



## **Social-Economic Drivers for the Sustainability of Mangroves: Community Engagement, Livelihood Diversification and Tourism Development in Madu Ganga, Sri Lanka**

**P.T.G.S.M. Pallewela<sup>1\*</sup>, R.N. Giridara<sup>2</sup>, T.P.G.R.U. De Alvis<sup>2</sup>, M.T.F. Nifla<sup>2</sup>, M. S. P. Sumaiya<sup>2</sup>**

<sup>1</sup>*Faculty of Management & Finance, University of Colombo, Colombo, Sri Lanka.*

<sup>2</sup>*Department of Geography, Faculty of Arts, University of Colombo, Colombo, Sri Lanka.*

*\*Sashinimadushani31@gmail.com*

Mangrove ecosystems represent an important ecological and socio-economic resource, especially in coastal areas where communities often rely on natural resources and tourism livelihoods. The study aims to explore the socio-economic drivers of mangrove sustainability in the Madu Ganga coastal lagoon system in Sri Lanka. This research focuses particularly on the interactions of factors relating to livelihood diversification, tourism development, community participation, and local governance in affecting the sustainable management of mangrove forests. Addressing a critical research gap where existing literature frequently isolates economic shifts from active micro-level governance, this study adopts an integrated empirical framework. Formulating its survey parameters via Yamane's sample size formula, a structured questionnaire was systematically administered to 150 purposive and stratified stakeholders. Structured questionnaires were administered to stakeholders like boat operators, fishers, handicraft producers, food vendors, cinnamon producers, and small business owners. The survey instrument was structurally developed based on the Social-Ecological Systems (SES) Framework and the Sustainable Livelihoods Approach (SLA). Quantitative data were analysed using descriptive statistics, while qualitative responses were analysed thematically following the Social-Ecological systems framework and the sustainable livelihoods approach. Statistical results reveal that tourism accounts for the largest livelihood category at 38%, followed by fishing at 19%, and small businesses at 14%. The assessment suggests a strong operational movement away from fishing activities and towards tourism-based employment, with 60% of the respondents confirming a household income transition from fishing to tourism over the past ten years. Tourism was also associated with environmental challenges. Notably, 80% of the participants identified unregulated boat traffic as a direct driver of shoreline erosion and habitat disturbance, while 45% perceived the overall health of the mangrove ecosystem to be in active decline. The strongest predictor of conservation success was community participation, where localised monitoring initiatives and mechanisms for local governance enjoyed substantially more support than centralised management approaches. While almost all respondents acknowledged the vital role of mangrove ecosystems for tourism and sustainable livelihoods, they felt ecosystem health was declining under anthropogenic pressures. It concludes that sustainable management of mangroves in Madu Ganga is desirable but cannot be achieved without balancing local economic development and environmental conservation through participatory decision-making, community-based governance of conservation practices, and ecologically sensitive tourism initiatives. These insights directly enrich broader global sustainability debates by showcasing how devolving conservation mandates to localized tourist cooperatives cultivates superior ecological resilience over rigid state control.

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