

FRAMEWORK FOR SUSTAINABLE MANAGEMENT AND UTILIZATION OF WETLAND RESOURCES: A CASE STUDY OF MADINNAGODA MARSH

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Wetlands, the lands of areas saturated with water throughout the year or seasonally, are the caretakers of the earth due to the reason that they provide an unparalleled range of environmental benefits. Wetlands actively contribute to making this world liveable. However, the sad truth is that wetland habitats continue to be lost entirely or progressively degraded at an alarming rate, regardless of the multitude of benefits that the wetlands provide. Wetlands are badly subjected to environmental pressures as a direct consequence of anthropogenic activities, which are the driving forces that lead to ecosystems damage. In turn, the state of such ecosystem changes subsequently impact the natural environment as well as the society. Madinnagoda wetland is one such valued ecosystem embracing the sad truth of wetland degradation that had occurred persistently during the past few decades. Close proximity to a highly urbanized area thus receiving a high value on its land extent, the severe shortage of land for economic development in the city, availability of a large extent of land in this wetland, and its location in the heart of Colombo make this wetland becoming a populated and rapidly developing area of Colombo District attracting more urban life. The exploitation of this wetland resource has vast negative consequences if this trend continues. Based on such concerns, issues of sustainability have been in focus lately, with Colombo's wetlands declared as Ramsar sites. The necessity of a proper mechanism has arisen to maintain these ecosystems as they were. Therefore, this research was carried out to develop a framework for sustainable management and utilization of wetland resources at Madinnagoda Marsh.

The DPSIR framework was used for the study, one of the best tools recognized to analyse environmental problems and devise sustainable solutions. However, it has been subjected to critiques in the literature. Although the confusion between the terminologies is identified as the main reason for such criticism, the framework has been subjected to many evolutions to give the best output. After analysing the Madinnagoda wetland with nested DAPSI(E_1 and S_1)R(M_1) framework, a development plan was proposed, and its capability of sustainably managing and utilizing the wetland resources was measured as per the level to which its strategies fulfil the 17 Sustainable Development Goals. For this purpose, scorecards were developed under each weighted sustainable goal to assign the development plan with scores, and then, a methodology was developed to calculate the sustainability score. Finally, a wetland rating system was proposed to decide the level of sustainability of the Madinnagoda Marsh. Since there is no ongoing development plan for Madinnagoda Marsh targeting its sustainable development, this research study leaves the validation phase as a future work - though a hypothetical situation is proposed to ensure that the procedure and the validity of the framework that have been proposed is well demonstrated. Therefore, it is possible to modify the proposed development plan, proposed framework, and rating system to comply with the future settings aiming at achieving sustainable utilization of wetland resources. Even so, the beneficiaries of the wetland resources and the public at large should make sensible decisions to determine how they are going to sustainably manage and conserve this valued ecosystem.

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