

Assessing the Effects of Tannery Pollutants in Tamilnadu: Special Reference to Chennai City

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Abstract

A study was carried out to assess the chromium content of groundwater in the vicinity of tanneries in a district of Chennai, southern India. The common effluent treatment plant (CETP) treats the sewage from these tanneries before releasing it into open drains that connect to the neighbouring Adyar River. Tanneries are one of the industries that significantly contribute to pollution in the Chennai district. Chennai, the study region famous for having an airport in the district, is a rapidly urbanising area. There are many tanneries in the vicinity, and their effluents frequently impact the nearby land and water since they are not treated. The chemicals that lead to the area's degradation have been identified by chemical analysis of the collected water samples.

Keywords: Environmental Pollution, Tannery Water Pollution.

Introduction

Tamil Nadu has 70% tanning factories in India. The process of tanning is related to the leather industry. It involves the process of treating the skins and hides of animals. Indian leather industry contributes 12.93% into world production of leather. Tamil Nadu is a major centre of leather production in India. The state has 70% of tanning factories in India. The state accounts for 6% of world supply in finished leather. Around 36% of India's leather production happens in Vellore district consisting of Ambur, Pernambut, Ranipet and Vaniyambadi clusters.

Leather industry in Tamil Nadu takes care of the environment too. All tanneries and plants are connected to Effluent Treatment Plants and Common Effluent Treatment Plants. The plants have also implemented zero liquid discharge by adopting reverse osmosis technology. Presently there are 764 operational tanneries in the state. The leather industry in Tamil Nadu is a major employment generator and is boosting gender equality in the region. And also 80% of the workforce in these industries in women and especially women from weaker backgrounds.

The cities of Chennai, Ambur, Ranipet, Vaniyambadi, Vellore, Pernambut, Trichy, Dindigul and Erode are major leather producing regions in the state of Tamil Nadu. One must also note that India is the second largest producer of footwear in the world. The leather industry is flourishing in India due to the presence of 20% of the world's cattle and skilled manpower.

Tannery pollution in Chennai City

Groundwater pollution in Sastri Nagar and the adjoining areas of Moolakadai, near Madhavaram, is a complaint raised by local tannery units. They claim that since the establishment of the leather business forty years ago, bore well water has been tainted due to the formation of an oily coating on top. The water is occasionally black as well.

According to the locals, the water from the bore wells seemed normal when it was first pulled, but an oily film formed on top after it was stored for an overnight period. Field experts warned that improper treatment of effluents greatly increased the likelihood of long-term contamination of the shallow aquifer.

In order to handle 4.5 lakh liters of wastewater per day, the estate put in place a shared plant in 1997. However, locals said that prior to the plant's setup, effluent waste was dumped into a tiny improvised pond close to the tanneries, which had an immediate negative impact on the groundwater table. "There was no technology available for the safe disposal of effluent waste about thirty years ago. The water table has been impacted since they have allowed effluents to seep into the pond for almost ten years. The trash was being allowed to drain into the Kodungaiyur canal nearby before the line to the treatment plant was erected, according to local resident K Sadasivam. The pollution control board shut down the estate, which houses 15 leather tanneries, for increasing the capacity of its treatment facility without first getting permission. According to estate members, tanneries were given permission to reopen in November 2018 and six months to renovate the treatment facility.

The burning of solid waste from the tanneries in the open spaces behind the estate was discontinued four years ago after the locals complained to the authorities. A few years ago, a neighbor named P K Thanigavel reported that leftover leather hides were burned at night as solid waste. This used to make the whole place smell around one or two in the morning. Upon notifying the pollution control board, fire and rescue services, and myself, this was ultimately discontinued. But for years now, the water's quality has remained constant. People have moved to purchasing water from tankers because there is no water, even at 80 feet, so they have forgotten about this issue, he said. Another local, Govindan V, reported a decline in the quality of the water coming from borewells. Water turns into something unsafe to drink.

A representative of the estate's management wing stated that, up until 1990, tannery effluents were buried underground; however, following a Supreme Court judgment prohibiting this practice, treatment plants were used instead. "Metro Water installed the pipeline to its Kodungaiyur STP last year, and we have begun transferring the treated wastewater there. The complaints from the residents are unfounded and untrue. The tanneries are inspected by state and central pollution control board representatives once a month, according to an estate member. Attempts were made to contact representatives of the Tamil Nadu Pollution Control Board, Ambattur wing, for comment, but they were unavailable.

Objective of the Study

The current study's goal was to evaluate the drinking and agricultural water quality of India's numerous groundwater sources. The following water quality parameters were examined in order to evaluate the water bodies' contamination condition.

1. To assess ground water level in the industrial clusters
2. To analysis the water pollution level in industrial areas of Tamil Nadu.
3. To see policy and suggestion to improve the levels of land and water sources.

To enhance the quality of ground water, it is recommended to completely prohibit any activities that lead to pollution, refrain from using pesticides, and block the entry of sewage into ground water.

Methodology of the Study

In order to determine whether the water is suitable for drinking or not, the study used secondary published data from the Tamil Nadu Pollution Control Board, Centre for Science and Environment (CSE). The parameters for ground and land water were found in the database. There have been reports of statistical analyses of the land and water factors from various regions of Tamil Nadu, India.

Results and Discussion

The study area’s groundwater level varied between 8.5 and 31 meters above sea level. We quickly go over pH and TDS as two ways to evaluate the overall quality of groundwater. Table 1 provides the mean, standard deviations, lowest, maximum, and mean of several parameters.

Table 1 Statistical Summary of Various Parameters Measured in Groundwater in 2018 and 2020

Parameter	2018				2020				Treated effluent from CETP*
	Min	Max	Mean	Standard deviation	Min	Max	Mean	Standard deviation	
pH	7.3	8	7.6	0.2	6.6	8	7.5	0.3	7.9
TDS (mg/L)	374	4282	1489	777	630	3420	1805	808	5886
Chromium (µg/L)	4	990	481	328	5	35	12	8	90

Source: Tamil Nadu Pollution Control Board

The pH has a mean of 7.5 and ranges from 6.6 to 8. The majority of the groundwater samples exhibited a somewhat alkaline characteristic. All groundwater tests are within the pH range of 6.5 to 8.5, which is the recommended range for drinking water quality by the Bureau of Indian Standards. The pH values of the lake samples were 7.7 and 8.9, indicating an alkaline environment, but the pH of the river was 8.85. The treated wastewater that was extracted from the CETP had a pH of 7.9.

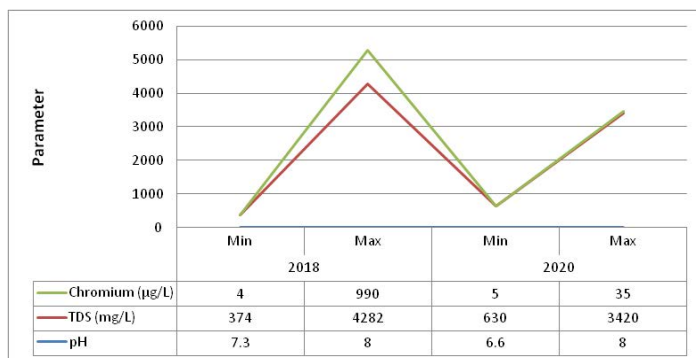


Figure 1 Parameters Measured in Groundwater in 2018 and 2020

Conclusion

The Chromepet neighborhood of Chennai, southern India, is home to several tanneries, and this is where the study was conducted. Determining whether the current levels of chromium are dangerous and evaluating the concentration in the groundwater were the goals. The chromium

content of the groundwater has improved in comparison to the 2018 findings. Because they rely on alternative sources of water for cooking, the locals are aware that the groundwater in this area is contaminated. But from an environmental perspective, it's critical to raise TDS removal from the effluent treated in the CETP in order to enhance groundwater quality.

References

1. Bhattacharya, S. (2004). *Pallavaram colony residents complain of water contamination*. The Hindu.
2. Brindha, K., & Elango, L. (2012). Impact of tanning industries on groundwater quality near a metropolitan city in India. *Water Resources Management*, 26(6), 1747-1761.
3. *Central pollution control board, Standards for liquid effluents, gaseous emissions, automobile exhausts, noise and ambient air quality*. CPCB, New Delhi.
4. Iyappan, A., Rajamohan, S., & Illankumaran, G. Farmer Producer Organizations: A Strategy for Revamping Self-Reliant Economy in India.
5. Mohammad, Ajmal., & Rasi Uddin. Studies on heavy metals in ground waters of the city of Aligarh U.P. Environment monitoring and assessment 6.
6. Neeta Singh Sanchan (2013), *Environmental Health*, B.R. Publishing Corporation, New Delhi.
7. Shrivastava A.K. (2014). *Environment impact assessment*. APH Publishing Corporation, New Delhi.
8. Sreenivasan. M. et al., (1984). Ground water pollution due to tannery effluent in North Arcot District, Tamil Nadu. *Indian Journal of Environmental Health*, 26(4), pp. 314-322.
9. Tamil Nadu Social Development Report (2020)
10. Tamil Nadu State Pollution Control Board Report (2019-2020)
11. Trivedy, R.K. & Goel, P.K. *Chemical and biological methods for water pollution studies*. Environmental Publications, Karad.