

## Is Bhavani River, South India, Water Safe?

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**Received:** August 05, 2017; **Published:** August 12, 2017

Volume 1 Issue 3 August 2017

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The Bhavani River is second longest river in Tamil Nadu State, South India, which originates in the pristine Western Ghats of Nilgiris Mountains. The river travels more than 200 km in Silent Valley National Park, Kerala State, and flows back to Tamil Nadu through Coimbatore and Erode districts via Mukkali, Attappady plateau, Kunda, Pillur Dam, Vana Bathrakaliamman Temple, Mettupalayam town, Sirumugai town, Bhavani Sagar Dam, Kodiveri Dam, and then finally joins at Kaveri River and mystic Saraswati Rivers near Sangameswarar Temple Kooduthurai, Bhavani town [Archaeological Survey of India, 1994]. Most of the Bhavani River water is obtained by the blessing of the south-west monsoon followed by the northeast monsoon. Bhavani watershed flows more than 2400 square miles in which 90% of water being used for agricultural purpose. There are about 12 major sub-rivers (e.g., Siruvani, Kunda, Varagar, Connoor, Moyar, etc.) joins the Bhavani River. Although 90% of water used for agriculture, the 5% used by industries which discharge toxic waste is point of threats which affects 1% of the water consumers in Mettupalayam, Sirumugai and several other small town residents. Furthermore, it's negative implications on fishery in Bhavanisagar and Kodiveri dam cannot be ignored.

There are a number of industries (e.g., textile, paper mill, dyeing, bleaching, tanning etc.) discharged polluted water in and around Thekampatti, Vana Bathrakaliamman Temple followed by United Bleachers Limited (UBL) in Mettupalayam and South India Viscose (SIV) in Sirumugai. The SIV is no more functional as the Bhavani River Protection Joint Council (BRPJC), and a citizens watch-dog committee, has taken the steps to discipline the SIV and monitor the river pollution. The carbon-di-sulfide, high organic matter, sculpture-bearing compounds disposal to the river caused a serious threat to human and aquatic wildlife more than two decades which ultimately lead to closure of SIV in 2001. United Bleachers Limited has been accused of discharging untreated water in the river. Despite many protests and petitions by local residents, pollution control board officials allowed the discharge only with warnings. As indicated above other companies that discharge effluents in the river, include ITC paper mill and Saradha Teri towels near Vana Bathrakaliamman Temple. Both the companies claim that they treat their water before discharge into the river. Besides, untreated sewage water from 28 canals from Mettupalayam municipality is a point of major concern. The most recent shocking news from several newspapers, media, flock on safety of water for drinking due to poor water quality and negative impacts on the health of people, plants and animals. The report dated October 19, 2016, states the water is chemically not potable as the turbidity and iron values exceed permissible limits. A water quality report brought out by the Tamil Nadu water supply and Drainage board shows that potable water is unsafe due to the presence of fecal coliform bacteria, which originates from human and animal excreta [Times of India, 2017].

Despite the water flow in the Bhavani River increase and the farmers depending on the river water for irrigation are gravely concerned [Ramesh, 2013]. During the water flow goes higher, proportionally the textile processing and tannery units are dumping thousands of

**Citation:** Senthil Kumar Kurunthachalam. "Is Bhavani River, South India, Water Safe?" *Innovative Techniques in Agriculture* 1.3 (2017): 116-118.

gallons of untreated, toxic effluents from the paper, textile processing and tannery units would reach farm lands. The color of the water in the river has turned black due to the continuous dumping of untreated effluents. Tamil Nadu Pollution Control Board (TNPCB) and district administration not yet developed setup, monitoring of lethal chemicals in the river that has encouraged the industrial units to dump the untreated effluents in the river, causing serious damage to the environment. Several hundred authorized and non-authorized company functioning along the riverbed in which majority of them do not have effluent treatment facility and discharge the water directly into the river. The farmers are forced to use the effluent-mixed water to grow edible crops. Many farmers are growing vegetables, spinach, banana, paddy, tobacco, turmeric, and other crops using polluted water from the Bhavani River. The effluents discharged into the river are highly toxic and the possibility of toxins entering the food chain is highly likely. People, who buy these food crops, are facing serious health risks. The continuous inaction from the administration will lead to a serious public health problem [Ramesh, 2013].

The other conflicting issue that the Tamil Nadu Electricity Board (TNEB) set up two barrages in the river near Mettupalayam, to generate electricity (which producing 4.0 MW electricity against proposed 20 MW generation!) in the free flowing river in 2001 which block the toxic loaded water and produced negative health implications to humans. Particularly, the barrages constructed without no objection certificate (NOC) and clearances from pollution control board which caused sewage water was seen stagnating in the river after the project initiated. The state government sanctioned around 920 Million Indian Rupees for the underground drainage project by which sewage water would be treated before discharge into the river. Currently, 10 million liters per day (MLD) water from Bhavani River is supplied to Mettupalayam town in which 6 to 8 MLD [Times of India, 2017] sewage water drained into the river which is the additional issue along with industrial waste.

There is another report that water from River Bhavani no longer safe for consumption as their worst fears have been confirmed [Senthil Kumar, 2017]. A three year study undertaken by World Wildlife Fund (WWF) underlined what environmentalists and locals of the Nilgiris have been crying hoarse about water from Bhavani River and Kallar is no longer safe for consumption [Senthil Kumar, 2017]. A quick glance is enough to tell anyone that it is no longer a river, but a sewerage system for Coonoor town. The study also found that the upper reaches of the Bhavani and Moyar have been polluted by both Udthagamandalam and Coonoor municipalities and industries, including a government-owned factory. The 50,000 population of Coonoor town generates about 5 million liters per day (MLD) of sewage, which is discharged untreated into the Kallar river through a drain that joins near Runnymede station. Particularly, the coliform bacteria levels exceeded about 10-fold higher than permissible levels stipulated by the Central Pollution Control Board (CPCB) in Coonoor. In addition, a cordite factory in Aruvankadu, which manufacturer's nitrocellulose and nitroglycerine for ammunition, discharges its effluents into a small stream that eventually joins the Kallar river and finally deposited in Bhavani River. The WWF has found effluents loaded with nitrates and aluminum, far exceeding the Central Pollution Control Board (CPCB) standards for discharge of environmental pollutants in inland fresh waters. The Tamil Nadu Pollution Control Board (TNPCB) officials conveyed that they have already sent notices to the industries on setting up zero liquid discharge units. The District Collector conveyed that administration will take up lake restoration projects and design treatment plants for both Udthagamandalam and Coonoor municipalities.

According to a report by Tamil Nadu Water Supply and Drainage Board, Bhavani river water, which is supplied to 150,000 residents of Mettupalayam for potable purpose, is unfit for drinking and cooking purpose [Priyanka, 2017]. Several residents claim the number of people being affected by water borne diseases are on the rise. Particularly, the poor, who cannot afford to access canned water. According to data collected by the Save Bhavani Trust an organization consisting of social activists from the Government Hospital in Mettupalayam, 174 residents were treated for water borne diseases in 2012, the number doubled to 364 in 2013, rose to 427 in 2014, stood at 489 in 2015, increase to > 600 in 2016 and steady rise in the numbers expected in 2017. The National Human Rights Council (NHRC) had issued a notice to the Tamil Nadu Government over hazardous water supply from the Bhavani River in Mettupalayam. The NHRC has reportedly given the State Government to reply to the notice with steps that can be taken to resolve the issue.

Collectively, monitoring stations should be implemented in and around industrial discharge areas, prior to sub-river junctions to the Bhavani River, 28 discharge areas of Mettupalayam sewage water, and two barrages to monitor organic, inorganic pollutants, pathogens and water quality. Mettupalayam, Connoor and Udthagamandalam municipal water should be treated before discharge into the river.

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