Assessment of Environmental Policy Instruments along with Information Systems for Biodiversity Conservation in Bangladesh: A Case Study on Lawachara National Park

Md. Rahimullah Miah

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Md. Rahimullah Miah

A thesis submitted
In fulfilment of the requirements for the degree of Doctor of Philosophy
(Environmental Management)

Institute of Biodiversity and Environmental Conservation
UNIVERSITI MALAYSIA SARAWAK
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DEDICATION

This dissertation is dedicated to my beloved wife, Advocate Motia Begum and daughters, Jorin Tasnim Parisha and Zarin Zahra Torsa, who were deprived of my presence during this research but remained my primary source of motivation and consistent moral supports throughout my higher study.

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ABSTRACT
Biodiversity is in the core field of environmental issues. The problem of loss of biodiversity has been raised as a very important global issue for several years due to the lack of dynamic policies, technological application, institutional support and stakeholder engagement. This study aimed to assess the environmental policy instruments including legal, in-situ and informational instruments for conserving of biodiversity through primary and secondary data analysis at Lawachara National Park (LNP) in Bangladesh, as a test site. Quantitative and qualitative related conservation data were obtained through field observation, interviews, field surveys, focus group discussions and informal discussion while secondary data were obtained from diverse sources. Key conservation instruments provided at the LNP and its challenges with gaps in policies for national park management are highlighted. The study shows that biodiversity-related legislations amended was highest in Bangladesh for the period of 2010 to 2016 with policy weight scoring 96% of LNP. The growth of National Parks maximized at but in low digital conservation services within the same period. This study represents the impact of sensor networks on wildlife to be compared to larger and smaller animals in a bright and dark environment, facilitating the design and use of modular tags. These results reflect the importance of conservation of biodiversity that the State provides. A scalable, modular and adaptable solution has been proposed with limited peripheral network systems for biodiversity protection. The study assessed that the existing conservation policy instrument is inadequate for national park biodiversity protection in Bangladesh. In addition, the study identified issues that should be the main priorities for policy integration, implementation and improvement with technological array in order to foster LNP’s management objectives for ensuring the sustainability of biodiversity conservation systems. The improvement of environmental policy instrument assessment has been sluggish, compared with several other conservation tools, and various performances
are still below par. Scientific knowledge is indispensable in national park biodiversity management but such knowledge is poorly identified. The input uniqueness of research findings of them should influence the assessment of the conservation policy instruments used to deal with them. If assessment of such instruments is allowed without due to reflection of information implicated, there is a huge jeopardy of recognizing only trifling impacts and near to the ground effectiveness. However, careful assessments can facilitate future research to make better conservation decision-making in the creation of environmentally fundamental and innovative instruments. Lastly, the study suggests future research trajectories of a new collaborative alternative approach to drive the methodological agenda and recommendations on ways to further incorporate the demanding bio-environmental conservation policy instruments towards national park biodiversity management.

**Keywords**: Biodiversity, Policy Instruments, Information Systems, Lawachara National Park, Bangladesh.

Kata kunci: Biodiversiti, Polisi Instrumen, Sistem maklumat, Taman Negara Lawachara, Bangladesh.

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