

ECOLOGY OF POLLUTED RIVERS: ANALYSIS OF DECLINING INTEREST IN CONSUMING LOKAN DUE TO MERCURY ISSUES IN ACEH JAYA

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Abstract: Lokan (freshwater mussels) is one of the potential commodities from Teunom District, Aceh Jaya Regency. This commodity has high economic value for the local community. However, the rampant gold mining activities in the upstream areas of the river have raised concerns about mercury contamination that has the potential to harm human health and the environment. The issue of mercury contained in lokan meat has reduced people's interest in consuming lokan. This study aims to analyze the impact of the mercury pollution issue on river ecology and the decline in interest in lokan consumption by the community in Teunom District, Aceh Jaya Regency, using a qualitative approach and literature review methods as well as collecting secondary data from various sources such as environmental reports, local news, and previous research. The results of the study indicate that public perception of the health risks caused by mercury has significantly reduced interest in lokan consumption, while also having an impact on the livelihoods of some residents who depend on the sale of river catches. These findings highlight the importance of environmental monitoring, public education, and enforcement of regulations against mining activities that risk damaging the ecological balance and sustainability of local resources.

Keywords: lokan; mercury; impact; gold mining

Introduction

The Teunom River in Aceh Jaya Regency is an essential ecosystem that supports both biodiversity and local livelihoods. One of its key resources, lokan (freshwater mussels), has historically been an important source of food and income for residents. In recent years, however, increased gold mining activities in the river's upstream regions have raised environmental concerns, particularly regarding mercury contamination. Mercury is known to accumulate in aquatic organisms, posing serious risks to human health when consumed. This study investigates the relationship between perceived mercury contamination and the observed decline in local consumption of lokan. By combining qualitative analysis with secondary data, the research seeks to highlight the broader ecological and socioeconomic impacts of pollution in river systems.

Literature Review

Ecological Impact of Mercury Pollution

Mercury is a persistent heavy metal that can have long-term effects on river ecosystems. It often enters waterways through industrial processes, including gold mining, and can bioaccumulate in aquatic species. Previous studies have shown that high mercury levels disrupt aquatic food chains and reduce biodiversity.

Socioeconomic Implications of Pollution

The livelihoods of river-dependent communities are particularly vulnerable to pollution events. For example, in Teunom, lokan harvesting is a traditional economic activity. When contamination issues arise, public perception alone can be enough to diminish market demand, even before contamination levels reach hazardous thresholds.

Method

This study employed a qualitative research design with a literature review approach. Data were collected from secondary sources, including environmental reports, local news articles, and relevant academic publications. The analysis focused on identifying themes related to ecological impacts, public perception, and changes in consumption patterns. No primary fieldwork was conducted; instead, the study synthesizes existing data to draw conclusions.

Findings and Discussion

The analysis revealed that reports of mercury contamination in lokan have led to a marked decrease in public interest in consuming the species. Local fishermen and harvesters reported reduced sales, which in turn affected household incomes. From an ecological perspective, the presence of mercury has implications for species health and reproductive success, potentially leading to long-term declines in lokan populations.

The findings also indicate that perception plays a critical role in shaping consumer behavior. Even in the absence of direct contamination measurements in some areas, awareness of upstream mining activities has been enough to deter consumption.

Conclusion and Recommendation

This study concludes that the issue of mercury pollution in the Teunom River has significantly impacted both the ecology of the river and the socioeconomic stability of local communities. Addressing these challenges requires coordinated efforts, including stronger environmental monitoring, public awareness campaigns, and strict enforcement of mining regulations. Future research should focus on direct sampling of lokan to quantify contamination levels and better inform both policy and public understanding.

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