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CONSERVATION AND MANAGEMENT OF SENANAYAKE SAMUDRA RESERVOIR ECOSYSTEM IN SRI LANKA

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ABSTRACT

Senanayake Samudra reservoir (7°06'N - 7°10'N and 81°25'E - 81°32'E) was constructed in 1951 by damming Gal-Oya river in the eastern region of Sri Lanka for irrigation and hydroelectric purposes. It covers an area of 7790 ha and supplies irrigation water for 45530 ha of paddy and 4528 ha of sugarcane plantations. It also generates 11.25 MW of electricity annually. It supports an important freshwater fishery that yields 850 MT - 900 MT of fish annually and provides employment for more than 200 persons. About 25% of the catchment area of the reservoir is protected by the Gal-Oya national park. Soil erosion in the catchment area due to anthropogenic activities has caused heavy siltation of the reservoir. Water quality analysis indicates that the reservoir is not eutrophic. At depths below 10 m, the dissolved oxygen content is limited for fish life. No aquatic macrophytes are present in the reservoir. Some 22 algal species in plankton samples and 24 plant species in the shores and islands of the reservoir were recorded. In the surrounding forest, which is classified as tropical dry forest, 41 tree species were recorded. Some of these are important as sources of indigenous medicine, timber and food. There are 30 indigenous fish species, of which 3 are endemic, recorded from the reservoir. Of the 5 amphibian species and 5 reptile species recorded, none is endemic. Of the 41 bird species and subspecies observed to frequent the reservoir, 7 subspecies are endemic and 9 subspecies are migratory. Some 34 mammal species and subspecies inhabit the Gal-Oya national park and frequent the reservoir. Of these, 15 subspecies and 1 species are endemic. For successful conservation, planned extension and public awareness programs on the importance of conserving this ecosystem are required. It is absolutely necessary to take steps to stop environmentally destructive anthropogenic activities such as denudation of forests and gem mining in the catchment area. Community participation is highly important for the conservation of this ecosystem. Environmental NGOs can play a significant role in this aspect.