# Study of Thane Creek Pollution Caused By Various Sources Of Pollution

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**Abstract:**
Thane creek ($72^0$55' to $73^0$ East Long and $19^0$15' North Lat) is 26 kms long. Thane creek joins by minor connection with Ulhas River on its North near Thane city. A few decades back heavy industrialization and consequent urbanization have occurred along both the banks of the creek. The creek supports good diversity of mangroves and birds including Flamingos. The creek used for domestic and industrial effluents. It results water pollution in creeks. It affects the creek ecosystem. It is possible to revive the creek ecosystem if remedial measures such as reduction of sewage and solid wastes at source, plantation of mangroves.

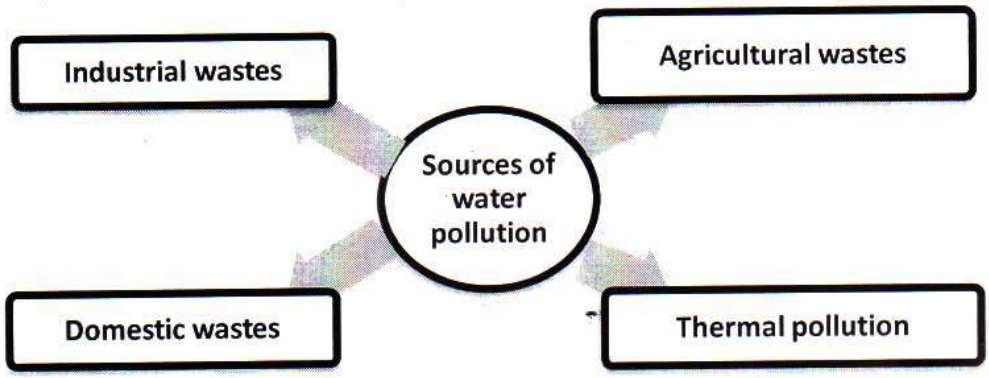
**Key Words**: Creek, Effluents, Ecosystem, sewage.

**Introduction:**

Water is undoubtedly the most precious natural resource existing on our planet. It is required to meet our basic needs in day to day life. It is also required for irrigation, day to day activities, generating electricity in power plants, manufacturing processes and disposal of waste. In the process of urbanization, industrialization and agricultural practices, we knowingly or unknowingly pollute our rivers, lakes and oceans. Subsequently, we slowly but surely harm our planet. one of the consequences of this is that many species of flora and fauna are diminishing at an alarming rate.

Creeks play an important role as habitat for fishes and prawns. However, they are vulnerable to anthropogenic activities, as they are being used as dumping grounds for domestic and industrial wastes. Mostly industrial waste is harmful for aquatic ecosystem. A few decades' back heavy industrialization and consequent urbanization have occurred along both the banks of the creek. On the east bank exists Asia's largest industrialized zone namely Thane Belapur industrialized area along with the Navi Mumbai Urban area.

**Water pollutants:**




1. **Domestic wastes (sewage):**
   This primarily includes excreta of humans and animals along with papers, food waste, detergents etc.Various discarded materials ultimately gets accumulated in nearby water bodies like lakes, Ponds and rivers and creeks.
2. **Industrial wastes:**
   Huge amount of water is needed for manufacturing processes in steel

andpaper industries. Hence such industries are situated on the banks of rivers. Many other industries like textile, Rubber, leather, medicines etc. are responsible for water pollution. all these Industries produce huge amount of effluents, it is discharged if untreated into water bodies, can cause severe water pollution. Wastes like heavy metal are carcinogenic in nature and toxic compounds like phenol, cyanide and Ammonia are the major contaminants of chemical industries. Most of these pollutants are non degradable in nature.

**3. Agricultural wastes:**

Chemical fertilizers are applied in fields to increase the crop yield.

They haveharmful effects on human beings, animals and the environment too. The excess of fertilizers are leached into the ground and pollute the groundwater. Excess pesticides, insecticides and herbicides are also used in the fields to protect the crops, but all these find their way into nearby water bodies through surface run-off and are responsible for severe water pollution.

**4. Thermal pollution:**

In thermal power stations and nuclear power plants, huge quantity of

water is used for cooling purposes and such water becomes hot. When such heated water enters into nearby lakes or rivers it causes thermal pollution. Such type of pollution has harmful effects on aquatic ecosystem. Water pollutants include contamination due to domestic wastes, insecticides and herbicides, food processing waste, pollutants from livestock operations, volatile organic compounds (VOCs), heavy metals, chemical waste, and others. Rampant dumping of debris and effluents in the creeks abutting the city has been polluting the water of these natural bodies and posing a grave threat to marine life. This water has also been causing rashes in humans. A TMC survey reveals high alkalinity and less oxygen in the Thane creek water.The reports show high alkaline values to the extent of 7.85 mg/l at Kasheli while the volume of dissolved oxygen is also less at Gaimukh (7.4 mg/l). Dissolved oxygen is required to keep micro-organisms alive in water.The values were found higher at certain spots like Kolshet, Kalwa and Kopri and calls for immediate attention by the pollution control department. Organic content, Nitrates and Phosphates, heavy metals (zinc, chromium, cadmium and copper) present in the sediments of Thane creek.

**Effects of water pollution:**

Waterborne diseases caused by polluted drinking water include typhoid, amebiasis, giardiasis, ascariasis, hookworm, etc. Waterborne diseases caused by polluted beach water are rashes, ear ache, pink eye, respiratory infections, hepatitis, encephalitis, gastroenteritis, diarrhea, vomiting, stomach aches, etc. When water is contaminated with chemicals such as pesticides, hydrocarbons, persistent organic pollutants, or heavy, it could lead to cancer, including prostate cancer and non-Hodgkin lymphoma, hormonal problems that can disrupt reproductive and developmental processes, damage to the nervous system, liver and kidney damage, and damage to the DNA. Specifically, mercury in water can cause abnormal behavior, slower growth and development, reduced reproduction, and death.

**1. Effects on human being:**

1. Diseases like hepatitis, typhoid, diseases of skin and alimentary canal.
2. Ailments of liver, kidneys, brain, deformities in bones, hypertension.

**2. Effects on ecosystem:**

1. Retarded plant growth
2. Loss of plant species
3. Increase in salt content of water
4. Decreased dissolved oxygen level
5. Disturbance in aquatic ecosystem
6. Death of aquatic animals
7. Adverse effects on sea birds

**3. Other effects:**

1. Changes in physical and chemical properties of water
2. Changes in natural color and taste
3. Useful aquatic fauna is destroyed
4. Soil fertility is affected
5. Toxic materials are added to crops

**Conclusion:**

The study reveals the detrimental state of Thane creek. Moreover the livelihood of the local fishing community solely depends on the health of the creek. The constant hypoxia and high nutrients would not only affect the ecology of the creek but also the economy of the area. In order to combat this situation the government authorities should plan and implement certain remedial measures. Such as,

stopping reclamation activities, proper planning of solid waste disposal and making the use of effluent treatment plants mandatory before disposing the effluents and domestic sewage into the creek.

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