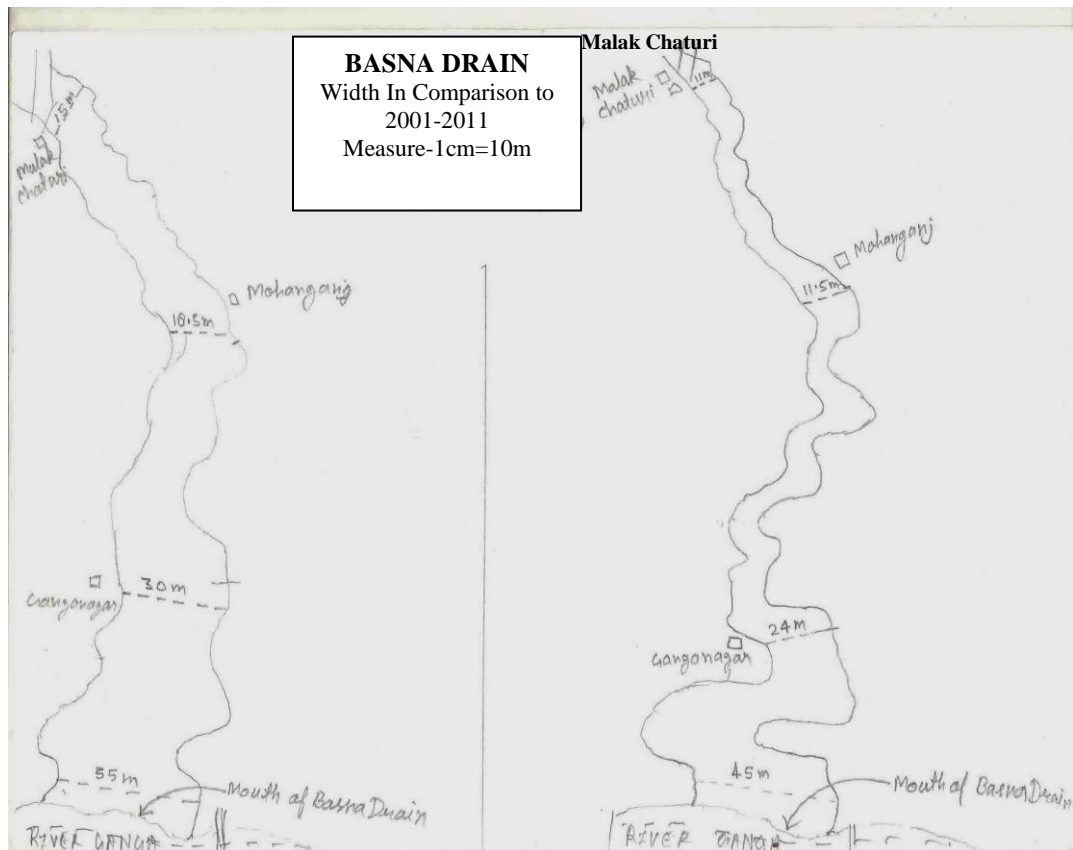


On the basis of observation of the above table and diagram, it can be concluded that the number of houses and growth rate of houses in Phaphamau suburban region has variations in different year and decade. The number of houses in year 1991 and 2001 and 2011 are 3487, 4296 and 7787 respectively. The average growth rate of houses in year 2001 and 2011 are 25.29% and 79.06% respectively. Thus there are 809 more houses built in decade 2001 and 3491 houses built in decade 2011. The number of houses of decade 2011 is more than three times of houses of decade 2001. Decade 2011 has a large growth rate in number of houses than decade 2001.

Fast growing population of the region has important needs for infrastructural development like roads and bridges. This covers the large part of the region. So there is no open space for growing green grass and plants. The total transport and travelling area in Phaphamau suburban region including bus terminus, truck terminus, railways and airways is 480.38 hectare.

Year -2001

Year-2011



Map-02



Photograph-1



Photograph-2



Photograph-3



Photograph-4



Photograph-5

The above table, sketch map and Photographs show the changes in the width and depth of Basna drain in year 2001 and 2011. The average width of Basna drain in year 2001 and 2011 is 20.82 meter and 15.88 meter respectively. The shrinking in the width of Basna drain from 2001 to 2011 is 5.05 meter. The average annual reduction in the width of Basna drain is 0.505 meter. The rate of width reduction in the stream is very high. It shows the very severe condition for the life of a stream.

The average depth of Basna drain is 4.83 meter in year 2001 and 3.19 meter in year 2011. Thus the decennial reduction in the depth of Basna drain is 1.64 meter. The annual reduction in depth is 0.164 meter the rate of depth reduction in Basna drain is very high.

There is a need of great conscience of the people about the natural phenomenon like Basna drain in Phaphamau region. Allahabad Development Authority should aware about the rapid shrinking in the basin of the drain and should regulate the Allahabad high court regulation of 500 meter no construction zone along the both side of the stream.

The above sketch map and photographs show the rate of shrinking in the width of Basna drain. The photograph clearly shows the in the width of Basna drain in year 2001 and 2011. The five sites (Ganganagar, Mata Din Ka Pura, Singarpur, Lehra and Malak Chaturi) show highest destruction in the width of Basna drain than other area of Phaphamau region. The site Ganganagar occur the reduction in the width of the drain and the site Mata Din Ka Pura occur the lowest reduction in the width of the drain.

CONCLUSION

On the basis of data tabulation and graphical representation, the following finding shown with reference to urban sprawl due to high population growth and shrinking basin of Basna drain in Phaphamau region.

- Due to population load and high growth in population there is a big demand of houses, roads and bridges in Phaphamau region.
- The urban sprawl towards the basin of Basna drain makes changes in the width and depth of the drain. Thus the rate of shrinking in the basin of Basna drain is very high. This rate of shrinking will vanish the existence of Basna drain within 70 years (till 2081).
- The construction work in the basin occur heavy amount of soil mining, hence there is soil erosion. This eroded soil is depositing in the bed of Basna drain and make Basna drain shallow.
- Due to above happening the width and depth of Basna drain is decreasing rapidly.

SUGGESTIONS

The following suggestions should follow the people and government in the region for the balance future of Basna drain.

- First of all the people and government should be conscience about the natural phenomenon like Basna drain and human basic needs of houses.
- People should not build their dwellings and other dwellings related work in the basin of the drain. Because it is very important for proper flow and aquatic environment of the drain.
- Allahabad Development Authority (ADA) should regulate the direction of Allahabad high court for save life of a stream. The court asked the Allahabad Development Authority (ADA), Uttar Pradesh to demarcate the zone of 500 meter along both side of the stream from high flood levels.
- There should be plantation of 10 meter strip along the both side of Basna drain.
- To control high population growth and settlement sprawl in the basin of the drain.
- The people in the region should follow the population policy 2000 to control in high growth rate population and government should regulate it on ground level strictly.

REFERENCES

- Anderson, M.G. Burt, T.P, 1978: Analysis of spatial water quality and stream networks in the Southern Catswolds during and after the draught of 1976. *Earth Surface Process*, 3, 59-70.
- Bery, L., 1970: Some erosinal features due to piping and subsurface wash with special reference to the Sudan, *Geografica*.
- Bandyopadhyay, B.K., 1980: A geographical analysis of Bankura district with special reference to soil and its impact on agriculture, unpublished D. Phi. Thesis, University of Calcutta.
- Chorley, R.J. (Edi), 1969: *Water, Earth and Man*. Methuen, London.
- Costa, J.E. 1987: Hydraulics and basin morphometry of the largest flash floods in the conterminous United States. *J. Hydrol* 313-338.
- Frissel, C.A, Liss, W.J. Warren. C.E., Hurley, M.D. 1986: A hierarchical framework for stream habitat classification: viewing streams in a watershed context. *Environ Money*, 10:199-214.
- Melton, M.A., 1957: Correlation structure of morphometric properties of drainage systems and their controlling agents, *Jour. heol*. V. 66, PP. 442-60.
- Singh, S.C., 1966: Changes in the courses of river and their effects on urban settlements in the middle Ganga Plain, Unpublished Ph.D. Thesis submitted in the Department of Geography, Banaras Hindu University, and Varanasi.
- Singh, Savindra and Singh, O.P., 1976: Morphometric Control on rural settlements of Palamu Upland, *National Geographer*, V.11, no. 2 p. 123-131.
- Soil Conservation Service, 1986: *Urban hydrology for small watersheds*. TR-55, 2nd edn, U.S.A.
- Thompson, J.R., Taylor, M.P., Fryirs, K.A. Brierley, G.J., 2001. A geomorphologic framework for river characterization and habitat assessment. *Aquat Conser Mar. Freshw. Ecosyst*, 11:373-389.

WEBSIDES

- www.allahabad.nic.in
- www.allahabad.wikipedia.in
- www.dainikjagaran.com
- www.indianexpress.com