



# Cause Effects and Control of Water Pollution in River Tawi

## KEYWORDS

water, tawi, anthropogenic activities, surface run off, sewage.

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**ABSTRACT** *water is an elixir of life and play an important role in each and every sphere of life. During the last few decade the quality of water deteriorated during the last few decades primarily due to anthropogenic activities. The dumping of solid waste surface run off, agricultural run off, untreated sewage, washing and bathing activities are some of the common factors for causes of water pollution in river Tawi.*

## 1 Introduction:

water is an important natural resource and play significant role in each and every sphere of life. During last few decades there is deterioration in the quality of water of several Indian river seen. River Yamuna lost its sanctity and Ganga is also going to meet the same fate. Similarly the ponds and lakes are dying due to human factors and lack of planning to protect water bodies. Sewage and other effluents are introduced in Tawi along its whole course, mainly at Jammu city. River Tawi is the main source of drinking water supplies for Jammu city and its outskirts. As river is being polluted day by day, it is therefore necessary to know the degree of pollution load so as to assess

## its potability.

Tawi is a river that flows through the city of Jammu. Tawi River is also considered sacred and holy, as is generally the case with most rivers in India. Tawi river originates from the lapse of Kali Kundi glacier and adjoining area southwest of Bhadarwah. Its catchment is delineated by latitude 32°35'–33°5'N and longitude 74°35'–75°45'E. The flow of water in the river has been decreasing in recent years as the source glacier (Kali Kundi glacier) has been retreating.

The length of Tawi river is about 141 km (88 mi). The river in general flows through steep hills on either side excepting the lower reach for about 35 km (22 mi). The river is about 300 m (980 ft) wide at the bridge in Jammu city. Earlier works on physico-chemical parameters of rivers from Indian waters were those of Aggarwal et al. (1976), Joshi & Pathak (1991), Pandey et al. (1992), Joshi & Bisht (1993), Chopra & Patrick (1994),

## 2. Methodology

this paper based upon field visits along with students to make aware them about the causes effects and control of water pollution in river tawi, Jammu. The discussions with locals, observations during visits are the primary sources of information while reports and data from relevant sources were secondary sources.

## 3. Causes of water pollution

### 3.1 Dumping of solid waste:

variety of solid waste generated from city either thrown directly or indirectly in river tawi. Plastic polythene rubber leather and other discarded items are commonly seen scattered around the bank of river tawi. Construction and demolition waste also seen dumped along the left bank of river tawi .

### 3.2 Surface run off:

rainy season contribute the surface run off of old city Gujjar nagr, Jewel , Bhagwati nagar Krishna nagar and Gorkha nagar , bawe etc. other adjoining catchment area . the common observation during the present study clearly shows the load of waste material in tawi water increased rapidly from nagrota on ward and its due to urbanized life style. The sewage water or clogged drain is common scenario during monsoon . The waste water and solid waste carried with rain water to tawi river.

### 3.3 Agricultural runoff:

agriculture in upper catchment area is another cause of water pollution . although agricultural fields are not seen within municipal limits of the city along its bank. But reports and articles reveal that upper area and downward area of Phalian Mandaal are used for agriculture . The use of chemical fertilizers, chemical pesticides, chemical weedicides are major source of pollution

### 3.4 washing and bathing activities:

the nomadic people settled along the tawi river include Gujjar and Bakerwaals. Bathing and washing activities by these people and locals is another cause of water pollution in river Tawi. The Tawi bed is exploited for sand gravel and stone which effects the ecology of the Tawi bed . The washing of vehicles is also observed which cause the oil and grease particles to the water of Tawi river.

### 3.4 festival of Navratras:

festival such as Ganesh Visrejan and Navratra celebrated by the people . these religious festivals increase the load of non biodegradable waste material by several fold. plastic, polythene remain scattered and choke the water flow.

## 4. Effects of water pollution in river tawi

### 4.1 effects on physical parameters:

physical parameter includes colour, temperature turbidity etc. the sewage water can impart grayish colour which effect the penetration of sunlight for under water aquatic vegetation. During rainy season the surface run off and sediment load increased by many folds and change it properties.

### 4.2 effects on chemical parameters:

dissolved oxygen is an important water quality parameter. The disposal of biodegradable solid waste can deplete DO content and increase biological oxygen demand. The depletion of DO has detrimental effects on aquatic such as fish fauna.

**4.3 effects on aquatic life:**

waste material rich in organic content such as sewage and biodegradable waste can cause eutrophication. As the algal blooms are commonly observed in patches in stagnant water collected in pools.

**5. Control of water pollution in river Tawi****5.1 water act 1974:**

proper implementation of water act 1974: there are several laws pertaining to the maintenance of water quality. Water act 1974 needs to be implemented strictly to ensure its potability.

**5.2 public awareness:**

people play an important role in maintaining water bodies neat and clean therefore public awareness at regular intervals through print and electronic media is helpful in this direction.

**5.3 Treatment of sewage water:**

the treatment of sewage water needs to be adopted at concerned authority's levels. Jammu city is expanding due to urbanization but there is no sewage water treatment plant. The waste water discharge directly or indirectly into river Tawi is the major cause of its pollution and its needs to be checked.

**5.4 Embankment around Tawi:**

within city there is need to construct embankment along the Tawi so that entry of pollutant can be checked side by side it helps in over spillage of water to the surrounding area during rainy season. Plantation in upper catchment area also helps in reducing the load of sediments.

**5.5 solid waste management:**

waste material can be used as resource by adopting recycling, composting, reuse etc. the modern techniques such as incineration, sanitary land fill needs to be initiated for effective solid waste management (SWM)

**6 conclusion**

To protect this water ecosystem, there should be proper management and planning of deposition of municipal sewage and domestic wastage for health hygiene and sustainable environment. The sanctity of river Tawi needs to be restored by both public and concerned authorities. Although several study work has been done on it but practical one it has not been taken yet.

Tawi river is a major source of drinking water for the old city. Untreated sewage in Jammu pollutes Tawi river as it passes through the city.

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