

The Efficacy of Subak in Mitigating Land Conversion within the Jatiluwih World Cultural Heritage Site

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Abstract

Subak represents a distinctive agricultural culture in Bali, functioning as an indigenous community organization with significant socio-agrarian and cultural implications. The inclusion of Subak within the Jatiluwih World Cultural Heritage Area, recognized by UNESCO as a valuable intangible heritage, underscores its importance. However, the rapid expansion of tourism and service industries has raised concerns about land conversion, potentially jeopardizing agricultural productivity through the development of villas, homestays, and restaurants. The study employs qualitative research methods to systematically document and observe field information and phenomena. While Subak's role is deemed partially effective compared to non-designated counterparts, land conversion persists due to various factors including internal motivations, external environmental conditions, and regulatory frameworks governing land use. Enhancing integration is crucial, involving the design of additional regulations to fortify the eco-cultural tourism system and foster collaboration between agricultural and tourism sectors. There is a pressing need to increase support for Subak, encompassing both moral and material assistance.

Keywords: *Subak, Efficacy, Land Conversion.*

INTRODUCTION

Over the past decade, heightened development activity has ensued from population growth, thereby intensifying demand for residential land to meet escalating housing needs. (Mardiansjah, Handayani, and Setyono 2018). Tourism plays a big role in changes in land conversion where land that was originally designated as Protected Rice Fields (LSD) is turned into the development of tourist attractions in the form of inns, hotels, resorts and villas as providers of employment opportunities..(Semara and Saputra 2015). Bali province strategically integrates its agricultural sector with cultural, religious, and spiritual elements to bolster tourism, presenting a cohesive unit of attraction (Subagiasta 2017). Heritage tourism has become an increasingly significant component of global tourism industry (Timothy 2018). As a premier tourist destination in Indonesia, Bali has established a significant benchmark in the development of cultural tourism. This commitment is reinforced by Regional Regulation Number 2 of 2012, which addresses the promotion of cultural tourism. Additionally, in June 2012, Bali's subak system was recognized by UNESCO as part of the World Cultural Heritage. Consequently, historic towns and quarters are competing to attract tourists (Timothy and Tahan 2020). Farmers have an important role for an agricultural country and also greatly contribute to improving people's welfare. Bali has a traditional community organization that has an agricultural governance system called Subak. Since 2012 UNESCO has designated Subak Bali as a world cultural heritage with a cultural landscape of agricultural irrigation which is manifested by the philosophy of Balinese Hindus, Tri Hita Karana. Agriculture should be able to provide many benefits for human livelihoods, starting from economic, social and cultural aspects, therefore it requires attention from all parties, from stakeholders to society itself.(Janker, Mann, and Rist 2019). Nevertheless, there has been a shift in the behaviour of individuals engaging in land conversion, posing a potential threat to food security due to insufficient enforcement measures against unauthorized alterations of green

spaces into non-agricultural zones. Additionally, evolving patterns of globalization may contribute to cultural degradation and endanger the sustainability of Subak.

The Subak organization in the Jatiluwih World Cultural Heritage Area operates as a cohesive unit with a clear vision and mission aimed at achieving its goals. The indicators of the organization's success include (Steers and Jamin 1985): Bali faces serious environmental crises arising from overdevelopment of the tourism and real estate industry, including water shortage, rapid conversion of agricultural land, pollution, and economic and cultural displacement (Warren and Wardana 2018). Economic disparities between regions and pressures from investors pose threats to the sustainability of Subak Bali. Thus, to achieve sustainable tourism development in Bali as a destination, it is crucial to manage it in a way that preserves its cultural heritage and ethical values. This article aims to explore the issues and obstacles confronting Subak in preserving its identity within the Jatiluwih World Cultural Heritage Area amidst land conversion pressures. Subak is a traditional irrigation system employed in rice farming on the island of Bali, Indonesia. This system, which has been in use for centuries, constitutes a vital component of Balinese culture and society. Each subak is an independent, self-governing collective of farmers who share limited water and suppress pests by synchronizing their planting cycles (Atmaja, Dodo, and LaForge 2023).

Subak encompasses not only the management of water for agriculture but also integrates social, cultural, and spiritual aspects. Within the Subak system, agricultural land is divided into various plots, each managed by groups of farmers organized within local communities. Water from springs or rivers is channeled through a complex and well-organized network of irrigation canals to these agricultural plots. This arrangement ensures equitable distribution of water to all farmers, providing each with a fair share for their farming needs (Joni and Alvin 2023).

Land conversion or general land transformation, refers to the alteration of land functions from their original designated purposes (typically planned for agricultural use) to non-agricultural uses, a process often referred to as land conversion. This transformation generates negative environmental impacts and disrupts the ecological balance. Additionally, land use changes significantly affect the social structure of communities, particularly in terms of livelihoods. Land use changes significantly impact the structure and functioning of ecosystems. (Liu et al. 2024). The demand for land in various production activities is driven by the evolving demand for different commodities. Generally, food demand is less elastic relative to income compared to the demand for non-agricultural goods. Food demand elasticities are crucial parameters in the calibration of simulation models used to assess the impacts of political reforms or to analyse long-term projections, notably in agricultural sectors (Femenia 2019). Consequently, economic development fueled by income growth tends to increase national demand for non-agricultural activities more rapidly than for agricultural goods. The rising demand for agricultural land creates a complex and contentious dynamic (Fauziaha, Kurniatib, and Imamulhad 2018)

RESEARCH METHODS

This paper employs a qualitative descriptive approach to systematically and accurately portray phenomena or relationships under investigation (Kusmayadi and Sugiarto 2000). The data gathered consists of qualitative information in the form of textual descriptions or narratives sourced from secondary data such as scholarly literature, government publications, and official documents. Data analysis involves qualitative, descriptive, and interpretative methods. The researchers gathered supporting data from pertinent books and academic journals that specifically address the efficacy of subak in mitigating agricultural land conversion. Findings are

presented qualitatively through verbal exposition utilizing interpretive descriptive analysis techniques. The steps in qualitative research comprise. (Pahleviannur et al. 2022):

1. Developing a conceptual framework, wherein this study utilizes a conceptual framework as a basis to develop existing theories concerning subak and its effectiveness in preventing land use conversion by establishing connections among existing concepts. This framework aids in expanding knowledge within this domain.
2. Formulating research problems involves identifying and delineating the research topic to be explored, as well as formulating research questions aligned with the research objectives. In this study, the focus of the issues to be analyzed pertains to the effectiveness of subak in the Jatiluwih Cultural Landscape World Heritage Site.
3. Selecting samples and limiting the scope of the study involves choosing participants or cases relevant to the research topic capable of providing deep insights into the phenomenon under investigation. This study will involve in-depth interviews with stakeholders such as relevant government officials, village heads, traditional village leaders, subak leaders, and subak members.
4. Instrumentation refers to the development and utilization of specific tools or techniques employed to collect and analyze data.
5. Data collection involves diverse processes to gather in-depth, descriptive, and contextual information about the researched phenomenon. This research will explore firsthand experiences and perspectives of stakeholders to understand strengths and weaknesses of existing systems. In-depth interviews will focus on their experiences in addressing land use conversion, with subak playing a frontline role in preventive actions.
6. Data analysis is an in-depth process to comprehend, interpret, and organize meaning from the collected qualitative data.

Testing conclusions involves a series of steps designed to ensure the validity, reliability, and accuracy of conclusions or findings derived from data analysis.

RESULT AND DISCUSSION

Based on the data analysis derived from literature studies and interviews, it can be elucidated that Subak represents a unique entity within an integrated farming system intertwined with local customs and culture. The rituals and behavioral patterns of Subak are governed by legal frameworks both locally and nationally. Various programs are implemented to ensure food security, highlighting Subak's role as a customary organization requiring protection for its existence. Reflecting on current realities, globalization significantly influences social activities, where social media serves as a platform for disseminating information, both positively and negatively. Bali, a prominent tourism destination, attracts widespread attention, leading to investments aimed at creating job opportunities; however, income disparity becomes a societal anomaly. In the agricultural sector, communities tend to convert land use due to uncertainties in agricultural yields. Consequently, land rental becomes preferable as an investment instrument, potentially undermining the agricultural sector, particularly Subak. As a Balinese customary organization, Subak plays a crucial role as a frontline defender in preventive actions to uphold agricultural existence and food security. Effective Subak operation necessitates stakeholder integration to preserve its designated status.

The effectiveness of the Subak system in ensuring the sustainability of agriculture is a significant issue, particularly given the ongoing annual land conversion. This land conversion is often attributed to a decrease in water supply. While regulations prohibiting land conversion are well established across various legal frameworks, including customary laws (*awig-awig*) and government regulations, challenges persist. The Subak system remains culturally robust and

active within its superstructural framework; however, its implementation has weakened, particularly in areas adjacent to urban centers.

Nevertheless, it is important to note that Subak still plays a direct role in effectively reducing land conversion. This is influenced by several key factors, including the mindset of Subak members, whose primary objectives are:

1. Maintaining agriculture as the primary livelihood,
2. Reflecting the Tri Hita Karana concept (palemahan), which views nature as a microcosmic manifestation of Ida Sang Hyang Widhi Wasa (God Almighty),
3. Preserving Subak not only as an agricultural organization but also as a traditional community organization that is recognized as a World Cultural Heritage, embodying socio-agrarian, religious, and economic values.

One of the primary challenges faced by Subak members in mitigating land conversion within the Jatiluwih World Cultural Heritage area is regulatory issues. Effective regulation creation requires hierarchical integration among stakeholders to ensure that the aspirations of the Subak community are met. This includes easier access to planting tools such as seeds and fertilizers, creating a sustainable trading climate from harvest to marketing, and clear, firm legal regulations. The dominant factor in reducing land conversion is the clarity and firmness provided by written laws and subordinate regulations. The awig-awig, a customary law of the Subak community, plays a crucial role in addressing land conversion by reinforcing certain points, such as stipulating that sold land must remain agricultural.

Subak, as a cultural heritage, is specifically protected and preserved under Bali Province Regulation No. 15 of 2023, which recognizes it as a socio-agrarian, religious, and economic traditional community that continues to evolve. The community has begun to adapt by utilizing renewable technology, facilitating easier rice field management for plowing, sowing (using drones), and harvesting (using combine harvesters). The optimal use of the Jatiluwih World Cultural Heritage area involves balancing economic and socio-cultural considerations, such as developing the Subak area into a sustainable tourism destination for activities like trekking and cycling, and leveraging its spiritual potential. This is done while maintaining the sacred radius around temples, thereby ensuring the preservation of agricultural areas and mitigating land conversion.

CONCLUSION

The primary challenge encountered by Subak members in addressing land conversion within the Jatiluwih World Cultural Heritage Area relates to regulatory issues. Harmonizing regulatory frameworks among stakeholders in a hierarchical manner fosters compliance, enabling the fulfillment of various Subak community aspirations. This includes facilitating access to agricultural inputs such as seeds and fertilizer, fostering a sustainable market environment from harvest to marketing, and ensuring legal clarity and certainty. Key to mitigating land conversion is the establishment of clear and enforceable written regulations within the legal framework. Awig-awig, which represents the customary laws of the Subak community, plays a crucial role in this effort by reinforcing specific provisions, such as the restriction that sold land must maintain its agricultural designation. Subak, recognized as a cultural heritage safeguarded under Bali Provincial Regulation No. 15 of 2023, is acknowledged as a socio-agrarian, religious, and economic institution integral to the evolving Balinese traditional community.

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