Environmental Threats and Conservation Challenges of the Mangrove Ecosystem in Mandaitivu Island, Jaffna District

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The protected mangrove ecosystem of Mandaitivu Island, Jaffna District, is of considerable ecological and socio-economic importance but faces increasing environmental and development-related threats. Therefore, this study assesses the ecological and socio-economic importance of the Mandaitivu mangrove ecosystem and identifies the major threats to its sustainability. A qualitative descriptive research design was adopted. Primary data were collected through field observations, purposive discussions with ten community representatives from local organizations selected based on their long-term residence, active community involvement, and knowledge of mangrove-related livelihood activities, and semi-structured interviews with two officers from the forest and wildlife department. An interview guide and a field observation checklist were used, while secondary data were obtained from research articles, government reports, and policy documents. Data were analyzed using thematic analysis, and findings were validated through triangulation of multiple data sources. The findings identified three main categories of challenges. Field observations and stakeholder consultations revealed illegal wetland filling, mangrove clearing, pollution, and habitat degradation as key ecological threats. Community participants expressed concern that ecosystem degradation and proposed development projects could threaten fisheries-based livelihoods and increase vulnerability to coastal hazards. Government officers and stakeholders highlighted weak enforcement of environmental regulations, limited public awareness, and growing pressure from infrastructure development. Flooding, storm surges, and extreme wind events were also identified as major environmental constraints. The study concludes that the sustainability of the Mandaitivu mangrove ecosystem is threatened by both anthropogenic activities and institutional challenges. Strengthening environmental law enforcement and strict compliance with Environmental Impact Assessment (EIA) procedures for large-scale development projects are essential to reduce ecological impacts. Promoting community participation and public awareness of mangrove ecosystem values is also crucial for minimizing harmful practices such as solid waste dumping. Habitat restoration and nature-based tourism should be encouraged for long-term sustainable ecosystem management and conservation.

Keywords: *Mandaitivu island, Mangrove ecosystem, Environmental threats, Conservation challenges, Socio-economic importance, Coastal protection*