A
ABSTRACT
OF
THE THESIS ENTITLED

THE HINDON RIVER
“A Geographical Analysis of Water Pollution”

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ABSTRACT

The present work is scientific and statistical study of water pollution of Hindon River and evaluated the presence of toxic components within the surface of the said River in its flow. The Hindon River rising in Saharanpur district in the lower Himalayas. Hindon River and its tributaries flow through Saharanpur, Muzaffarnagar, Meerut, Baghpat, Ghaziabad, and Noida districts. Up to some distance upstream of Saharanpur, the river is monsoon fed only and remains dry in non-monsoon months. From Saharanpur district onwards it is perennial mainly because of domestic and industrial waste water, which it receives during its traverse. The river Hindon is ultimately merge to River Yamuna downstream of Delhi at a place called Tilwara in Haryana State and thus empty its pollution load to Yamuna river, which in turn confluences with Ganga at Allahabad. The total length of river is about 400km out of which about 270 km is perennial and about 130 km is non-perennial. The total area contributing to Hindon catchment is about 7083 sq. Km. (Yamuna Action Plan 1992). The River lies between the latitude 28 44 N to 30 5 N and Longitude 77 8 E to 77 4 E. During the past few decades, Indian industries have registered a quantum jump, which has contributed to high economic growth but simultaneously it has also given rise to severe environmental pollution. Consequently, ambient air and water quality is seriously affected which is far lower in comparison to the international standards. The same problem
is worse in the case of Hindon River water pollution. It is found that two-thirds of the total water pollution comes in the form of effluent discharge, solid wastes and other hazardous wastes. Untreated or allegedly treated effluents have increased the level of toxins. The surface water is the main source of industries for waste disposal. It is found that almost all rivers are polluted in most of the catchment areas affected by some industry or the other. Although all industries function under the strict guidelines of the Central Pollution Control Board (CPCB) but still the environmental situation is far from satisfactory. Different norms and guidelines are given for all the industries depending upon their pollution potentials. In these areas there are sufficient evidences available related with the mismanagement of industrial waste. Consequently, at the end of each time period the pollution problem takes menacing concern. The conventional methods so far adopted for the assessment of environmental quality (air, water) and considered in the aspect of direct pollution. The sectors with high discharge of direct pollution are given uniform treatment under the category of highly polluting sectors. The difference that arises because of indirect effect during the process of production has been completely ignored. Moreover, most of the studies undertaken in the Indian context have been very broad and aggregative in nature. Just upstream of Saharanpur, river is dry for most of the period in the year. During monsoon session months, rainy water flow in Hindon starts, and joining Nagdev Nala which apart from others wastes also brings waste water from Paper and Pulp, Sugarcane industries and milk product
industries. Waste water from Saharanpur city and other industries is discharged in river Dhamola and Paodhoi. Thus combined waste is discharged in Hindon near Tapri. Near Barnawa river Kali joins Hindon. Kali brings domestic and industrial wastes from Muzaffarnagar city and nearby areas. After Barnawa river Krishni discharges its loads of pollutants in Hindon upstream of Galatia. Next is Jani escape which brings clean Ganga water from upper Ganga canal. Thereby Saharanpur and Muzaffarnagar are big two industrially developed districts dumping of their wastes in Hindon. Hence Hindon carries only waste water, in non monsoon period. Before the barrage of Mohannagar waste water from Ghaziabad meets Hindon. After barrage flow in Hindon is very less. Further Dasana drain discharged domestic waste into Hindon. Then Hindon Bifurcate and finally joins Yamuna River near Tilwara.

The present work is focused on the climatic effect on the pollution of the water of Hindon River. We have discussed on the collected data from government of India. Although we have mechanism to control the pollution but we pay a lot for it which is a slow poison for the society. We didn’t discus much more about it because we individually think that other to do something against this act and think that we can protect ourselves by installing RO filter in our homes.

The present thesis is divided into six chapters which are being organised in well planed way. The first chapter is the introduction of water pollution and brief description of chemical changes of water and its tolerable limits of domestic uses as well as drinking uses. We have also
defined international and Indian parameter of permissible limits of different chemical substances which are toxic beyond them permissible limits.

The chapter seconds describes the Hindon river basin and its catchment area with its territories. This chapter also describes the main pollution sources through its flow and also describes the chemically type of pollution of these sources and its main reasons.

The chapter third is the main part of this thesis in which we have analyzed and identified the sampling station along with their description regarding the information of the project “Hindon River Water Quality Monitoring, GAP, PHASE II,” supported by ministry of Environment and Forest, Government of India. Regarding this project the sampling stations selected are Maheshpur, Barnawa, Daruhera, Mohannagar and Noida. Our analysis is concentrated on the variation of different parameters affected by environmental changes. We have analyzed sixteen parameters and its affect on water. We have discussed of seasonal effect on these parameter. We have selected mainly four months for our study that are

1. **January:** Because of minimum environmental temperature in this month and in this month we have found that air temperature is less than water temperature due to presence of pollutants in the industrial waste.

2. **June:** Because of maximum environmental temperature in this month and in this month we have found that air temperature is greater than water temperature.
3. **August**: Because of maximum environmental temperature and monsoon season in this month and in this month due to rain water the polluted water is diluted. Therefore we have discussed the effect of this season.

4. **October**: Because of average environmental temperature in this month and in this month no rainy water is present also sugarcane industries not start its work therefore we have studied the effect of this season on water pollutants behaviour.

In the chapter four we have discussed the water pollution of Paodhaoi and Dhamola. Which are merging in Hindon River. We have analysed the water Quality of Paodhaoi, Dhamola and Hindon which are polluted by industrial and municipal waste of Saharanpur city.

In the chapter five we have concluded our study and suggested some suggestion which can control water pollution to some extent. And at last in chapter six we have suggested some Short Term and Long Term Measures to control pollution of Hindon River.