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**Climate Change Research in Sri Lanka: Assessing Current Status, Identifying Gaps, and Recommending Emerging Priorities**

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**Abstract**

Climate change poses a formidable threat to Sri Lanka, necessitating extensive research to comprehend, mitigate, and adapt to its multifaceted impacts. This abstract reviews the current state of climate change research in the country, underscores existing gaps, and proposes key priorities for future investigations. Notably, current research primarily concentrates on agriculture, water resources, and coastal ecosystems, highlighting the impacts of rising temperatures, altered precipitation patterns, and more frequent extreme weather events. Vulnerability assessments, adaptation strategies, policy frameworks, and public awareness initiatives have also been explored. Disparities in research adequacy emerge across mitigation areas, with renewable energy potential and forest and land use showing satisfactory outputs, while energy efficiency, transportation, agriculture, and waste management demand strengthening efforts. Recommendations for enhanced climate change mitigation underscore the need for detailed studies on the country's renewable energy potential to inform low-carbon energy sector policies. Strengthening research on energy consumption patterns and opportunities for efficiency improvements is crucial. Similarly, a call for intensified research on the carbon footprint of the transportation sector and sustainable transportation options is made. Local emissions factors and sequestration factors for diverse forests and land uses are identified as essential. In agriculture and livestock, emphasis is placed on researching emission profiles and sustainable practices. The waste management sector requires strengthened research on practices, methane reduction, and sustainable techniques. Carbon pricing and market mechanisms demand enhanced research on implementation and implications. Further recommendations extend to fostering innovative, climate-friendly technologies, evaluating the effectiveness of existing mitigation policies, understanding public attitudes, promoting green finance, establishing a comprehensive carbon footprint database, and exploring co-benefits of mitigation actions within broader sustainable development goals. In the realm of climate change adaptation, the need for additional studies in underrepresented areas like health, ecosystems, biodiversity, export agriculture, industry, energy, transport, tourism, human settlements, infrastructure, coastal, and marine areas is highlighted. Future research should aim for diversity in regional coverage, conduct thorough evaluations of policy implementation, and emphasize the social dimensions of climate change policy and governance. A holistic approach that incorporates multiple perspectives and engages local stakeholders is proposed to enhance the effectiveness of climate change policy and governance strategies.

**Keywords:** Climate change, Research, Adaptation, Mitigation, Recommendations