



Understanding Coastal Pollution and Its Environmental Impacts in Gurunagar, a Coastal Area in Jaffna

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Coastal ecosystems provide essential services including fisheries, biodiversity conservation, and climate regulation. Gurunagar, a major fishing village in the Jaffna Peninsula, depends heavily on coastal resources but faces growing environmental challenges from coastal pollution. This study examined the nature of coastal pollution in Gurunagar, its environmental and socio-economic impacts, and potential mitigation strategies. A descriptive research approach was adopted using field observations, questionnaire surveys, key informant interviews, and secondary data sources. Field surveys documented waste accumulation patterns across fish landing sites, drainage outlets, and residential zones. A structured questionnaire was administered to 40 randomly selected fishermen and residents, while interviews with municipal representatives provided insights into local waste management practices. Field observations revealed widespread accumulation of plastic bottles, polythene, food wrappers, discarded fishing gear, fish waste, and oil residues along the coastal belt. Drainage channels were identified as major pathways transporting household, market, and urban waste into the coastal environment. Survey findings showed that 44% of residents dispose waste through drainage channels and 16% directly into coastal waters, largely due to inadequate infrastructure and limited space in this densely populated settlement. Furthermore, 86% of respondents reported oil and grease pollution from fishing activities, while 84% identified waste discharge from fish markets as a major contributor to coastal degradation. Coastal pollution was perceived to affect environmental quality, human health, and livelihoods. About 74% of respondents reported health concerns including respiratory issues, eye irritation, unpleasant odours, and potential long-term health risks. Pollution-related degradation of water quality and marine habitats was also linked to declining fisheries productivity and reduced livelihood opportunities. The study demonstrates that improper waste disposal, untreated wastewater discharge, and weak waste management systems are key drivers of coastal pollution in Gurunagar. Strengthening waste collection, promoting recycling and awareness, improving regulatory enforcement, and enhancing multi-stakeholder collaboration are critical for achieving sustainable coastal management and protecting fishing-dependent communities.

Keywords: *Coastal pollution, Marine litter, Plastic waste, Fishing communities, Coastal environment, Jaffna*