

Philosophy, Faith, and Water: Balinese Local Wisdom in Addressing Water Scarcity in Lombok

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Abstract

This study examines the role of Balinese local wisdom in Lombok in preserving water resources by emphasizing spiritual, cultural, and practical approaches that address water scarcity while promoting sustainable resource management. This research aims to analyze why and how Hindu belief-based local wisdom practices contribute to the preservation of springs amid increasingly complex environmental challenges. A qualitative approach was adopted, applying Talcott Parsons' structural functional theory and Koentjaraningrat's theory of religion as analytical frameworks. Data were collected through non-participant observation, semi-structured interviews with community members and religious leaders, and documentation conducted across Mataram City, West Lombok, and North Lombok. The findings indicate that Balinese Hindus perceive water as sacred and essential for sustaining life and prosperity. Belief systems embedded in rituals at Ulun Carik and Suranadi Temples cultivate ecological awareness and collective responsibility for protecting springs. Practical reliance on water resources also encourages careful utilization while maintaining sustainability for agricultural irrigation and food production. The study concludes that Balinese local wisdom in Lombok provides an effective model that integrates spiritual values with environmental stewardship. These findings offer valuable insights for policymakers, practitioners, and local communities seeking to integrate indigenous knowledge with modern technologies in addressing water scarcity and strengthening climate resilience in multicultural regions. The study further emphasizes that culturally embedded environmental ethics can complement formal conservation policies, encourage long-term community participation, reinforce sustainable water governance, preserve ecological balance, enhance adaptive capacity, support inclusive resource management, and inspire collaborative strategies for protecting springs against future environmental pressures and climate uncertainties.

INTRODUCTION

Water is a fundamental element for human survival and ecosystem sustainability worldwide (Aguiar et al., 2022; Jung et al., 2023; Salem et al., 2022; Uralovich et al., 2023). In recent decades, the availability of clean water has faced increasing pressure due to population growth, climate change, and unsustainable resource management practices. According to the latest World Bank report (2025), the world loses 324 billion cubic meters of

freshwater annually, an amount sufficient to meet the needs of 280 million people. This water loss is driven by intensifying droughts and unsustainable land and water management practices, including inadequate pricing policies, weak institutional coordination, deforestation, wetland degradation, and excessive irrigation. The same report notes that global freshwater reserves have declined by 3 percent annually over the past two decades, with more severe reductions in arid regions reaching 10 percent per year.

The problem of water scarcity not only affects environmental conditions but also generates significant economic and social consequences. In Sub-Saharan Africa, droughts cause between 600,000 and 900,000 people to lose their jobs each year, with disproportionate impacts on women, landless farmers, and low-skilled workers. More than two-thirds of inefficient irrigation practices in dry regions are associated with the cultivation of water-intensive crops, such as rice, wheat, cotton, corn, and sugarcane. Projection scenarios indicate that by 2040, approximately 60 percent of the global population will experience water stress, with widespread scarcity affecting most regions, including Southeast Asia.

Indonesia, as an archipelagic nation with a high dependence on the agricultural sector, faces significant challenges in managing water resources. Climate change poses a major threat to food, water, energy, and environmental security in Indonesia, where almost all regions are exposed to floods, landslides, soil erosion, droughts, and extreme rainfall events. The Indonesian government has responded to these challenges through integrated watershed management, which has become one of the key programs for reducing greenhouse gas emissions as outlined in the updated nationally determined contribution (NDC). However, government policies alone are insufficient without active involvement from local communities in water resource conservation efforts.

Lombok, one of the islands in West Nusa Tenggara Province, faces severe challenges related to water scarcity. Research indicates that more than 40 percent of major springs in Lombok have experienced drying due to deforestation. The South Lombok region, for instance, requires 151.90 liters per second of clean water to serve five sub-districts, with an additional requirement of 14,464 household connections. This condition is further exacerbated by the imbalance between water availability and increasing demand resulting from population growth and agricultural land expansion. Amid these complex challenges, the role of cultural and religious traditions in natural resource management has become increasingly relevant, particularly in multicultural regions such as Lombok.

Previous studies have examined the role of local wisdom in sustainable water resource management in Indonesia. Lestari et al. (2024), through a systematic literature review, found that the themes of "local wisdom, sustainability, and education" remain dominated by qualitative research approaches, indicating Indonesia's significant position and urgency in this field of study. Research by Basuki et al. (2022) demonstrates that the implementation of micro-watershed models supported by cultural values, local wisdom, and traditional knowledge within communities can enhance integrated watershed management. Surya et al. (2021) found that community empowerment, institutional capacity building, and community participation contribute positively to improving environmental quality and supporting sustainable management practices. Kedaton et al. (2024) examined the development of Embung Sanur in Bali as a metropolitan water conservation solution aligned with the Tri Hita Karana local wisdom concept. Other research in Tampaksiring shows that the clean water crisis occurs due

to environmental degradation and land conversion, while Tri Hita Karana is proposed as the foundation for water conservation efforts encompassing three essential dimensions of human relationships: maintaining harmony with God, fellow humans, and nature.

The research by Geria et al. (2023) extensively examines water-related rituals in Bali, particularly the subak system and the role of water temples in maintaining water resource sustainability, demonstrating that Balinese Hindu communities possess an integrated water management system incorporating spiritual dimensions. However, this research remains limited to the geographical context of Bali Island and does not explore the adaptation of similar practices among Balinese communities outside Bali. Research by Jupri and Kusuma (2019) examined the traditional values of the Topat War ritual for spring conservation in Lingsar, West Lombok, but focused primarily on general socio-cultural aspects and did not deeply investigate how Hindu belief systems specifically influence spring conservation practices among Balinese ethnic communities in Lombok. Research on community-based water management in Ghana by Akolgo and Ayentimi (2020), based on a structural functional theory perspective, demonstrates that community participation in water system management occurs through decision-making processes, rule formulation, and daily management activities conducted through regular meetings. However, traditional cultural practices, including taboos and social norms, are gradually declining and becoming less effective due to the influence of formal education and Christianity.

The research gap is identified in the limited number of studies that specifically explore the relationship between Hindu belief systems, religious rituals, and spring conservation practices conducted by Balinese ethnic communities who migrated and settled in Lombok. Geria et al. (2023) provide an in-depth understanding of water rituals in Bali but do not address the context of the Balinese diaspora in Lombok. Meanwhile, Jupri and Kusuma (2019) examine local wisdom in Lombok but do not specifically highlight the role of Hindu belief systems in water conservation practices among Balinese communities. No research has comprehensively analyzed how the worldview, belief systems, and practical needs of Balinese ethnic communities in Lombok interact in shaping sustainable spring conservation practices through an integrated framework combining structural functional theory and religious theory.

The urgency of this research is increasingly evident given the worsening conditions of water scarcity in Lombok and the potential of local wisdom as a community-based approach that can be integrated with formal conservation policies. Research by Akolgo and Ayentimi (2020) demonstrates that community participation in water resource management is reflected in decision-making processes, rule formulation, and daily management activities; however, limited government support and shifting cultural values remain significant challenges. This highlights the importance of documenting and strengthening surviving forms of local wisdom, such as those practiced by Balinese ethnic communities in Lombok, as a sustainable model for water resource management. Furthermore, Surya et al. (2021) show that institutional capacity building and community participation contribute positively to improving environmental quality, with a coefficient of determination of 78.5 percent.

The novelty of this research lies in three main aspects. First, this research specifically examines Balinese ethnic communities in Lombok as research subjects, representing a diaspora group with unique adaptations in maintaining water conservation traditions within a new socio-cultural and ecological environment. Second, this research integrates Talcott Parsons'

structural functional perspective and Koentjaraningrat's religious theory to analyze water conservation practices, an approach that has rarely been applied in similar studies. Third, this research explores the relationship between spirituality, religious rituals, and ecological conservation within a holistic analytical framework focusing on three dimensions: worldview, belief systems, and practical needs related to spring conservation. Research by Kedaton et al. (2024) in Bali demonstrates that metropolitan water conservation efforts can be aligned with the Tri Hita Karana concept; however, this research expands the discussion by examining its relevance within the Balinese diaspora context in Lombok. Recent research by Rahardjanto et al. (2025) on ecocultural practices in East Java, using a hermeneutic phenomenological approach to the Reresik Kali practice as a form of local wisdom for river conservation, further reinforces the relevance of studying local wisdom in water conservation.

This research aims to explore how Balinese ethnic communities in Lombok employ religiously grounded local wisdom to protect water resources, focusing on both philosophical and practical dimensions. This research argues that these traditions are not only spiritually meaningful but also contribute to ecological sustainability. The contribution of this research is to provide theoretical insights into the relationship between faith-based local wisdom and natural resource conservation by introducing an analytical perspective that connects religious theory with ecological practices and enriches the literature on natural resource management through cultural and spiritual approaches. The practical contribution of this research is to provide guidance for policymakers in integrating local wisdom into more inclusive and sustainable water conservation strategies, particularly in regions characterized by cultural diversity and environmental vulnerability, such as Lombok. By articulating the ethical and epistemological foundations underlying their water management practices, this research contributes to broader discussions on faith-based sustainability models applicable to similar multicultural and environmentally vulnerable contexts.

METHOD

This research adopted a qualitative approach to examine the complex and contextual nature of Balinese local wisdom practices in water conservation. By applying Talcott Parsons' structural functional theory and Koentjaraningrat's religious theory, this research analyzed how the Balinese ethnic community in Lombok maintained and preserved water sources through cultural and religious practices.

The research was conducted on Lombok Island, West Nusa Tenggara Province, focusing on three areas with significant Balinese ethnic communities: Mataram City, West Lombok Regency, and North Lombok Regency. These locations were selected due to the strong relationship between Balinese traditions, Hindu religious practices, and water conservation efforts, particularly those related to spring preservation.

This research employed a descriptive qualitative design. Data were obtained from primary and secondary sources. Primary data were collected through non-participant observation, semi-structured interviews, and documentation of local wisdom practices related to water conservation. Secondary data were obtained from relevant literature, archival records, and supporting documents.

Informants were selected using purposive sampling based on their knowledge and involvement in local wisdom practices related to water conservation. The informants consisted

of traditional leaders, Hindu religious leaders, and community members actively involved in spring conservation practices. A total of four informants participated in this research, with data saturation used as a consideration in determining the adequacy of the information collected.

The research process consisted of three stages: preparation, data collection, and data analysis. During the preparation stage, the research locations and informants were determined, and research instruments were prepared. Data collection involved non-participant observation of spring management activities, semi-structured interviews to explore community perspectives on local wisdom and water conservation, and documentation of relevant activities and records.

Data analysis followed the Miles and Huberman model, consisting of data reduction, data presentation, and conclusion drawing. The analysis process identified key themes and categorized findings related to spiritual practices, cultural values, and water conservation ethics. The findings were presented narratively to provide an understanding of Balinese local wisdom practices in water conservation and their contribution to sustainable natural resource management.

RESULTS AND DISCUSSION

Balinese local wisdom effectively contributes to maintaining water sources in Lombok through three primary aspects: (1) the worldview of ethnic Balinese toward water sources; (2) the belief system of ethnic Balinese regarding water springs; and (3) the essential need for water springs.

Ethnic Balinese *Worldview of Water Sources*

The word "worldview" comes from the German language "*weltanschauung*", combining *welt* (world) and *anschauung* (views, conceptions and perceptions). It is defined as "world-perception" or "vision of the world" (Alessiato, 2022; Hebel, 1999). A worldview represents a set of beliefs and values that shape an individual's understanding of reality and their place in it (Gaitho, 2022; Mifsud & Sammut, 2023). Worldviews are fundamentally formed within social environments influenced by cultural and social structures (Kamuri, 2021). As a social construct, religion plays a critical role in establishing a stable worldview, aiding individuals in achieving a sense of meaningful wholeness in life (Williams, 2020). Thomas F. Wall, a philosophy professor at Emmanuel College, asserts that worldviews underpin human behavior, including scientific and technological pursuits. He identifies worldviews as drivers of social change, frameworks for understanding reality, and foundations for scientific endeavors (Wall, 2001). In conclusion, a worldview reflects individuals' perspective or perception in their daily lives. This section examines the ethnic Balinese worldview in Lombok and its role in preserving water sources.

The ethnic Balinese in Lombok maintain water sources as part of a worldview shaped by Hindu teachings, particularly as outlined in the Rg Veda III.51.5. This scripture emphasizes that water, as a natural element, is a divine gift requiring protection and preservation. Accordingly, they view water as a precious resource for life and prosperity. Ritual practices, such as those performed at Ulun Carik Temple (Bedugul Temple) in agricultural areas, express reverence for Dewi Sri, a deity symbolizing fertility and abundance. The Rg Veda III.51.5 is as follows: "*indrāya dyāva osadhīr utāpo rayim raksanti jīrayo vanāni*"

Translation: Protect the sources of wealth in nature, such as the atmosphere, plants, medicinal herbs, rivers, water sources, and wilderness.

The Rg Veda underscores the necessity of safeguarding natural resources, particularly water. Water holds unparalleled importance for the survival of life on Earth. It is a critical component for various aspects of human existence, including agricultural activities, domestic needs, and industrial applications. In agrarian societies like the ethnic Balinese in Lombok, water is a material resource and a sacred element intertwined with cultural and spiritual practices.

Historically, the Balinese community in Lombok has regarded water as indispensable for agricultural success. They perceive it as a medium that connects humanity to the divine, facilitating blessings for fertility and abundance. Before commencing farming activities, they conduct rituals dedicated to God (*Brahman*), manifested as Dewi Sri, to seek divine intervention for favorable harvests. These ceremonies are performed at Ulun Carik Temple or Bedugul Temple, structures strategically located in rice fields or plantations and often near springs or flowing rivers. These sacred spaces serve as physical and spiritual anchors, reinforcing the symbiotic relationship between humans and nature.

As shared by Jero Mangku I Ketut Suarta (Interview, August 15, 2023), Hindus are known for their extensive rituals and temples tailored to specific activities, called Swagina temples. These temples are vital in emphasizing the spiritual responsibility of specific roles or professions. For farmers, the Ulun Carik Temples or Bedugul Temples are indispensable. These temples are situated in agricultural zones to honor and protect water sources, a testament to the recognition of water as a life-sustaining entity. One prominent example is the Sri Sedana Bedugul Temple in Cakranegara, Mataram City, specifically dedicated to Dewi Sri, the goddess of fertility and prosperity.



Figure 1: Spring at Bedugul Temple, Mataram City
(Source: Researcher's Personal Documentation, 2023)

In alignment with this perspective, Wiana highlights that Ulun Carik Temples or Bedugul Temples act as reminders for Balinese Hindus through rituals and religious ceremonies (Wiana, 2018, p. 169). These practices instill an inherent awareness of preserving natural resources like springs. This awareness stems from the belief that preserving water is not merely a practical necessity but a sacred duty ordained by God (*Brahman*). By intertwining

religious principles with daily agricultural practices, the ethnic Balinese's worldview ensures the sustainable management of water sources. Their commitment transcends generations, ensuring that the natural wealth entrusted to them is safeguarded for future generations.

Rituals performed at Ulun Carik or Bedugul Temple reflect respect for Dewi Sri, symbolizing fertility and prosperity. Based on functional structural theory, the analysis of ethnic Balinese worldview in protecting springs can be explained through the AGIL scheme (Adaptation, Goal Attainment, Integration, Latency):

1. Adaptation: Balinese communities in Lombok can adapt to environmental challenges by integrating Hindu teachings into conservation practices. Rituals at Ulun Carik Temple are not only a spiritual tool but also an adaptive strategy to ensure the spring's sustainability as the main irrigation source. This ritual allows them to cope with environmental changes, such as rainfall fluctuations.
2. Goal Attainment: The community's primary goal is to preserve the spring to support life and agricultural sustainability. They collectively set and achieve conservation goals through reverence to Dewi Sri, such as protecting the spring from exploitation or damage.
3. Integration: Rituals performed at Ulun Carik or Bedugul temples strengthen social relations between community members. The ceremonies serve as a means to strengthen social solidarity while spreading conservation values between generations. This interaction ensures a harmonious relationship between people, communities, and the natural environment.
4. Latency: Religious traditions help renew individual motivations and cultural patterns to conserve springs. Ceremonies at Pura Ulun Carik raise spiritual awareness and maintain the community's commitment to natural resource conservation as part of their cultural identity.

In addition to the rituals at Ulun Carik and Bedugul temples, there are religious activities at Kaweri Temple that focus on honoring Dewi Sri and the sustainability of the spring. Jero Mangku Nyoman Sudirman (interview, 13 August 2023) explained that this temple is the center of rituals that strengthen the community's spiritual relationship with water resources, especially in irrigated rice fields. Pelinggih Dewi Sri in this temple is an important symbol connecting the community with nature and religious values.

At Suranadi Temple, *melukat* (self-purification) and circumambulation rituals are performed at six well-preserved springs. According to Jero Mangku Ida Bagus Hejra (interview, August 16, 2023), these springs also fulfill the domestic needs of the surrounding community, such as consumption, bathing, and washing. This practice not only has a spiritual dimension but also reinforces conservation values that support ecological sustainability.

These two temples reflect the implementation of the AGIL scheme, where Adaptation is realized in the utilization of water resources for daily needs, Goal Attainment is seen in clear conservation goals, Integration is achieved through collective participation in rituals, and the preservation of traditions and religious symbols strengthens Latency. With this approach, Balinese local wisdom can maintain the sustainability of water resources while strengthening the harmony between humans, nature, and spirituality.

Balinese Ethnic Belief System Towards Water Springs

The ethnic Balinese, who are predominantly Hindu, base their lives on the Three Basic Frameworks of Hinduism. These three pillars: *tattwa* (philosophy), *susila* (ethics), and *acara*

(rituals); guide Hindus in understanding and applying religious teachings in daily life (Gunawijaya, 2020; Upadana, 2020). These frameworks work synergistically, particularly influencing the Balinese ethnic belief system concerning water springs.

The Balinese community in Lombok views water as a sacred symbol of Brahman, manifested as Lord Vishnu, the preserver of the universe. This belief underscores water's vital role in sustaining fertility and life on Earth. As stated in the Purana Sri (Ananda, 2023, p. 87): *If someone wants to start working in the fields, it is appropriate to offer devotion to Lord Vishnu so that he is willing to pour water as needed so that the plants become fertile in the farming order. He is also called Sang Kandhyawan."*

This statement is confirmed by Jero Mangku Nyoman Sudirman, a religious leader at the Kaweri Temple (Interview, August 13, 2023). He emphasized that the springs in the Kaweri Temple area play a crucial role in irrigating rice fields. The temple houses a shrine dedicated to Dewi Sri, the consort of Lord Vishnu and goddess of fertility. Devotees frequently visit the site to perform rituals and prayers, seeking blessings for abundant harvests.



Figure 2: Statue of Dewi Sri (Goddess of Fertility) in Kaweri Temple Area, West Lombok
(Source: Researcher's Personal Documentation, 2023)

The visual evidence and informants' testimonies affirm that springs are intrinsically linked to the Balinese understanding of Brahman's omnipotence, particularly as Lord Vishnu. This connection aligns with Koentjaraningrat's theory of religious systems which identifies belief systems and ceremonial tools as core elements of religion. These tools symbolize specific religious concepts, such as the *pelinggih* (shrine) dedicated to Dewi Sri near springs.

Balinese belief systems align closely with Koentjaraningrat's five components of religious theory. Religious emotions drive the community's devotion, which is evident in rituals such as offerings and prayers at Kaweri Temple. The Balinese believe water symbolizes Brahman's omnipotence, connecting ecological preservation with spiritual devotion. Rituals such as *melukat* and *pengelukatan* (purification) at Pura Suranadi reinforce this connection by symbolizing the sacredness of water as a life-giving force.

The religious community collectively upholds and transmits these values through active participation in ceremonies and stewardship of water springs. Ritual equipment, such as the

pelinggih (shrine) at Kaweri Temple and holy water at Pura Suranadi, embodies religious concepts while supporting ecological conservation. These tools symbolize the intertwining of cultural and environmental sustainability.

Integrating religious beliefs with environmental stewardship demonstrates the Balinese community's commitment to sustaining water springs. Through rituals and belief systems, they harmonize their spiritual practices with practical measures, ensuring water resources remain abundant for future generations.

The Need for Spring Water

The ethnic Balinese view water as a source of life that must be preserved. The community adheres to obligations and avoids prohibited practices to maintain its sustainability. The teachings of Tri Hita Karana serve as a philosophical guideline in their daily lives. Tri Hita Karana encompasses three causes of harmony: Parahyangan, which emphasizes a harmonious relationship between humans and the Creator (Brahman); Pawongan, focusing on harmonious relationships among humans; and Palemahan, advocating a harmonious relationship between humans and the environment. These principles form the ethical foundation for protecting springs, vital life sources.

Jero Mangku Ida Bagus Hejra, a *pinandita* (clergy) and caretaker at Suranadi Temple, stated that the temple area hosts six well-preserved springs (Interview, August 16, 2023). He explained: "*There are six springs in this Suranadi temple area. These springs include kelebutan tirta cleansing, used for melukat (ritual cleansing); kelebutan petirtaan and pengelukatan in the upstream areas; and tirta pengentas and toya tabah in the pengentas temple area. The Balinese community in the Suranadi area maintains these springs by avoiding practices like careless tree-cutting, as the springs' sustainability is deeply connected to the surrounding trees*".



Figure 3: The Main Area of the Suranadi Temple Mandala, West Lombok, with a Beautiful Tree Background

(Source: Researcher's Personal Documentation, 2023)

Water is an essential resource for human survival, serving as a fundamental element in supporting metabolic processes. As sacred natural water sources, springs play a pivotal role in fulfilling the household needs of surrounding communities, including consumption, cooking,

bathing, and washing. It aligns with the Hindu philosophical view of nature, wherein water (*apah*) is considered sacred and vital for sustenance and purification.

As conveyed by I Made Darma Putra (Interview, 31 August 2023), the community residing around the Suranadi spring utilizes its water, sourced from the *kelebutan*, for drinking, cooking, bathing, and washing. The community recognizes the water's inherent purity, describing it as clean, fresh, and naturally uncontaminated. Reflecting traditional practices, residents collect this water in containers, such as gallons, to meet their domestic needs, particularly for drinking and cooking. This practice exemplifies the sustainable utilization of natural resources, deeply embedded in Hindu cultural values that emphasize harmony between humans and nature.



Figure 4: Ethnic Balinese community utilising spring water from Suranadi Temple for daily needs.

(Source: Researcher's Personal Documentation, 2023)

A similar perspective was shared by Jero Mangku Nyoman Sudirman (Interview, 13 August 2023), who highlighted the presence of six springs within the Kaweri Temple complex. These springs, characterized by a substantial discharge, are revered for their sacredness and utilized by the surrounding community for daily activities such as bathing and washing. To accommodate these needs, a dedicated facility in the form of a bathhouse has been constructed, featuring separate bathing areas for men and women to uphold privacy and cultural norms.

The use of these springs follows a specific rhythm dictated by practical and environmental considerations. According to Jero Mangku Nyoman Sudirman, the community primarily uses the springs for bathing in the afternoon, as the water is typically too cold in the morning for comfortable use. However, children occasionally use the springs during the day, often on their way home from school, engaging in playful activities such as soaking or splashing water in the designated bathing areas. This practice reflects the multifunctional role

of springs in the community, not only as a source of sustenance but also as spaces for social interaction and cultural engagement.



Figure 5: The location of the baths at the spring of the Kaweri temple that was created.
separate for men and women

(Source: Researcher's Personal Documentation, 2023)

Based on informants' narratives and visual evidence, it is evident that the Balinese ethnic community demonstrates a profound commitment to preserving the natural environment surrounding Kelebutan (springs). This is reflected in their practice of avoiding indiscriminate tree-cutting and ensuring the area's ecological integrity. When contextualized within the concept of Tri Hita Karana, this behavior aligns with the principle of *Palemahan*, which emphasizes maintaining a harmonious relationship between humans and nature. This symbiosis is rooted in the understanding that humans depend on nature for essential resources like water. In contrast, nature, in turn, relies on human stewardship to sustain its ecological balance. When humans care for nature responsibly, nature reciprocates by fulfilling human needs sustainably.

The rural communities in Narmada and Lingsar sub-districts exemplify this principle through their continued reliance on traditional agricultural and fisheries systems. The presence of springs in these areas provides a significant advantage, as noted by I Made Darma Putra (Interview, 31 August 2023). He highlighted that the springs in the Suranadi area greatly benefit the local community, particularly those engaged in agriculture. Farmers are not required to rely solely on rainfall to irrigate their fields, as the springs provide a stable water source, even during the dry season. The water flow from the springs within the Suranadi Temple area is consistently channeled directly to rice fields, ensuring uninterrupted irrigation. This reliable water supply is regarded as a blessing by the community, forming the foundation of their commitment to preserving these springs for future generations.

The community's proactive measures to maintain the sustainability of the springs underscore their awareness of the critical importance of these resources. By safeguarding the springs from depletion and ecological degradation, they mitigate the risk of drought, which has severely impacted other areas in Lombok. This integrative approach to resource management

reflects a deep understanding of the interconnectedness of human and environmental well-being, rooted in traditional Balinese values and cultural wisdom.



Figure 6: Rice Fields Around the Spring of Pura Suranadi Temple
(Source: Researcher's Personal Documentation, 2023)

A similar observation was shared by Jero Mangku Nyoman Sudirman (Interview, 13 August 2023), who emphasized that the community surrounding Kaweri Temple recognizes the critical importance of water resources. This recognition has driven the community to actively build, manage, and preserve the springs within the temple area. The reliable water flow from these springs is essential for daily household use and a vital resource for agricultural activities.

For farmers in the region, these springs provide a stable and consistent water supply, ensuring the irrigation of agricultural land throughout the year. It alleviates concerns about water scarcity, even during the dry season, and highlights the springs' role as a cornerstone of agricultural sustainability. The community's dedication to maintaining these water sources reflects a collective understanding of the interdependence between environmental stewardship and the well-being of local livelihoods.



Figure 7: Rice Fields around Kaweri Narmada Temple
(Source: Researcher's Personal Documentation, 2023)

Rice is one of the staple foods of the Indonesian population, including the people of Lombok. Consequently, the preservation and productivity of rice fields are crucial for maintaining national food stability. In 2022, the agricultural land dedicated to rice cultivation in West Nusa Tenggara Province covered 270,093 hectares. Below is the detailed data on the paddy harvested area by regency/municipality in West Nusa Tenggara for 2021–2022:

Table 1: Agricultural Land Data for Rice Crops in NTB Province in 2021-2022

Regency/Municipality	Harvested Area (hectares) 2021	Harvested Area (hectares) 2022	Absolute Change (hectares)	Relative Change (%)
West Lombok	25,413	26,863	+1,450	+5.70
Central Lombok	71,897	70,264	-1,633	-2.27
East Lombok	45,173	42,713	-2,460	-5.45
Sumbawa	55,840	55,173	-667	-1.19
Dompu	17,986	17,052	-934	-5.19
Bima	36,990	35,365	-1,625	-4.39
West Sumbawa	12,633	12,421	-212	-1.68
North Lombok	5,341	5,475	+134	+2.51
Mataram city	2,623	2,567	-56	-2.14
Bima City	2,516	2,200	-316	-12.56

(Source: BPS NTB, 2023 in <https://ntb.bps.go.id/>)

The data presented highlights notable variations in the harvested paddy areas across the regencies and municipalities of West Nusa Tenggara Province. In particular, West Lombok Regency experienced an increase in harvested area, from 25,413 hectares in 2021 to 26,863 hectares in 2022, representing a growth of 1,450 hectares (+5.70%). This positive trend indicates the region's effective water resource management, critical for wetland rice farming.

Rice cultivation, particularly in wetlands, relies heavily on a consistent and sufficient water supply throughout its growth cycle—from planting to harvesting. Springs are essential in sustaining this water supply, providing a stable and natural source less dependent on rainfall. For farmers with agricultural land near springs, water shortages are rarely a concern, even during dry seasons, as long as the sustainability of these springs is maintained.

The correlation between the availability of springs and rice farming productivity underscores the importance of preserving water sources. It is particularly evident in West Lombok Regency, where the increase in harvested area is likely linked to the reliable water supply provided by nearby springs. The ethnic Balinese community in Lombok demonstrates a strong cultural commitment to preserving these springs, guided by the traditional principles of Tri Hita Karana, which emphasize harmony between humans and the environment.

Conversely, other regencies, such as East Lombok (-2,460 hectares, -5.45%) and Bima (-1,625 hectares, -4.39%), experienced decreases in their harvested areas. These declines could be associated with water shortages, improper irrigation management, or land-use changes. The contrasting trends across regions reinforce the critical role of sustainable water resource management in supporting agricultural productivity.

The ethnic Balinese in Lombok conduct a comprehensive approach to spring water management. It illustrates a deep understanding of the interconnectedness between human and

environmental well-being. By upholding the principles of Tri Hita Karana, they ensure a harmonious relationship with nature that sustains water resources for domestic and agricultural needs. This holistic practice integrates spiritual reverence, ecological stewardship, and cultural wisdom, creating a sustainable resource management model. Springs like those in Suranadi and Kaweri play multifunctional roles, supporting daily sustenance and acting as centers for social and cultural activities. By maintaining these vital resources, the community safeguards its agricultural productivity, reinforces social cohesion, and preserves the sanctity of its natural heritage for future generations.

The Role of Spirituality and Local Wisdom in Sustainable Water Resource Management: Insights from Lombok's Balinese Community

This research reveals the important role of Balinese local wisdom in Lombok in preserving water resources, particularly through practices that integrate spiritual values with nature management. This finding aligns with previous studies showing the relationship between local wisdom and water resource sustainability. For example, research in Selamat Village shows that the community prohibits tourist access to Alur Batu Waterfall to preserve the water source (Sari et al., 2023). Similarly, in Bali, the Tri Hita Karana philosophy that underlies the management of drinking water systems by communities demonstrates local wisdom-based efforts to ensure the sustainability of water sources (Arsana et al., 2022). However, this study is different as it emphasizes the relationship between religious ritual practices in Hinduism and water source preservation, which has not been explored in previous literature.

This research also finds similarities with other findings that suggest that community-based water management can provide significant sustainability benefits. For example, in Temanggung, Central Java, the community has an *ili-ili* institution that regulates water distribution to prevent conflict (Finariyah & Masruroh, 2021), as well as in Danowudu, which uses customary rules to preserve the forest that acts as a water source (Tallei & Sumarto, 2012). The local wisdom in these two cases demonstrates a community-based approach to safeguarding water resources, which is also reflected in the practices found in Lombok. However, this study differentiates itself by highlighting the dimensions of religion and spirituality as a driving force that integrates moral aspects in nature management, a perspective that is less frequently discussed in other studies.

In addition, this research shows that local knowledge can work together with modern technology to maintain the sustainability of natural resources, as shown in the traditional water tank system in Sri Lanka that combines local knowledge with modern techniques for irrigation (Bebermeier et al., 2023), as well as in Tanzania that uses local innovations to overcome water scarcity (Liwenga, 2008). In Lombok, despite the application of local knowledge, the community has also begun to adopt modern technology to improve water management efficiency. Still, traditional values remain the main foundation in preserving nature.

The larger phenomenon from this research is the need to recognize cultural values in natural resource management. Local wisdom not only serves as a link between generations in preserving nature but can also be a solution to overcoming the increasingly alarming global water crisis. The implication of the results of this research is the importance of strengthening policies that support the recognition of local wisdom in natural resource management. The results of this study show that community-based water management that integrates religious

and cultural values can strengthen the sustainability of nature and help communities adapt to the challenges of climate change.

Why do the results of this study show the importance of spiritual values in natural resource management? Because communities that view nature as an entity to be respected and preserved tend to be more successful in maintaining the sustainability of their natural resources. Therefore, it is important to involve communities in any decision-making process related to water management by considering their cultural and religious values. The next step is to develop policies that encourage the integration of local wisdom and modern technology in water management and strengthen research on the social and economic impacts of culturally-based water management to produce a more inclusive and sustainable model.

CONCLUSION

This study concludes that the local wisdom of the Balinese ethnic community in Lombok regarding water source preservation is closely interconnected across three dimensions: worldview, belief systems, and practical needs for water resources. The research findings demonstrate that the Balinese community's worldview, shaped by Hindu teachings, particularly those reflected in the Rg Veda III.51.5, perceives water as a sacred divine gift essential for sustaining life and prosperity. This worldview is manifested through ritual practices at temples such as Ulun Carik, Bedugul, and Kaweri, which express reverence for Dewi Sri as a symbol of fertility and abundance. The belief system integrates the three basic frameworks of Hinduism—*tattwa* (philosophy), *susila* (ethics), and *acara* (rituals)—which collectively guide the community's interpretation and application of religious teachings. Within this framework, water is regarded as a sacred manifestation of Brahman associated with Lord Vishnu, the preserver of the universe, reinforcing the essential role of water in sustaining fertility and life. The practical need for spring water encourages the community to utilize these resources sustainably for domestic purposes, including drinking, cooking, bathing, and washing, while simultaneously ensuring their preservation for agricultural irrigation and food production. This is evidenced by the consistent water availability from springs in Suranadi and Kaweri, which continue to support reliable irrigation during dry seasons.

The integration of spiritual reverence, ecological stewardship, and cultural wisdom forms a sustainable resource management model that provides valuable insights into addressing water scarcity challenges. This research demonstrates that faith-based local wisdom contributes to water resource preservation and environmental sustainability by integrating spiritual values with practical conservation practices. Collective participation in religious ceremonies strengthens social solidarity and facilitates the intergenerational transmission of conservation values, creating a harmonious relationship among individuals, communities, and the natural environment. This holistic approach aligns with the principles of *Tri Hita Karana*, which emphasizes harmonious relationships with the Creator (*Parahyangan*), among humans (*Pawongan*), and with nature (*Palemahan*). These principles serve as an ethical foundation for protecting springs as essential sources of life. By maintaining these traditional values, the Balinese community in Lombok demonstrates that sustainable water management can be achieved through the integration of cultural knowledge and practical conservation

strategies, providing a potential model for community-based conservation that may be adapted to similar multicultural and environmentally vulnerable contexts worldwide.

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