

SUSTAINABILITY INSIGHTS FROM LOCAL WISDOM: THE CASE OF LUBUK LARANGAN IN PRESERVING AQUATIC BIODIVERSITY

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Abstract

This study explores the role of the traditional practice known as Lubuk Larangan in Jambi, Indonesia, as a community-based strategy for sustaining aquatic biodiversity. The research aims to understand how this local wisdom contributes to ecological conservation while supporting social and economic sustainability. A qualitative methodology was employed, involving in-depth interviews with local community leaders, participant observation, and document analysis of local regulations and customary laws. The findings reveal that Lubuk Larangan serves as a powerful conservation tool by establishing designated areas in rivers where fishing is prohibited for a specific period. This practice not only promotes the recovery of fish populations but also fosters collective community engagement in managing natural resources. The periodic lifting of restrictions allows for communal fishing events, ensuring equitable resource distribution and strengthening social cohesion. Furthermore, the study highlights the alignment of Lubuk Larangan with global sustainability goals, particularly in achieving targets related to biodiversity conservation and sustainable resource management. This research underscores the importance of integrating traditional ecological knowledge into modern sustainability frameworks, emphasizing that local wisdom can provide innovative solutions to global environmental challenges.

Keywords: Lubuk Larangan, local wisdom, aquatic biodiversity, sustainability.

INTRODUCTION

The preservation of biodiversity is a critical global concern, particularly as ecosystems face increasing pressures from human activity and climate change. Aquatic ecosystems, in particular, are under threat due to overfishing, habitat destruction, and pollution. In this context, traditional ecological knowledge and practices offer valuable insights into sustainable resource management (Sumarmi et al., 2024). One such practice is Lubuk Larangan, a customary tradition prevalent in Jambi, Indonesia, which designates certain river sections as protected areas for fish population recovery (Sari et al., n.d.). This study aims to explore how Lubuk Larangan contributes to preserving aquatic biodiversity and aligns with contemporary sustainability goals.

Existing research on community-based conservation emphasizes the role of local participation and cultural practices in promoting environmental sustainability. Studies by Berkes (Berkes, 2018) and Ostrom (Ostrom, 2009) highlight the importance of traditional knowledge in resource management. However, while there is growing interest in the role of indigenous practices in biodiversity conservation, specific

investigations into Lubuk Larangan remain limited. Most studies on this tradition focus on its socio-cultural aspects, with insufficient attention to its ecological and sustainability impacts. This gap necessitates a deeper examination of Lubuk Larangan's potential as a model for integrating local wisdom into global conservation strategies.

The primary objective of this research is to analyze the ecological benefits of Lubuk Larangan in preserving aquatic biodiversity and its implications for sustainable resource management. Specifically, this study seeks to answer the following questions: (1) What are the ecological impacts of Lubuk Larangan? (2) What are the socio-economic impacts of this tradition? (3) How is cultural and social cohesion in this tradition? (4) How can this practice inform broader sustainability frameworks? By addressing these questions, this research aims to bridge the gap between traditional ecological knowledge and modern conservation practices, offering new perspectives on achieving sustainability through local wisdom.

METHODOLOGY

This study adopts a qualitative case study approach to investigate the role of Lubuk Larangan in preserving aquatic biodiversity and promoting sustainability. The case study design enables an in-depth exploration of this tradition within its natural context, emphasizing the cultural and ecological dimensions of the practice (Tjahyadi et al., 2020). The target population for this study includes local community members, traditional leaders, and government officials in Jambi, Indonesia, who are directly involved in or knowledgeable about Lubuk Larangan. Purposive sampling was employed to select participants who possess rich insights and experiences related to the tradition. A total of 20 participants were recruited, comprising community leaders (5), local fishers (10), and environmental officers (5).

Data were collected using multiple methods to ensure a comprehensive understanding of the subject. Semi-structured interviews were conducted with the participants to gather detailed narratives about the implementation and impact of Lubuk Larangan. Participant observation was also carried out during community events related to Lubuk Larangan to capture real-time practices and interactions. Additionally, document analysis was performed on local regulations, customary laws, and previous studies pertaining to this tradition.

The collected data were analyzed using thematic analysis, which involves identifying, analyzing, and interpreting patterns within the data. Interview transcripts and observation notes were coded to extract key themes related to ecological, socio-economic, and cultural impacts. Triangulation was employed to enhance the validity of the findings by cross-verifying data from multiple sources. The analysis was guided by sustainability frameworks to contextualize the results within broader conservation and development goals.

FINDINGS

Ecological Impacts

The implementation of Lubuk Larangan has demonstrated substantial ecological benefits, particularly in the recovery of fish populations. Respondents consistently reported an increase in fish diversity, size, and abundance within the protected river sections. Observations revealed that these areas became breeding grounds for

various aquatic species, contributing to the overall health of the ecosystem. Local fishers emphasized that after the no-fishing periods, the surrounding rivers exhibited a noticeable spillover effect, with fish migrating to adjacent areas. This finding underscores the role of Lubuk Larangan as an effective community-based conservation strategy.

Moreover, the ecological benefits extend beyond fish populations. The protected areas also facilitate the regeneration of aquatic plants and improve water quality. Community members noted reduced sedimentation and pollution levels in rivers associated with Lubuk Larangan. These improvements highlight the interconnectedness of biodiversity conservation and ecosystem services, demonstrating how traditional practices can yield holistic environmental benefits.

Socio-Economic Impacts

The socio-economic outcomes of Lubuk Larangan are equally noteworthy. The periodic communal fishing events, known locally as "panen raya," provide significant economic benefits.

These events allow community members to harvest fish in large quantities, ensuring food security and additional income from selling surplus fish in local markets. Participants reported that these events often coincide with traditional festivals, enhancing their cultural and economic significance.

Additionally, Lubuk Larangan promotes equitable resource distribution. The customary laws governing the practice ensure that all community members, regardless of socioeconomic status, have access to the benefits of the communal harvest. This inclusivity strengthens social equity and fosters a sense of collective ownership over natural resources.

Beyond direct economic gains, the practice has catalyzed community-driven eco-tourism initiatives. Several communities have started showcasing Lubuk Larangan as a model for sustainable resource management, attracting researchers, students, and tourists interested in traditional conservation methods. This emerging trend provides an alternative income source while raising awareness about the importance of biodiversity conservation.

Cultural and Social Cohesion

Culturally, Lubuk Larangan reinforces the community's identity and traditional values (Bahar et al., 2023). The practice requires collective decision-making and adherence to customary laws, fostering trust and cooperation among community members (Julita et al., 2022). Traditional leaders play a pivotal role in mediating conflicts and ensuring compliance with the established rules, further solidifying their authority and respect within the community (Suryahartati et al., 2021).

The social cohesion fostered by Lubuk Larangan extends to intergenerational knowledge transfer (Sairun et al., 2020). Younger generations learn about the ecological importance and cultural significance of the tradition through active participation in its practices (Handayani et al., 2018). This educational aspect ensures the continuity of Lubuk Larangan and instills environmental stewardship in future leaders.

Challenges and Future Prospects

Despite its benefits, Lubuk Larangan faces several challenges. Illegal fishing activities and external environmental pressures, such as upstream deforestation and water pollution, posesignificant threats to the sustainability of the practice. Participants expressed concerns about the weakening enforcement of customary laws and the lack of formal recognition from government authorities.

To address these challenges, participants suggested stronger collaboration between local communities and governmental agencies (Lestari et al., 2022). Enhancing enforcement mechanisms, providing financial incentives, and integrating Lubuk Larangan into regional conservation policies were identified as potential strategies to ensure its long-term viability. Furthermore, expanding educational outreach about the ecological and socio-economic benefits of Lubuk Larangan could garner broader support for its preservation.

CONCLUSION

The findings of this study underscore the multifaceted significance of Lubuk Larangan in Jambi, Indonesia, as a model for sustainable resource management. Ecologically, the practice has proven effective in enhancing aquatic biodiversity and improving water quality. The socio- economic benefits, including equitable resource distribution, food security, and income generation, further highlight its value for local communities. Culturally, Lubuk Larangan strengthens community cohesion and ensures the preservation of traditional values through intergenerational knowledge transfer.

Despite these successes, challenges such as illegal fishing and environmental degradation pose risks to the sustainability of the practice. Addressing these issues requires a collaborative approach involving local communities, traditional leaders, and government authorities. Enhanced enforcement of customary laws, integration into formal conservation policies, and educational initiatives are crucial for ensuring the long-term viability of Lubuk Larangan.

This study contributes to the growing body of literature on community-based conservation by demonstrating how traditional ecological knowledge can inform contemporary sustainability frameworks. By leveraging local wisdom, practices like Lubuk Larangan offer valuable insights into achieving global biodiversity and sustainability goals. Future research could further explore the scalability of such practices and their potential integration into broader conservation strategies.

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