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## **SOIL DIGGING IN PHAPHAMAU REGION ALLAHABAD UP: ITS CAUSES AND IMPACT**

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### **ABSTRACT**

Basna drain is a tributary of river Ganga. The drain is suffering for its existence, due to drastic digging in the basin of the drain. Hence, there is no more existence of Basna drain in future in Phaphamau area. The present study is based on 12 hectare digging area in the basin of Basna drain between Mata Din Ka Pura and Prasiddh Ka Pura. This digging is the result of infrastructural demand of the people of Phaphamau suburban area. The population of the Phaphamau suburban area in year 2001, 2011 and in future 2021 is 25200, 44123 and 117350 respectively. The present and purposed growth rate of the region from 2001 to 2011 and from 2011 to 2021 is 75.33 and 21.70. Due to the high growth rate of population in the region there is a heavy demand of numbers of houses for their shelter and business. For this demand people needs soil and brick. The demand of soil to raise the height of houses, roads and other infra and the demand of bricks to make buildings the digging in the region is the result of the time. But people should aware that, if nature can give the life, then it can take the life. Hence, ADA and people of the region should aware about this incident. ADA should follow should follow the regulation of National Green Tribunal and the judgment of Allahabad high court.

### **INTRODUCTION**

Mining is a major contributor (2<sup>nd</sup>) to the national GDP (4%) occupying 36 lakh hectare (0.11%) of total land area (329 m ha) and providing employment generation (4 %) for 1.1 million people of the country and in Tamil Nadu the mining area is around 7,000 hectare with 1% of total area. India recognizes that mining, unless properly regulated, can have adverse environmental and social consequences. It seems that the illegal miners are omnipotent, omnipresent and omniscient, as the government the supposed to be almighty is on their side. The reports on illegal mining across the states and its adverse environmental impact deserve a place in newspapers daily almost. Illegal sand excavation by mafias across major river basin, where, sand was mined in order to cater to the construction need of the local villages and government offices, Since the rivers had sand all over their pathways, ground water table all along their winding routes was kept intact. Due to the over exploitation of river sand, the watercourse has

become lower than the level of irrigation canals and hence, the irrigation canals get water only when the river is flooded. As a result, the local tanks that depend upon the river for water remain dried all through the years, except the years that have heavy downpour. Thus, over exploitation of river sand results in the destruction of agricultural practices, across the districts and state. Rivers had sand all over their pathways; ground water table all along their winding routes was kept intact. Due to the over exploitation of river sand, the watercourse has become lower than the level of irrigation canals and hence, the irrigation canals get water only when the river is flooded. As a result, the local tanks that depend upon the river for water remain dried all through the years, except the years that have heavy downpour. Thus, over exploitation of river sand results in the destruction of agricultural practices, across the districts and state.

Rivers are the most important life supporting system of nature. For centuries, humans have been enjoying the natural benefits provided by rivers without understanding much on how the river ecosystem functions and maintains its vitality (Naiman 1992; Naiman and Bilby 1998). Man has changed the nature of many of the world's rivers by controlling their floods, constructing large impoundments (Ittekkot and Lanne 1991), over exploitation of living and non living resources (Macfarlane and Mitchell 2003; Kitetu and Rowan 1997) and using rivers for disposal of wastes (Haslam, 1990). Among these, indiscriminate extraction of nonliving resources like sand and gravel from riverbed is the most disastrous as this activity threatens the very existence of the river ecosystem. A review of literature reveals that indiscriminate extraction of river sand and gravel many folds higher than natural replenishments can impart serious offsite and onsite impacts. This ultimately leads to changes in channel form, lowering of water table, landscape instability, land degradation etc. As these adverse effects become increasingly recognized and understood, in stream and river bank sand mining have been subjected to increasing scientific scrutiny. Although more focused researches leading to restoration of river environments are progressing in many developed countries, much attention has not been given to the rest of the world.

### ***Sand and Soil Mining- Definition/ Process***

UNEP (1992) describes sand mining as “the temporary or permanent lowering of the productive capacity of land”. “Mining is essentially a destructive development activity where ecology suffers at the altar of economy” (Surender Singh Chauhan, 2010). First of all, the soil mass is scraped from upper 2 to 3 meters, which contains mostly clay, silt and sand and is purposely saved and stacked aside in heaps. During sand extraction, topsoil layer is peeled and stacked aside and exposed sand is excavated to a depth of 10-12 m. afterwards, stacked topsoil is spread and mixed with sand bed. As mining proceeds further, the mined fields are handed over to the owner for cultivation. Thick column of sand (light grey) removed and overlying top soil cover (dark grey) pushed down the slope to evenly spread over sandpit. After spreading and mixing top soil with sand, the field is compacted, leveled and bounded to commence cultivation

## ***Scenario of Soil Mining in India***

The present investigation is attempted at analyzing the socio - environmental effects of river soil digging in the Basna drain of Phaphamau region of Allahabad district, Uttar Pradesh. Basna drain has been subjected to indiscriminate soil extraction over the past one decade consequent to heavy demand of houses and infrastructural development. Lack of sufficient information regarding the negative effects of soil mining is a major setback for laying strategies for the conservation and management of the catchment area of the drain. Considering the importance of assessments on the extent of environmental degradation due to indiscriminate soil mining, an attempt has been made in this paper to address a few aspects about the impacts of soil mining on the aquatic environments of drain in the Phaphamau suburban area, taking the Basna drain basin as an example.

### **OBJECTIVE OF THE STUDY**

- To describe the total area of soil digging in Basna drain.
- To find out the major causes of soil digging in the drain.
- To search the impact of soil digging on aquatic environment of Basna drain and its surroundings.
- Give suggestion to control the soil digging in the basin of Basna drain for balance environment.

### **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.

### **RESULT AND DISCUSSION**

The present study is a micro level study. There are five steps in this study. First one is the description of soil digging in Basna drain. Second step is to find out the major causes of digging in the drain. Then what is the impact of soil digging on the aquatic environment of Basna drain and its surroundings. Finally, find out the conclusion of the study with a proper suggestion.

The step wise description of the study is given below.

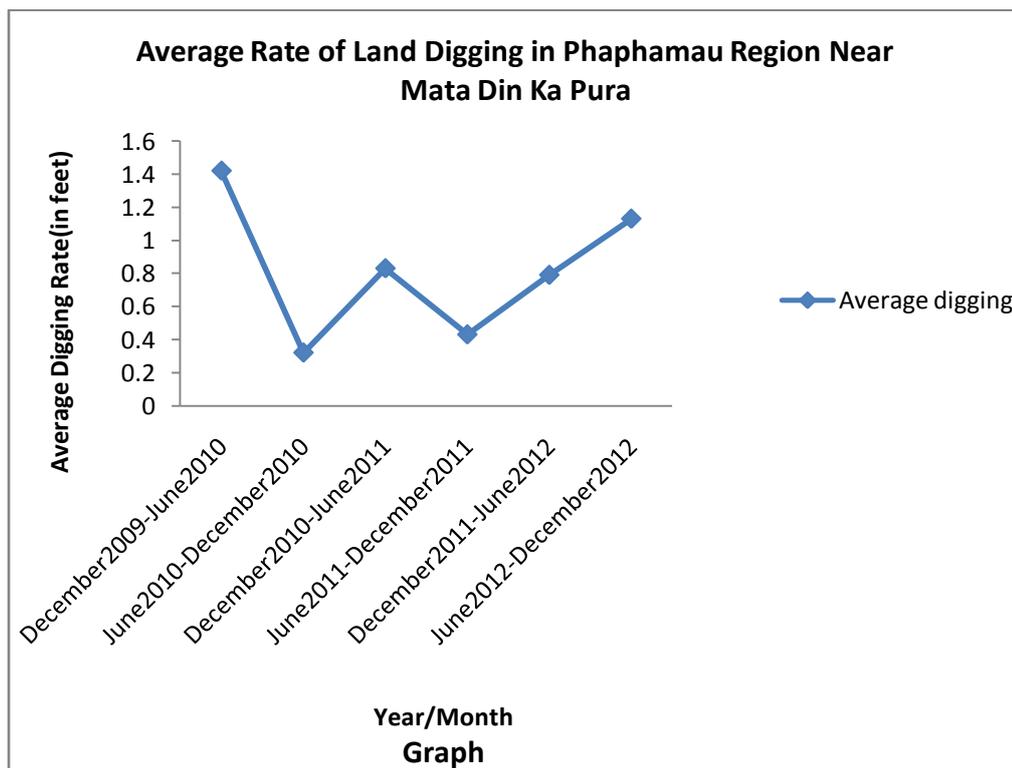
## SOIL DIGGING IN BASNA DRAIN NEAR PHAPHAMAU REGION

### Table

#### Digging of Land in 12 Hectare Area

S.N.	Year/Month	Digging(In Feet)
	<b>Total</b>	4.92
1.	December2013-June2014	1.42
2.	June2014-December2014	0.32
3.	December2014-June2015	0.83
4.	June2015-December2015	0.43
5.	December2015-June2016	0.79
6.	June2016-December2016	1.13

(Source- Field Survey Based On Questionnaire Method of Primary Data Collection)



The research work is time and space specific. The selected area is a basin of Basna drain. It is surrounded by six villages. The name of six-village are; Prasiddh Ka Pura, Mata Din Ka Pura, Ganganagar, Phaphamau Bazaar, Shantipuram and Gaddopur. There is a heavy amount

of soil digging in Basna drain Between Prasiddh Ka Pura and Mata Din Ka Pura. The soil digging data is based on primary data collection of three year from December 2013 to December 2016.

On observation of the table the total soil digging depth in the basin of Basna drain is 4.92 feet. The total soil digging area is about 12 hectare. The deepest soil mining is 1.42 feet in the basin. The time of deepest mining is December 2013 to June 2014. And the minimum soil mining period is June 2014 to December 2014 (i.e. 0.32).

The heavy demand of houses and infrastructural developments like road and bridges has need of brick and soil in large quantity for constructions of the houses in Phaphamau suburban region including 6 villages (Ganganagar, Phaphamau Bazaar, Shantipuram, Prasiddh Ka Pura, Mata Din Ka Pura, and Gaddopur). People bring a great quantity of soil by digging agricultural land from the north-east side of the region near Mata Din Ka Pura and Prasiddh Ka Pura village. The digging area is approximately 12 hectare of the region. The digging purpose of the region is raising the height of the houses in the region and making brick by brick kiln. There are more than five brick kilns in the Phaphamau region.



**Photograph; Its shows the heavy amount of soil digging in the basin of Basna drain.**

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## CAUSES OF SOIL DIGGING IN BASNA DRAIN

The following causes are responsible for soil digging in the Basna drain in Phaphamau.

### **POPULATION AND NUMBER OF HOUSES IN PHAPHAMAU REGION**

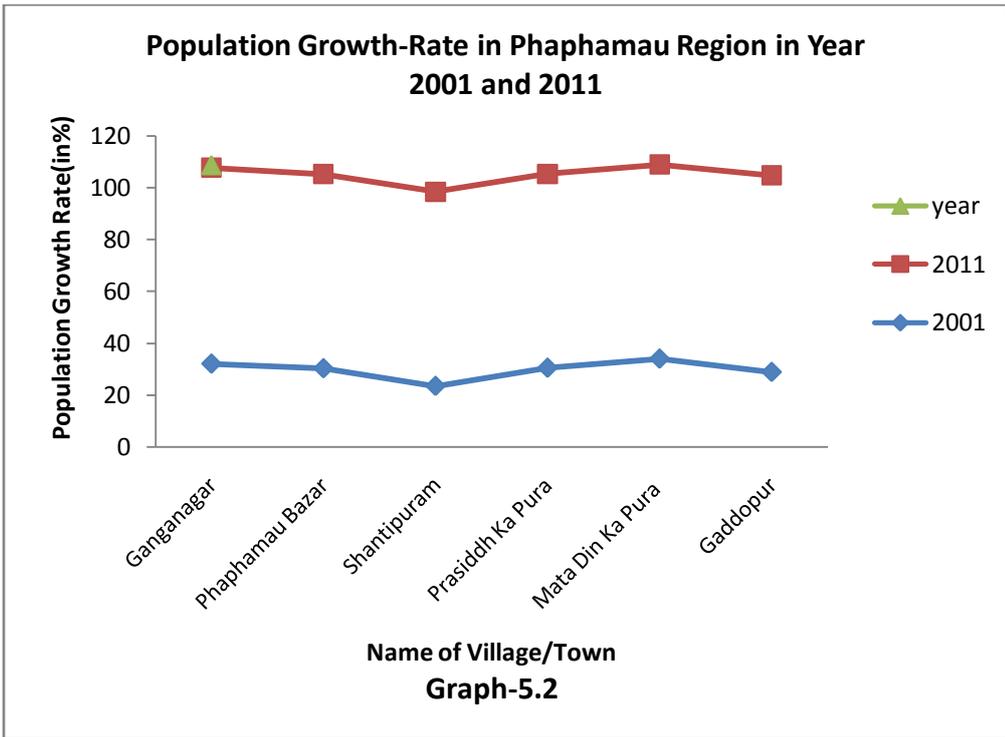
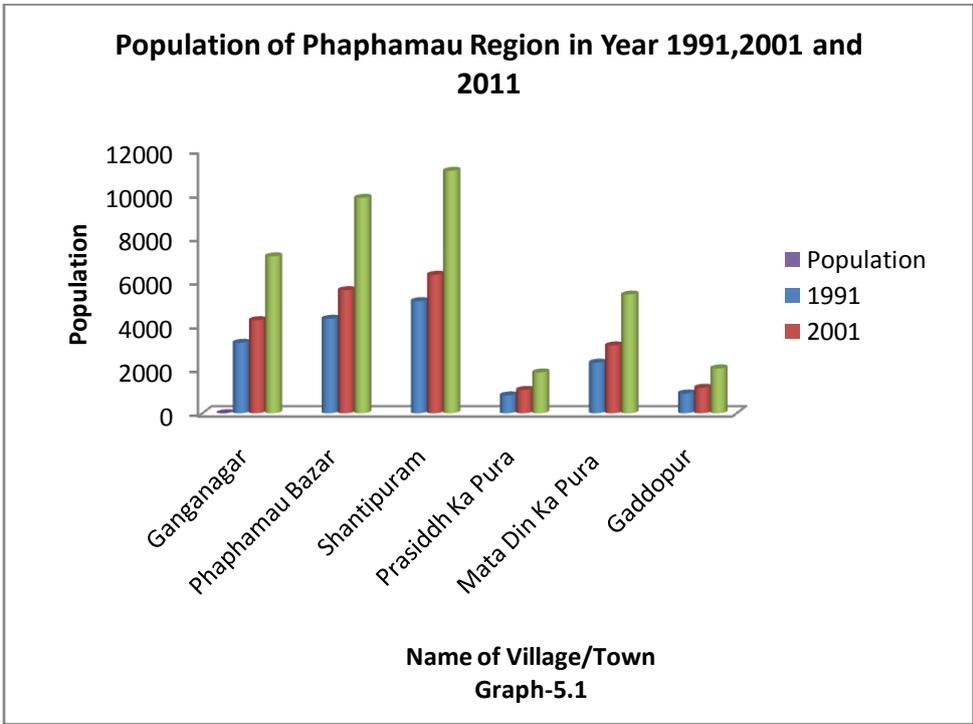
Population growth and demand of houses are mainly responsible for digging in the basin of Basna drain. The following table shows the population of ten villages/towns. In this table two decade population is given. The population growth rate in the region is very high. The average population growth in the region is 75.33.

#### **Table**

#### **Population and Population Growth in Phaphamau suburban region**

S.N.	Name Of Town/Village	Population			Decadal Population Growth (In percentage)	
		1991	2001	2011	2001	2011
1	Ganganagar	3214	4246	7160	32.11	75.69
2	Phaphamau Bazaar	4311	5618	9831	30.32	74.99
3	Shantipuram	5118	6322	11063	23.52	74.99
4	Prasiddh Ka Pura	816	1065	1863	30.51	74.92
5	Mata Din Ka Pura	2309	3095	5416	34.04	74.99
6	Gaddopur	903	1164	2048	28.90	75.94
	Total	16671	21510	37681	29.90(average)	75.25(average)

*Source: 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.

After high growth rate of population the people in the region have great demand of houses for their shelter. The above table shows the demand of houses in decade 2001 and 2011. In year 2001 the number of houses is 4955. In year 2011 the number of houses is 8960. The number of houses in year 2011 is about to double of the number of houses in year 2001.

Thus the high growth of population and heavy demand of houses needs big amount of soil. For fulfill the requirement of soil in the region there is a soil digging in the basin of Basna drain. The following secondary purpose may be responsible for the digging in the drain.

- To raise the height of houses by filling soil in the foundation.
- To fill the lowland in the settlement area for plain surface.
- There is more than five brick Kline near the digging site of Basna drain. All these are the requirement of the region due heavy demand of brick for building houses, roads, bridge and boundary wall.
- To raise the height of the roads.
- Soil also need for greenery in the city area.
- For embankment of dam near Ganga river.

## **IMPACT OF SOIL DIGGING ON AQUATIC ENVIRONMENT OF BASNA DRAIN AND ITS SURROUNDINGS**

Basna drain is a natural drain. It has some self regulatory action. Due to drastic destruction in the basin of Basna drain it unable to regulate its processes in a proper way. Hence, there are following problems occurs;

- Affect in the habitat of aquatic species.
- Impact on river bed sedimentation.
- Impact on river bed cultivation.
- Loss of agriculture land.
- Decrease in grazing land.
- Loss of clean water availability in the drain.
- Drain bank erosion.
- Extreme event like flood erosion change in flow of river.
- Depletion of ground water.
- Polluting ground water.
- Uses of heavy machine increase turbidity of water.

## CONCLUSION

On the basis of above description the following findings are given below;

- The growth rate of soil digging in the Basna drain between Prasiddh Ka Pura and Mata Din Ka Pura is very high.
- The main causes responsible for soil digging in the Basna drain is rapid growth in population and great demand of number of houses.
- Due to big amount of soil digging the aquatic environment of Basna drain has disturbed.
- Due to digging there is sedimentation in the bottom of Basna drain. This cause flood in the Phaphamau region.

## SUGGESTIONS

- There should be public and government awareness about soil digging in the Basna drain.
- Allahabad Development Authority should regulate the regulation of NGT and Allahabad High court for conservation of water body.
- There should be metropolitan plan for colonization of Phaphamau region.
- A.D.A. should make a policy for the control of growth rate in Phaphamau region.
- There should be people awareness about population control.
- The people of the region should avoid the digging of Basna drain.

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