Towards Sustainable Lake Management in Indonesia

Lakes play a crucial role in Indonesia, providing essential resources and services to local communities. This small research activity will develop a proposal to address challenges faced managing these vital water bodies. CSIRO, BRIN, and other key stakeholders, will collaborate to develop innovative solutions for sustainable lake management, ensuring the well-being of the environment and the communities that depend on it.

Enhancing Lake Ecosystems and Community Well-being

This initiative addresses the critical challenges faced by Indonesia's lakes through innovative solutions for sustainable management. By reviewing existing lake information systems, assessing priority lakes, and evaluating governance structures, the project aims to develop a comprehensive proposal for a larger, multi-year initiative. Integrating scientific research with active community engagement, the project seeks to improve the ecological health of lakes and enhance the well-being of local communities, ensuring a sustainable future for these vital ecosystems.

Key Objectives

We aim to achieve sustainable lake management in Indonesia through the following key objectives:

- **Understand the problems together:** Identify current gaps and opportunities in Lake Information Systems between Indonesian and Australian research collaborators.
- **Make Better Decisions:** Establish agreement on the selection of lakes for ongoing research to improve sustainable lake management.
- **Improve Governance:** Identify and address governance opportunities and constraints, fostering collaboration and commitment among stakeholders.
- **Plan Future Research:** Set research goals together to help manage the lakes in a fair and sustainable way.

Lakes in Indonesia

Indonesia is home to over 1,500 lakes, which play a crucial role in the country's ecosystem and support local communities. These lakes provide essential resources such as water for agriculture, fisheries, and hydroelectric power. They also contribute to the livelihoods of many people through tourism and cultural activities. However, Indonesian lakes face significant environmental challenges, including pollution, sedimentation, and invasive species.

National Priority Lakes

To address these challenges, the Indonesian government has identified 15 national priority lakes that require urgent conservation efforts. These lakes were selected based on their critical condition and the high demand for their water resources. The priority lakes in Indonesia include Lake Toba, the world's largest volcanic lake; Lake Poso, a deep tectonic lake; and Lake Tondano, crucial for agriculture and hydroelectric power. Other notable lakes are Lake Sentarum, rich in biodiversity; Lake Sentani, important for local subsistence; and Lake Matano, the deepest lake in Indonesia.

Researchers met at Lake Toba to discuss improvements to lake management (picture of lake)

Lakes Information Systems

Lake information systems, like SIDANAU (sidanau.brin.go.id), play a crucial role in managing Indonesian lakes by providing data on water quality, biodiversity, and environmental conditions. These systems support informed decision-making and sustainable management practices.

The project will assess Lake Information System (LIS) to understand opportunities to build an enduring impact for lakes management.

Sustaining lake information systems involves several challenges. First, ensuring consistent and high-quality data from various sources is crucial but often difficult. Second, maintaining and updating the system requires continuous funding and resources, which can be challenging to secure. Lastly, effective collaboration and coordination among multiple stakeholders, including government agencies, local communities, and researchers, are essential for the system's success and sustainable lake management.

Activities

The project involves several key activities aimed at improving lake management practices. These activities include:

- **Reviewing Lake Information Systems**: Assessing current data collection and management practices to identify gaps and opportunities.

- **Assessing Priority Lakes**: Conducting detailed studies on selected lakes to understand their unique challenges and needs.

- **Evaluating Governance Structures**: Analysing existing policies and regulations to improve decision-making processes.

- **Developing a Comprehensive Proposal**: Creating a detailed plan for a larger, multi-year project to ensure long-term sustainability.

These activities will help build a strong foundation for future efforts to enhance the ecological health and well-being of Indonesia's lakes and communities. We expect to deliver a final report by June 2026.

Researchers met at Lake Toba to discuss improvements to lake management (picture of researchers)

Partnership

The project is a collaborative effort involving CSIRO, BRIN, and the Center for Regulation Policy and Governance, with significant contributions from Indonesian government agencies and non-governmental stakeholders. It is supported by the Australian Centre for International Agricultural Research through Australian Aid. The partnership leverages CSIRO's expertise in landscape transition science and digital systems, and BRIN's local knowledge and research capabilities. Together, we aim to enhance lake management in Indonesia through improved decision-making systems, governance assessments, and sustainable practices, fostering long-term ecological, social, and economic benefits for Indonesian lake communities.

For further information

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