



RIVER TAWI (A SYMBOL OF IDENTITY FOR JAMMU) CAUSES, EFFECTS AND CONTROL MEASURES OF WATER POLLUTION

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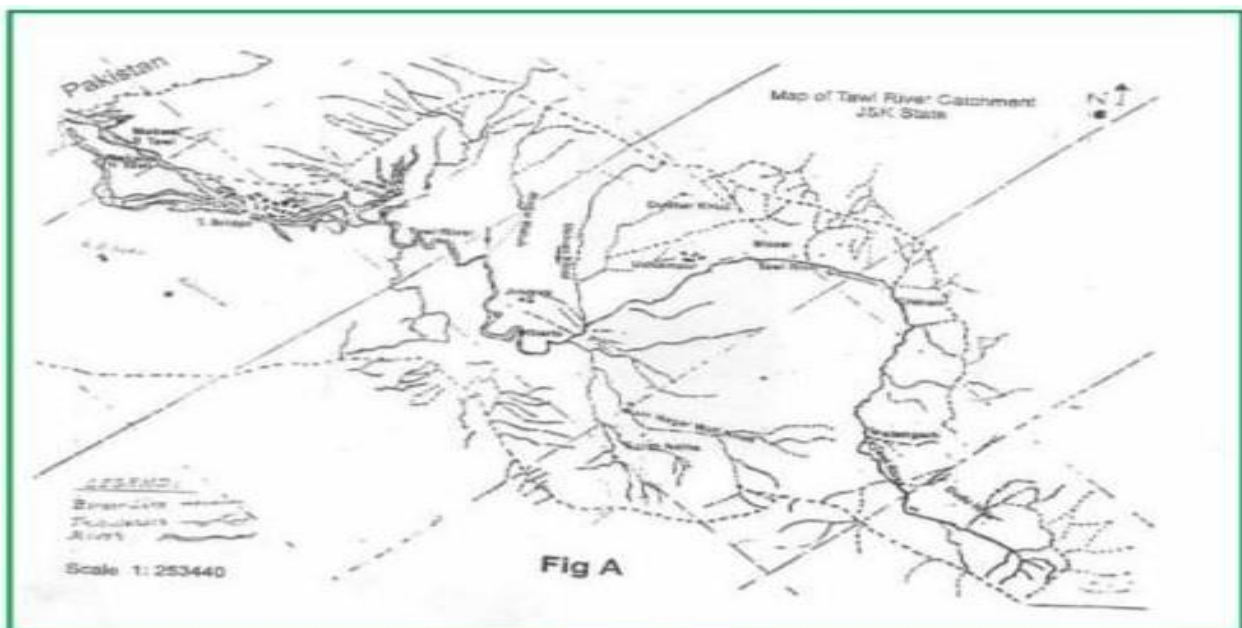
Abstract : Water is the most important natural resource which plays a significant role in all sphere of life. River Tawi, the lifeline of Jammu division provides water for the essential requirement of life to the people of J&K Union Territory (Dogra's and Kashmiris, local inhabitants). Due to the anthropogenic activities, the quality of river Tawi water is deteriorated. The activities like dumping of solid wastes, untreated sewage, bathing and washing in rivers, etc. are some of the factors responsible for degradation of water quality and for pollution in river Tawi.

Keywords: Water, River Tawi, Anthropogenic activities, Sewage, Pollution

INTRODUCTION

As we know the water is the second most component of natural resources which is important in human lives or ecosystem after air. Due to the pollutions in river the availability of fresh or drinking water is becoming less day by day. The condition of river Yamuna is also well known by all of us. Periodic monitoring, analysis and prediction of water quality helps to develop management strategies to control surface-water pollution (Zimmerman and Canuel, 2000). Water temperature is one of the important limnological parameters that plays very important role in regulating nearly all physicochemical characteristics of water as well as biological productivity (Rao et al. 1982).

River Tawi is recognized as a sacred river for the people of J&K Union Territory. It is also called as a "Surya Putri" but due to some activities and lack of unawareness of people, it is polluting day by day. It is therefore important to know the degree of pollution load adding to its daily. Increase in anthropogenic activities on lake water systems result in high pollution loads, such as nitrates and phosphorous etc. which cause rapid deterioration in water quality (Yousuf and Qadri, 1986).



STUDY AREA

The river Tawi flows through the city of Jammu. It is also considered sacred as mainly with the other rivers of the country. The river Tawi originates from the Kailash Kund glacier lies at the elevation of 4250 m in east located in Bhaderwah in division Jammu.

The Tawi catchment area extends from 32°35'-33°15'N Latitude and 74°45'-75°45'E longitude. The river Tawi length is about 141kms (88 miles). The river is about 300 metres (980 feet) wide at the bridge in Jammu city. The river Tawi passes through rugged mountain ranges in Bhaderwah and Udhampur and finally enters the plains of Jammu city.

The river Tawi confluence with river Chenab in Sialkot in Pakistan. It is the major left bank tributary of river Chenab. The river Tawi in Jammu city divides into Wadi Tawi and Nicki Tawi near Bhagwati Nagar. The peak of polluted stretch of river Tawi starts from here. The monitoring locations identified by the CPCB (Central Pollution Control Board) as per NWMP (National Water Monitoring Programme) in the polluted stretch include below Tawi bridge, Bhagwati Nagar, Belicharana and Surajpur. Information and case studies reviewed worldwide indicate that the lake water quality has been rapidly declining particularly in developing countries due to natural and anthropogenic processes Lehner and Doll, 2004).

METHODOLOGY

The paper is based on the both primary and secondary data. Primary data was collected from the local people by visit to the particular place with my colleagues to aware people. The interactions were held with the local peoples and also discussions were held with them. From these people quality information regarded my paper was collected directly from them. Secondary data were collected from the publish papers, articles, books, reports from different committees and various government websites. This was the secondary source of data used for this research paper.

CAUSES OF WATER PIOLLUTION

- ❖ Urban development rapidly.
- ❖ Improper sewage disposal.
- ❖ Fertilizer run off from agricultural activities.
- ❖ Industrial wastes.
- ❖ Religious activities.
- ❖ Washing and bathing activities.

EFFECTS OF WATER POLLUTION

- ❖ Effect on human health.
- ❖ Effect on marine life.
- ❖ Effect on physical and chemical properties of water.

CONTROL MEASURES

- ❖ Avoid plastic waste.
- ❖ Cut down on chemicals/pesticides in agricultural activities.
- ❖ Industrial waste must be treated before discharge.
- ❖ Strict enforcement of water pollution control act.
- ❖ Awareness among people.
- ❖ Treatment of sewage water.

CAUSES OF WATER POLLUTION

- 1. Urban development rapidly:** Due to urbanization the load of population of Jammu city has been increased rapidly over the last few decades. Urban areas generate more sewage and chemicals. Population growth caused the increase in water pollution. This all begins with increasing in construction, cutting of trees and vegetation.
- 2. Improper sewage disposal:** Sewage disposal is a major form of water pollution. It becomes contaminated with hazardous materials. This may create serious negative impact on water pollution, obstruction of drains and loss of biodiversity. Many sewage nallas from municipal units across the city also directly falls in river Tawi. These nallas or drains located on the right bank include cremation ground Jogi gate drain, Qasim Nagar drain, Nowabad police station Jewel drain, Jullaka Mohalla drain, Fisheries department back side drain, Subhash Nagar drain, Talab Tillo locality drain etc.
- 3. Fertilizer run off from agricultural activities:** Agricultural activities around the river Tawi and its upper areas is also one of the sources of its pollution. The upward areas of Tawi and the downward area of Phallian Mandal are the main regions of agricultural sector. The farmers used the chemical fertilizers and chemical pesticides in agriculture



practice and becomes major source of pollution in river Tawi. During rainy seasons all these chemicals were washed off and flows directly into the river Tawi.

4. Industrial wastes: Industrial waste may be solid, semi-solid and liquid in form. The industrial waste type includes dirt and gravel, scrap metal, oil, solvent chemicals and even vegetable matter from restaurants. 70% of industrial waste has been discharged directly into the water of river Tawi.

5. Religious activities: As a sacred river, the people of J&K have performed many religious activities along the banks of river Tawi. Many people take dip in various Ghats (Holy places located along the river Tawi). Many religious rituals like mundan ceremonies, mass ritualistic bathing Idol's immersion are generally carried out in the river. During Navaratri a large number of materials like flowers, sweets, diyas and pots, leaves, coins etc. are thrown to the river Tawi. Idols made up of plaster of paris (POP) poisons the water and the paint on them are the main source of gypsum, magnesium, sulphur, phosphorus. Bones and ashes after cremation are also immersed into it. This all lead to immense load of pollution into the river Tawi.

6. Washing and bathing activities: The activities of bathing and washing in the river Tawi carried out by the local people and by the nomadic people in the upper reaches along river Tawi also pollute it. The use of soap and detergent while bathing and washing is not good for aquatic life in the river. Some people also carried out washing of their vehicles in river Tawi. The leakage of oil and grease particles also added with the water of the river Tawi.

EFFECTS OF WATER POLLUTION

1. Effect on human health: Drinking or consuming polluted water may cause many diseases. Pollutants in water like chemical substances, pathogens and physical changes in water. Due to water pollution bacterial infections like cholera, botulism, typhoid, shigella, etc. will affect on human health. Viral infections like hepatitis A, polio, caliciviruses, astroviruses, enteric viruses, etc. are very commonly occurs. According to the UN, every year approximately 2,97,000 children under 5 years died from diseases linked to poor sanitation, poor hygiene and unsafe drinking water. Due to the ecological stress from human activities, the lake system is not only shrinking in surface area but its water quality has also deteriorated and the aquatic life is also badly affected (Sondargard and Sand-Jensen,1979).

2. Effect on marine life: The water pollution not only have negative impact on human health but also on marine life or aquatic life. The affects of this pollution are more on marine life because of there existence and dependence on water. Natural waters are affected with a wide variety of organic, inorganic and biological pollutants (Fazal et al. 2012).When there is any disturbance in their ecosystem the impact is hazardous on them. In polluted water there is abundant growth of algae, the oxygen content becomes lesser causing the death of fishes and organisms which are living in that water.

3. Effect on physical and chemical properties of water: The pollutants in the water can also affect on the physical parameters of the water. Physical parameters include change in color of water, temperature of water, turbidity, etc. of the water. The polluted water can change it into grayish color which in result affects the penetration of sunlight for underwater aquatic vegetation.

CONTROL MEASURES

1. Avoid plastic waste: For decreasing the amount of water pollution we have to control on the use of plastics. People should be made aware and ask them not to throw any plastic or polythene in the river. We have to follow 3R's formula (**Reduce, Reuse and Recycle**). Plastic never goes away; it breaks up into tiny bits that range from the visible to microscopic level. There should be complete ban on the use of plastic and throwing it into the river.

2. Cut down on chemicals/pesticides in agricultural activities: In our agricultural sector, the farmers have to reduce the use of chemical fertilizers and chemical pesticides, etc. It cannot only harm our soil but also harm river waters when it enters into it through rain. Instead of using chemicals and pesticides farmers have to adopt organic farming.

3. Industrial waste must be treated before discharge: The waste which is coming out from the industries and the restaurants must be decomposed in a proper way as per your municipality rules. The polluted water which comes out from the industries must be treated first and then it should be discharged into the rivers or canals. The industrial rules and acts should be properly enforced by the local and district administrations.

4. Strict enforcement of water pollution control act: There should be proper implementation of Water Act, 1974 in the city. In this act several rules of water quality should be enforce properly. Strict actions should be taken against whether it is person or industry who violates it.

5. Awareness among people: Awareness among the people of the city is very important. Several NGOs must have to come forward for it. Government have to start play activities in slum areas for awareness among people. Government have to also show video clips in news channels and have a program in different radio stations for awareness among people.



6. Treatment of sewage water: The municipality of the city have to adopt the proper treatment of sewage water. They have to adopt solid waste management system. The modern techniques such as incineration, sanitary landfill needs to be initiated for proper Solid Waste Management (SWM).



CONCLUSION

To protect the water ecosystem of River Tawi, there should be proper management and planning of deposition of municipal waste and domestic waste for health hygiene and sustainable environment. The sacredness of the river Tawi must be remained by both the people and concerned authorities. Many plans and policies have been prepared for it but on the ground level we found zero results. The water of the river Tawi must be in good condition because it is the major source of drinking water for the old city Jammu.

REFERENCES

1. Fazal S. & Amin, A. (2012). Hanjris Activities and its Impact on Dal Lake and its Environs (A Case study of Srinagar City, India). *Research Journal of Environmental and Earth Sciences*, 4 (5), 511-524.
2. Lehner, B. & Doll, P. (2004). Development and validation of a global database of lakes, reservoirs and wetlands. *Journal of Hydrology*, 296 (4), 1-22.
3. Rao N G, Ragavan S. L. & David, A. (1982). Limnology of selected village ponds in Bangalore district of Karnataka, Mysore. *The Journal of Agricultural Science*, 183-200.
4. Sondargard, M. & Sand-Jensen, K. (1979). Limnology of kalgaard (Denmark). *Hydrology*, 63(3): 241-253.
5. Yousuf, A.R. & Qadri, M.Y. (1986). Distribution of *Polyarthra vulgaris carlin* (Rotifera: Monogononta) in a warm monomictic lake of Kashmir, India. *Journal of Indian Institute of Science*, 66, 405-410.
6. Zimmerman, A. R. & Canuel, E. A. (2000). A geochemical record of eutrophication and anoxia in Chesapeake Bay sediments: anthropogenic influence on organic matter composition. *Marine Chemistry*, 69, (2), 117-137.