

CHANGE IN WATER QUALITY DURING CONSTRUCTION OF NEW BRIDGE ON NARMADA RIVER AT JABALPUR, INDIA

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SUMMARY

Present study is focused on the monitoring of pollution level in Jamtara station at Khirhani ghat, of Narmada River in Jabalpur. Jamtara station is situated at a distance of 12 kms away from the Jabalpur city. It is situated 23°5'12" latitude and 79° 57' 06" longitudes. The Gaur River is a major tributary of the Narmada River which meets at Khirhani Ghat. This river is mostly polluted by the wastage of dairy farms, which are at the bank of the river; it is also being polluted by so many sources such as ashes, remains of bodies after cremation, cattle bathing, washing of clothes and discharge of domestic sewage. The bridge construction started on 17th January 2006 and still work is going on. During the bridge construction lot of cement, soil, concrete, brick and dust is falling in river water every day. Due to the construction, it has become a serious threat to water quality. The Narmada River water is used for bathing, drinking, and irrigation purposes. Water samples were collected from surface area of water 1 meter away from the river and at a depth of 1 meter. Physico-chemical parameter of the river water were analyzed. These are temperature, pH, Turbidity, Conductivity, CO₂, Alkalinity, Dissolved Oxygen, BOD, Hardness, Calcium, Magnesium and Chloride. The study reflected that the sampling sites were polluted. Pollution level has increased beyond the prescribed standard limit

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Key words : Water Quality, Physico-Chemical Parameter, Bridge Construction.

Nowadays, due to construction of bridge at Jamtara station lot of cement, sand, concrete, brick and dust mix up in river Narmada at Jabalpur. It is becoming a matter of serious concern for aquatic flora and fauna and human health point of view. This urges a need for proper care of river health also. Rivers play a significant role and are the lifelines of the majority of the population in cities, towns and villages. Rivers are symbols of self replenishing, self purifying. Cement does not get dissolved or disintegrate fast and on settling on the beds, kill the flora and fauna. Even non-biodegradable materials contaminate the water quality. All this is adding a greater load to our already overburdened water bodies. Our water is poisoned killing the innocent aquatic life and affecting our health too. Cement dust has been shown to adversely affect the aquatic communities. Studies of cement dust and dust pollution show elevated levels of soil pH (Adamson *et al.* 1994, Mandre *et al.* 1997, Mandre *et al.* 1998).

The water quality is becoming more and more unfit to mankind due to interference. The physical and chemical factors play an important role. They are responsible for distribution of animal life in a fresh water habitat because water is the basic component of life and therefore, it is of vital importance. The Assessment of water quality in a region is an important aspect for any developmental activity of the region. The physical and chemical quality of Jamtara ghat water is badly affected by the bridge

construction, the cement, duct, concrete and brick mixed into water it has become pale yellow with soil smell. Hence, the study was taken up with the following objectives

- To study the deterioration in water quality due to construction activities find where the cement dust contamination by surveying water quality,
- To highlight areas of concern for future studies.

MATERIALS AND METHODS

Study Area :

Jamtara is the sampling station, situated at a distance of 12 kms away from the Jabalpur (Fig-1). It is situated 23°5'12" latitude and 79° 57' 06" longitudes. The Gaur river is a major tributary of the Narmada river which meets at Khirhani Ghat.

Sampling Techniques:

Jamtara station was chosen for water quality analysis during bridge construction in river Narmada at Jabalpur. 15 January 2007 to 15 August 2007. The water samples were collected in porcelain and sterilized high-grade plastic bottles of 1L capacity in the morning between 8 to 10 a.m. The samples were preserved as per APHA (1985) and Trivedi and Goel (1986) and brought to the laboratory within 12 hr and stored at 4 to 15°C. Analysis was completed within 48hr to avoid any variation in the result. All the glassware and other containers were thoroughly cleaned by soaking in detergent followed by 10 % of HNO₃ for 48 hr and finally rinsed with double distilled water.