



Water Pollution and sustainable developments- A case study of G.B. Pant Sagar and Its surrounding Region

□ Ashok Kumar Singh

***Abstract:** Sustainable development signifies the rational interrelationship between the living organism and their environment. The concept of sustainable development has two dimensions: Time and cost. In other words development should not be only for the short run of the present generation. The cost of development should not just be calculated in terms of economic and social benefits. It should also take into account the environmental cost involved in the use of natural resources and environment available to the region.*

Water is essentially required by all kinds of life and is most abundantly available on the planet earth. It is among the best solvents and is unique in many physical and chemical ways. It is the medium of life. Aquatic pollution is the presence of undesirable foreign materials either dissolved or suspended which are harmful to life of which reduce utility value of water. The intensity of pollution depends on the quantity and nature of foreign material and the relative case with it is received by the medium getting polluted.

The Rihand Valley project is the most important multipurpose scheme in Sonbhadra District (Lying in between lat. 23° 52' N to 25° 30' N longitude 82° 12' E to 83° 33' E covering an area of about 6819.28 Km².) The dam at Pipri, on the river Rihand which is a tributary of the river river son, and thus the creation of the largest reservoir (G.B. Pant Sagar) which covers the surface area about 405 Km².

The dam is over 3000 feet long and the storage capacity of the reservoir is about 90 lakh acre feet. In the very beginning of this project it was thought that this scheme will confere numerous benefits on the country specially in enhancing agricultural and industrial development.

Lithologically the study area is combination of the oldest (Archean) and the younger (Gondwana lower) rock formation series. Physiographically the area in which G.B. Pant Sagar lies is a constituent part of the central foreland of the Deccan. The climate of the region is characterised by a hot summer and a pleasant Mansoon and a severe season with maximum 43° C and minimum 13° C occurring in May and January respectively. This is a draught prone area.

The general, agricultural and physiological density of the region occupies 137, 144 and 549 respectively followed by the sex ratio 862 per thousand person.

Accelerating share of Sc/St to total population accounts for 47.23% and 0.01% in 1991 respectively. The Literacy % of the area is 27.70%. The occupational structure of the area as engaged in primary, secondary and tertiary economic activities constitute 86.80%, 5.33% and 7.87% respectively.

Agricultural and industrial development has caused ecological hazards in the surrounding region of the Rihand project. Development of Pansagar including sub merged area of the Singrauli basin lead to the resettlement of 8000 families having about 40000 population on the adjoining Muirpur Platform. The destruction of flora and fauna was not confined to the basin only but also effected the Muirpur environment adversely 2 to 6.25 acres of agricultural land was allotted among the resettlers.

Alarming and severe deforestation in the surrounding area of the Sagar (G.B. Pant) has impaired the soil, air and water quality. Minor irrigation dams and plantation are given some attention to taken the problem but these are not enough to recover the damage.

Modern techniques employed in agricultural and newer chemicals used have contributed much to environmental pollution, particularly to water pollution. Agricultural water pollution includes fertilizers insecticides and pesticides, farm animal wastes and sediments. These pollutants enter waterways as run off from agricultural lands of the regions. Water pollution problem arise from excessive application rates of fertilizers, insecticides and

pesticides. The fertilizers and pesticides are transmitted to ground water by leaching and to surface waters by natural drainage and storm run off. Nitrates are of prime concern since the presence of them in drinking water may cause met hemoglobin in infants. The nitrates are reported to be reduced nitrites in the stomach of the babies which has a great affinity for hemoglobin of the blood and consequently it forms met hemoglobin. The same process also occurs in the stomach of ruminants and thus livestock are also affected by nitrate poisoning. The plant nutrients, Nitrogen and Phosphorus are reported to stimulate the growth of Algae and other aquatic plants. Excessive growths of these plants interfere with water uses and later they decay to produce evilodours with the resultant increase in biochemical oxygen demand.

Coa mines cement factories and water pollution- It is a common site in coal mining area of Beena, Kakari, Kdhadiya and Dudhichua that after deforestation the mine wastes are dumped on some otherwise usable land and mountains of mine overburden are created. These lack the normal soil life support properties and remain barren and consequently get eroded and carried to the surrounding fields (fertile lands) and rivers after heavy rains and run off. Thus water quality is depleted.

Raw coal has a share of Sulphur. Use of freshwater for drinking and other domestic purposes needs to be reasonably clean. Domestic waste water, Renukoot, Pipari, Beena, Renuagar, Shaktinagar, Anpara, Obra etc. and containing residues

of dirt, dust, soap and detergent pieces of paper and cloth, toilet wastes are joined with the sewage pipe line pollute the water.

In Renukoot water pollution is significant due to industrial effluents of Kanauria Chemicals and Hindalco Aluminum factories. Aluminum industries produces fluorides which adversely affect the health of trees, cattle and man.

During survey author took the hand pump water samples of 40 villages of Muirpur block and after analysis it was found that there is iron and fluoride content in the water which has caused the throat diseases to the inhabitants.

THERMAL POWER

PLANTS- The main thermal power plants of the region are obra (1600 m.v.) shaktinagar (2000 m.v.) Anpara (2000 m.v.) Beejpur (1000 m.v.) and Renukoot (320 m.v.) Coal burning in thermal power plants gets converted into SO_2 and reaches the atmosphere. SO_2 present in the atmosphere is responsible for acid rains and consequent lowering soil pH. These plants are the major contributors of SO_2 pollution accounting for nearly 30 to 50% SO_2 pollution causes the diseases of eye, throat and lungs. The water, used in these plants after extreme heat is cooler in the reservoir. The temperature is increased and it endangers and adversely affects the fresh water production. Fresh water fishery production of G.B. Pantnagar has been adversely affected due to the high mortality of the fishers.

On the basis of pollutant intensity three pollution zones (inner, middle and outer) have been recognized.

The region is passing through a period of investment in Techno industrial development to exploit the natural endowments for economic development of the region. Non awareness of ecological havoc endangers the man supporting capacity of the ecosystem. Draughts are becoming frequent due to hazards deforestation. In order to meet such man made calamities (including air, water, soil pollution) some necessary and preventive measures are required, For instance:

Effluents of residential industrial area after purification and recycling may be used as manure (Organic matters) and the purified water for irrigating crop fields.

Though the effects of thermal pollution are not so severe, control of thermal pollution is necessary since in future the effect may be worse. The use of water from a water course for cooling purpose with subsequent return to the water way after passage through the condenser is termed as once through cooling to reduce the magnitude of the pollution; the outlet water can be made to give up some of its heat to the atmosphere and then may be discharged into the water course. Along with this legal controls and laws are also necessary for industrial/ power plants established and to be established in near future.

The main meaning solid wastes such as coal ashes from furnaces and Bauxite mud can be utilized in sustaining the economy of the region coal dust can be used combustible chips or may be converted

into Asphalt; Ashes in building road as well as in the form of manure to grow Maize and vegetables in surrounding region. Bauxite mud may be used in preparation of ceramic tiles and pipes. An experiment to produce food crops and vegetables Dodhar and Neelgiri. From by utilizing ashes as a manure at the rate of 300 metric tones/ ha; has been applied by science and industrial Research Association Bhopal (1994).

Thus it becomes clear that ecology hazards particularly water pollution can be minimized by the optimum use of water and other natural resources of the region can be attain sustainable development.

REFERENCES

1. Ambast, R.S. Environment and Pollution.
2. Chattopadhyay, S. Kumar; Sustainable development Scientific Journal Or/ ractice management Alternative; Annals NAGT; Vol. 11th, No. 2, New Delhi, Dec. 1991.
3. Dist. Census handbook Sonebhadra- 1991 (Population data N.I.C. Lucknow, U.P.)
4. Kayashtha, S.L. and, Yadav, R.S.; South Mirzapur region: A Geographical Analysis of the development process. N.G- J.I. Vol. 28, Sept. Dec. 1991.
5. Manivaskam: Environmental Pollution.
6. The Test of Rio Declaration: Business standard 15th June 1992.
