



Effect of Covid-19, Lockdown on Tapti River Water Quality

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Abstract -

All the activities in India completely stopped during Covid-19 Lockdown the multiple Industries, Cities, Down and Rural People are completely depends on river water. So in last years The water quality deteriorated. The present study attempt to investigate the Tapti river water quality. The water quality of Tapti river at Hatnur Dam had improved relative to pre-Covid-19 lockdown.

Keyword - Corona virus, Water quality, Surface water, Tapti river.

Introduction -

Corona virus diseases Covid-19 mostly affect the global human health. First the virus was discovered at Wuhan city of China in Dec-2019 which spread rapidly from affected persons to unaffected persons through sneezes, coughs etc. No perfect remedial medicine had been discovered till now and thus human body gets seriously exaggerated by severe acute respiratory syndrome due to Corona Virus [1]. On this critical conditions World Health Organization suggested to maintain social distancing and mandatory face Mask for people and India announced sudden lockdown to avoid public transmission as well as to break the infection chain. All the Industries are almost closed during this period. 2

Water is very important in life the natural resources of water has been polluted by human activities such as industrialization, urbanization, agricultural practice, but in this lockdown period examined that all the activities are remain closed and hence water pollution level remarkably dropped during lockdown[2]. A recent study on water quality of Tapti river near Hatnur Dam water quality is good. as compared to pre-lockdown period[3].

In the present study the objective is mainly to evaluate changes of surface water quality in respect of physical and chemical parameter during lockdown period.

Study Area - Tapiriver rises near Multai in the Batul Dist. of Madhya Pradesh at elevation of above 752 meter and flow for above 724 km before out following into Arbian Sea through the Gulf of Combay.

Study Area is at Hatnur Dam which is situated in Jalgaon Dist. near 11 km from Varangaon in Maharashtra.

Material and Methods - At the lockdown period strict restrictions (17th March to 12 Sep. 2020) environmentally survey of Tapti river not possible so after lockdown period successfully survey of Tapti river water at Dam reasons takes placed the main objective was to determine water quality of river after lockdown and compare if with pre-lockdown period[4].

Sample Collections - Water samples were collected from five stations of Tapti river near Hatnur Dam. Samples were obtained from 2 to 3 feet below the surface water level, pre-cleaned polyethylene bottle (500 ml) were used for the collection of samples from each sampling sites and mixed upto get a bulk contained 1 liter all samples were carried properly for further analysis in laboratory. Samples contains were labeled as S1, S2, S3— S5. for proper indications. Total seven parameters analysed from each samples of each period. Important parameter such as Total suspended solid, pH, Electrical Conductivity (EC), Temperature, Turbidity, Total dissoloved solid (TDS), Magnissium (Mg2+), Calcium (Ca2+) have been considered[5].

Consequently, Temperature, pH, EC, were measured at sampling sites using thermometer and thermo probe portable meters. TDS, Turbidity Magnissium (Mg2+), Calcium (Ca2+) all this parameter were analysed by standard procedure which was prescribed American Public Health Association, (APHA)[1].

Result and Discussions -

Table - 1

Parameter	Sampling Stations	Pre-lockdown	Post Lockdown	Difference
Temperature	S1	24.3 ⁰ c	24.2 ⁰ c	00.1 ⁰ c
	S2	24.3 ⁰ c	24.2 ⁰ c	00.1 ⁰ c
	S3	24.3 ⁰ c	24.2 ⁰ c	00.1 ⁰ c
	S4	24.3 ⁰ c	24.2 ⁰ c	00.1 ⁰ c
	S5	24.3 ⁰ c	24.2 ⁰ c	00.1 ⁰ c



Table : 2

Parameter	Sampling Stations	Pre-lockdown	Post Lockdown	Difference
Total Suspended Solids (TSS)	S1	0.5mg/l	0.4mg/l	0.1mg/l
	S2	0.51mg/l	0.4mg/l	0.11mg/l
	S3	0.5mg/l	0.4mg/l	0.1mg/l
	S4	0.51mg/l	0.4mg/l	0.11mg/l
	S5	0.5mg/l	0.4mg/l	0.1mg/l

Table : 3

Parameter	Sampling Stations	Pre-lockdown	Post Lockdown	Difference
Electrical Conductivity(EC)	S1	270µs/cm	250µs/cm	20µs/cm
	S2	265µs/cm	250µs/cm	15µs/cm
	S3	270µs/cm	250µs/cm	20µs/cm
	S4	265µs/cm	250µs/cm	15µs/cm
	S5	265µs/cm	250µs/cm	15µs/cm

Table : 4

Parameter	Sampling Stations	Pre-lockdown	Post Lockdown	Difference
pH	S1	6.9	6.8	0.1
	S2	6.9	6.8	0.1
	S3	6.9	6.8	0.1
	S4	6.9	6.8	0.1
	S5	6.9	6.8	0.1

Table : 5

Parameter	Sampling Stations	Pre-lockdown	Post Lockdown	Difference
Total Dissolved Solid (TDS)	S1	180mg/l	150mg/l	30mg/l
	S2	185mg/l	150mg/l	35mg/l
	S3	180mg/l	150mg/l	30mg/l
	S4	180mg/l	150mg/l	30mg/l
	S5	185mg/l	150mg/l	35mg/l

Table : 6

Parameter	Sampling Stations	Pre-lockdown	Post Lockdown	Difference
Turbidity	S1	5 NTU	4NTU	1 NTU
	S2	5 NTU	4NTU	1 NTU
	S3	5 NTU	4NTU	1 NTU
	S4	5 NTU	4NTU	1 NTU
	S5	5 NTU	4NTU	1 NTU

Table : 7

Parameter	Sampling Stations	Pre-lockdown	Post Lockdown	Difference
Calcium (Ca ²⁺)	S1	75mg/l	60mg/l	15mg/l
	S2	70mg/l	60mg/l	10mg/l
	S3	65mg/l	50mg/l	15mg/l
	S4	75mg/l	55mg/l	20mg/l
	S5	70mg/l	60mg/l	10mg/l

Table : 8

Parameter	Sampling Stations	Pre-lockdown	Post Lockdown	Difference
Magnesium (Mg ²⁺)	S1	55mg/l	50mg/l	5mg/l
	S2	65mg/l	45mg/l	20mg/l
	S3	60mg/l	45mg/l	15mg/l
	S4	60mg/l	50mg/l	10mg/l
	S5	60mg/l	45mg/l	15mg/l

In pre-lockdown Total Suspended Solid lower at nearly 20 per cent and also TDS Turbidity, Electrical Conductivity, pH, Magnesium, Calcium and TDS lowered after lockdown hence quality of Tapti river water is good^[1].

Conclusions -

The value of water quality parameter such as pH, Conductivity, Turbidity, TDS, EC Mg²⁺, Ca²⁺, Total Suspended Solid (TSS) from different sampling stations were found to be within recommended limits of WHO and the quality of water is again pure after lockdown^[1].

Reference

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