Oil Pollution

Published On: 19-12-2023

Why is in news?

On December 3-4, Cyclone Michaung, which lingered 100 km off the coast of Chennai for about 16 hours, brought heavy rainfall to the city. It forced the Tamil Nadgovernment to not only deal with the problem of heavy flooding, but also turn its attention to the wetlands of the heavily industrialised Ennore-Manali region in the northern part of the city where oil had spilled over from the premises of a public sector refinery.

About:

Oil pollution refers to the **contamination of water bodies**, specifically oceans, seas, or rivers, **by oil or petroleum products**.

It typically occurs due to oil spills from accidents involving tankers, offshore drilling rigs, pipelines, or other oil-related activities. For example: Mauritius Oil Spill (2020)

This type of pollution can come from a variety of sources and causes a range of negative effects, some of which are long-lasting and severe.

Impacts on marine ecosystem:

It causes the **damage to coral reefs**Coral reefs are a sensitive ecosystem, oil spills can smother and kill coral polyps. Eg. Mauritius oil spill 2020 (Mauritius declared environmental emergency).

Oil pollution **damages and destroys important coastal habitats** such as mangroves, estuaries and salt marshes. These habitats serve as a nursery and breeding ground for many organisms. Eg. Sunderbans threatened by multiple oil spills over years.

Degrades insulating properties of birds: Oil coating reduces the birds ability to insulate themselves and stay buoyant. This can lead to **hypothermia and drowning**.

Oil spills **release a variety of toxic chemicals**, including polycyclic aromatic hydrocarbons (PAHs), heavy metals, and volatile organic compounds. They can interfere with their reproductive and metabolic processes, leading to deformities, reduced growth, and death.

Oil pollution harms planktons and algae which forms the base of marine food chains and causes the **disruption in food chain**. This **disruption can have a cascading effect** on large predators, leading to population decline.

The oil spills **contaminates marine products** like fishes etc and makes them unsafe for human consumption thus having serious health consequences for communities relying on sea food. Eg. 2021 oil spill in red sea (sea food contamination)

It **reduces amount of dissolved oxygen** in water, **chokes the respiratory system** of marine animals, reduces sunlight penetration etc.

Reasons for impacts in India:

Oil pollution is particularly harmful for a country like India due to following reasons:

Extensive coastline: India has a **vast coastline of about 7517 km** making it highly susceptible to oil pollution incidents. The Indian coastline serves as a conduit for over 70% of the global oil demand.

Biodiversity hotspots: India hosts biodiversity hotspots along its coasts, including coral reefs, mangroves, and estuaries; which would be particularly harmed by oil pollution.

Fishing communities: India's coastal regions are home to numerous fishing communities that depend on marine resources for their livelihoods. Oil pollution can **lead to the contamination of fishery resources**, disrupting fishing activities.

Land degradation: Non-marine oil pollution harms India's land and soil which are already facing the brunt of pollution and climate change effects.

Climate resilience: Coastal ecosystems, such as mangroves and salt marshes, play a crucial role in climate resilience by acting as natural buffers against storm surges and sea-level rise. Oil pollution can harm these ecosystems.

Geopolitical Factors: India's strategic location in the Indian Ocean makes it a significant transit point for international shipping routes which increases the risk of oil spills from maritime accidents or illegal discharges, which can have geopolitical implications.

Tourism: India's coastline is a significant attraction for tourists with pristine beaches including 12 Blue Flag-certified ones, coral reefs, and coastal landscapes drawing visitors. This would drastically be harmed by oil pollution.

Weather changes: Monsoon and cyclones exacerbate the impacts of oil spills, making containment and cleanup efforts more challenging.

Conclusion:

Thus, safeguarding India's coastal and marine environments from the harmful impacts of oil pollution is not only an environmental imperative but also a socioeconomic and geopolitical necessity.

To mitigate the harmful impacts of oil pollution, preventative measures such as, stringent regulations, improved safety protocols, and emergency response capabilities are crucial.

Promoting sustainable practices, investing in alternative energy sources, and raising awareness about the importance of environmental conservation are essential for protecting India's marine ecosystem from the detrimental effects of oil pollution.