

# Preserving the Mangroves of Puducherry Region: A Call to Action

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## Introduction:

Climate change is a major global concern resulting in rising temperatures, primarily due to the increased concentration of carbon dioxide (CO<sub>2</sub>) in the atmosphere due to human activities (NOAA, 2019). Further, it has resulted in extreme weather events and a consequential rise in sea levels. In light of this situation, mangroves have gained prominence in the context of climate change. Puducherry region (Fig.1), blending French colonial architecture and Indian culture, is situated in southeastern India. Beyond its picturesque beaches and vibrant streets, the region harbours a less visible but equally significant natural treasure: its mangrove forests (Fig.2). Mangroves are an association of woody trees and shrubs that form a dominant vegetation in tidal, saline wetlands along tropical and sub-tropical coasts, and they are termed Sathuppu Nilakadukal in Tamil (Satheeskumar et al., 2012). These unique ecosystems are nature's coastal defenders, providing various ecological, economic, and social benefits.

## The Hidden Treasures of Mangroves: Ecological Powerhouses

Mangroves are often called land builders due to their high productivity and biodiversity. They are home to various plant and animal species, including fish, crustaceans, and birds. The dense root systems of mangroves offer refuge and breeding grounds for numerous marine organisms, supporting the livelihoods of local fishing communities (Carugati et al., 2018).

## Natural Coastal Defenders

One of the most vital functions of mangroves is their ability to act as natural coastal defenders (Sandilyan & Kathiresan, 2012). Their root systems stabilize shorelines by preventing erosion and absorbing the impact of storm surges and tsunamis (Giri et al., 2015). In a region like Puducherry, prone to cyclones, mangroves play an essential role in mitigating the damage caused by extreme weather events.

## Climate Mitigators:

Mangroves are significant carbon sinks, absorbing and storing carbon dioxide from the atmosphere (Rovai et al., 2018). This carbon sequestration capability helps combat global warming. Protecting and restoring mangrove forests is a strategic way to contribute to climate change mitigation efforts on a worldwide scale.

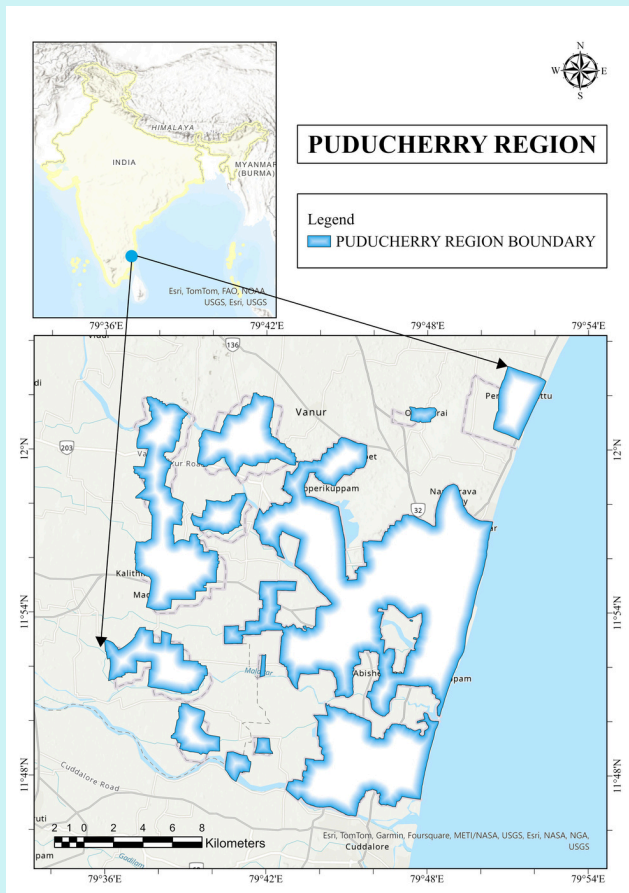


Fig.1: Map showing the Puducherry region

## The pressure on mangroves of the Puducherry region

The Puducherry region has a remnant patch of mangroves that are encircled by three villages, Ariankuppam, Veerampatinam, Murungapakkam and two islets, Ashramthittu and Thengaithittu (Department of Survey & Land Records, Government of Puducherry).

The rapid urbanization of Puducherry poses a severe threat to mangrove ecosystems. Expanding infrastructure, tourism, and real estate developments often lead to the clearing of mangrove forests. This destruction reduces biodiversity and diminishes the natural protection against coastal erosion and storm surges. Further, industrial, agricultural, and domestic pollution is a significant challenge for the region's mangroves. Contaminants such as heavy metals, pesticides, and plastic waste degrade water quality and soil health, affecting the growth and survival of mangrove species. Marine life dependent on these ecosystems is also at risk from polluted waters. The impacts of climate change, such as rising sea levels, higher temperatures, and more frequent extreme weather events, pose a threat to the health and resilience of mangrove forests (Ward et al., 2016). These changes can lead to saltwater intrusion, altered hydrological regimes, and physical damage to the mangrove ecosystem.

## Need for conservation and restoration efforts:

Community engagement is essential for the preservation of mangroves. It is crucial to involve local communities in initiatives aimed at restoring mangroves.

These efforts should focus on educating residents about the significance of mangroves and engaging them in the planting and upkeep of these crucial ecosystems, nurturing a sense of ownership and responsibility among the community. The government of Puducherry, in partnership with non-governmental organizations, has initiated various measures to preserve mangrove ecosystems, which are yet to be enforced. One of the initiatives is the Mangrove Initiative for Shoreline Habitats and Tangible Income (MISHTI), which aims to conserve and restore the mangrove ecosystem. This is essential in mitigating the impacts of climate change and supporting local communities. Ongoing research and monitoring are essential to understand the dynamics of mangrove ecosystems and the effectiveness of conservation strategies in the Puducherry region. Studies on biodiversity, ecological functions, and carbon sequestration will provide valuable information that informs policy-making and management practices.

## Conclusion

The mangroves of Puducherry are more than just trees growing along the coast. They are vital defenders of the region's ecological and economic well-being. However, they are under significant threat from human activities and climate change.

We must take urgent and coordinated action to safeguard and restore these valuable ecosystems. By doing so, we can ensure that Puducherry's mangroves continue to provide exceptional benefits for generations to come.

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