

## **Gumbregan as a Cultural Expression of Sustainability Principles**

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### **Abstract**

Climate change and its connection to sustainability have emerged as prominent issues on the global stage. This study investigates how sustainability principles are embedded within Indonesia's local traditions and indigenous wisdom. A notable example is the Gumbregan tradition, a culturally rich practice regularly observed in Jepitu Village, Gunungkidul Regency, Special Region of Yogyakarta, Indonesia. Accordingly, this research seeks to explore the implementation of sustainability principles in the Gumbregan tradition. As a unique cultural heritage passed down through generations, the Gumbregan ritual involves offering food to livestock with hopes for their continued health and safety. Utilizing a qualitative case study approach and descriptive analysis, data were collected through interviews and analyzed using the stages of data collection, reduction, display, and conclusion. The key insights were then mapped against the 17 United Nations Sustainable Development Goals (UN SDGs). The findings indicate that the tools and rituals involved in Gumbregan align closely with SDG 11 and SDG 12. Furthermore, the tradition embodies strong elements of social capital and spirituality, which serve as catalysts for advancing sustainability objectives. This study offers a novel perspective by examining the Gumbregan tradition through the lens of sustainability, in contrast to prior research which has predominantly focused on its religious and cultural dimensions.

**Keywords:** Gumbregan tradition, sustainability, spirituality, social capital

### **1. Introduction**

Sustainability has emerged as a central topic in contemporary global discourse due to its critical importance for the long-term survival of humanity, the resilience of ecosystems, and the stability of socio-economic systems. Around the world, governments, international organizations, and civil society are increasingly recognizing the urgent need to embed sustainability principles into policy, development planning, and daily life. Sustainability is grounded in three interdependent

pillars: environmental integrity, social equity, and economic viability (Purvis et al., 2019). Among these, the environmental dimension has gained heightened global attention, particularly in light of escalating climate crises, biodiversity loss, and natural resource depletion. Ecological degradation is now widely acknowledged as a key driver accelerating climate change, threatening the global commons and disproportionately affecting vulnerable communities (Longo et al., 2025). This shared global challenge necessitates collaborative action across borders, integrating both modern scientific approaches and traditional ecological knowledge.

Climate change has become one of the most pressing threats to sustainability at the global level. Among the most severe consequences is the increasing prevalence of extreme weather events, which currently represent the greatest risk to global populations, affecting an estimated 66% of the world's population (World Economic Forum, 2024). The World Meteorological Organization (WMO) has likewise reported escalating occurrences of climate-related disasters, including tropical cyclones, windstorms, floods, droughts, and temperature extremes (World Meteorological Organization, 2025). In addition to these events, the WMO has highlighted their cascading effects on food security and displacement of populations. Other international institutions have raised similar concerns, citing the adverse effects of climate change on socio-economic development, poverty levels, migration patterns (The World Bank Group, 2021), agricultural systems and food availability (Food and Agriculture Organization of United Nations, 2024), and public health outcomes (World Health Organization, 2024). In response to these growing challenges, the United Nations introduced the 17 Sustainable Development Goals (SDGs) in 2015 under the 2030 Agenda. These goals aim to eradicate poverty, safeguard the planet, and ensure the well-being of all humanity by the year 2030 (United Nations, 2015).

Environmental degradation continues to threaten sustainability across various geographical scales. In the South China Sea, unchecked development activities have led to the destruction of ecosystems and coral reefs (Tempo, 2024). Similarly, mining operations in Raja Ampat have drawn global concern due to their detrimental impact on the region's renowned underwater biodiversity (Antara, 2025). At the local level, cases of environmental harm are also evident, such as the illegal mining activities in Sampang and Serut Villages in Kapanewon Gedangsari, which have caused significant ecological disruption (Rinepta, 2024). Other notable concerns include the illegal dumping of waste that contaminates river ecosystems (Yuwono & Putri, 2024), and the privatization of coastal areas, which restricts community access and undermines efforts to promote inclusive, community-based tourism (WalhiJogja, 2024).

Failures in accountability related to natural resource management can pose serious threats to sustainability. These include disruptions to the electrical grid, damage to agricultural irrigation systems that may result in crop failure and jeopardize food security, contamination of clean water sources leading to public health risks, and the social exclusion of local communities caused by the privatization of tourism areas. The recurrence of such sustainability-related challenges in Gunungkidul has prompted this study to investigate how local cultural traditions may serve as a vehicle for implementing sustainability principles. To the best of the author's

knowledge, scholarly research exploring the cultural traditions of Gunungkidul from a sustainability perspective remains limited.

A considerable body of research has explored the local cultural traditions of Gunungkidul, with the Apostolic tradition being among the most extensively examined. Previous studies have addressed this tradition from various perspectives, including the symbolic significance of the apostolic figure in society (Rokhman, 2024), the Muslim community's perception of its sanctity (Kuswanto et al., 2021), and its underlying philosophy and meaning (Dyah Novarel et al., 2021). In contrast, academic attention to the Gumbregan tradition remains sparse. To the best of the author's knowledge, there is a noticeable lack of empirical research focusing on this specific tradition. One of the earliest scholarly efforts was conducted by Nasution (2022), who explored the living hadith dimension of the Gumbregan tradition and identified its association with prophetic teachings on gratitude. Additional research has examined theological concepts embedded within the Gumbregan tradition (Triyono et al., 2024). Despite these contributions, existing literature predominantly emphasizes the religious aspects of the tradition, while its philosophical relevance to sustainability—especially in the context of Gunungkidul's environmental and social conditions—remains largely unexplored. This research gap serves as the primary motivation for the present study, which seeks to examine the Gumbregan tradition through the lens of sustainability.

The Gumbregan tradition is believed to have a strong connection with the concept of social capital. Social capital refers to the networks, norms, and shared values that facilitate coordination and cooperation for mutual benefit (Putnam, 1995). It encompasses key elements such as trust, reciprocity, social networks, and civic engagement. Among these, trust plays a pivotal role in advancing sustainability goals, particularly by fostering collaborative efforts in the conservation of natural resources. When trust exists among community members, it enhances collective action in managing shared resources like forests (Bluffstone et al., 2020). Furthermore, social cohesion and community integration contribute to more favorable attitudes toward environmental stewardship, thereby strengthening community participation in conservation activities (Shemshad et al., 2025).

Another essential component of social capital is the network. Within the sustainability context, social networks play a crucial role in promoting the diffusion of knowledge and the adoption of sustainable innovations (Reddy et al., 2021). Employees who collaborate with sustainability champions from other departments via project-based teams tend to adopt environmentally friendly practices more quickly and effectively. This is largely due to their simultaneous exposure to innovative ideas and practical learning through interpersonal engagement. Well-integrated and cohesive social networks enhance the circulation of resources and the exchange of novel solutions, making them particularly valuable in advancing sustainability-driven innovations (Reyes Bautista et al., 2025).

Reciprocity plays a significant role in fostering collective environmental stewardship. Evidence from a case study of a community-based forest management group in Oregon, USA,

demonstrates that reciprocal relationships—both at the individual and organizational levels—serve as a catalyst for collective action in forest conservation efforts (Sturtevant, 2006). The study suggests that reciprocity functions not merely as a social norm, but as a practical strategy to build consensus and facilitate cooperative decision-making in environmental management.

A third key dimension of social capital is social norms, which serve as regulatory mechanisms for pro-environmental behavior. Environmental norms are shown to promote the adoption of sustainable practices such as recycling, minimizing single-use plastic consumption, and other climate-conscious actions (Perry et al., 2021). Both descriptive norms (what people typically do) and injunctive norms (what people ought to do) are effective in encouraging environmentally responsible behaviors and fostering a culture of sustainability (Saracevic & Schlegelmilch, 2021).

Community participation plays a pivotal role in enhancing accountability within village development initiatives. When communities are actively engaged—from the planning stages to the monitoring of implementation—the effectiveness and transparency of local development projects tend to improve significantly (Fiala & Premand, 2025). In the Indonesian context, rural villages—many of which function as indigenous communities—are characterized by strong social capital, particularly in the form of mutual trust and collective cooperation. These social attributes are key enablers of sustainability, especially in the protection of natural resources such as forests and water sources, as they promote social control and a shared sense of responsibility. A notable example is the *subak* irrigation system in Bali, which exemplifies sustainable resource management through deeply rooted social networks and customary norms that are rigorously followed by the local community.

Within this framework, the Gumbregan tradition is not merely a ritual involving offerings to livestock; it also embodies profound philosophical values related to communal harmony, environmental ethics, and sustainable living.

1. Spiritual value

The Gumbregan tradition is deeply rooted in spiritual meaning. It serves as a sacred medium through which community members express their prayers and hopes to God Almighty, seeking protection and well-being for their livestock.

2. Ecological value

This tradition also embodies ecological awareness. The use of agricultural produce as ritual offerings, biodegradable materials such as leaves for food wrapping, and the reuse of food waste exemplify environmentally conscious practices embedded in the ritual.

3. Value of Solidarity and Mutual Cooperation

The people of Gunungkidul are renowned for their strong sense of *gotong royong* (mutual cooperation), solidarity, and communal unity. Cultural traditions, including Gumbregan, are consistently carried out through collaborative efforts among community members, traditional leaders, and local government representatives.

4. Cultural Preservation

The preservation of cultural heritage is evident in the community's unwavering commitment

to uphold and practice the Gumbregan tradition from generation to generation. Every *Wuku Gumbreg*—a specific cycle in the Javanese calendar—residents faithfully observe the tradition in accordance with long-standing customs.

### *1.1. The Role of Cultural Traditions, Indigenous Knowledge, and Social Capital in Supporting Sustainability*

Environmental accounting frameworks generally involve three key stages. The first focuses on harmonizing ecological preservation with corporate interests, the second emphasizes building closer relationships between companies and local communities, and the third promotes collaboration among corporations, communities, and government entities (Anindita & Hamidah, 2020). Across all these stages, the role of the community is vital—particularly in relation to local culture and indigenous wisdom, which are inherently embedded within community life and cannot be separated from sustainability practices. Although the concept of sustainability may seem unfamiliar to rural communities in terms of formal terminology, they often practice its core principles through longstanding cultural traditions. The implementation of sustainability is thus inherently linked to issues of governance and accountability. A relevant example can be seen in the *Tabu-tabuan* fishing practices in the Central Philippines, which have been institutionalized within local governance structures. This integration illustrates a resilient model of community-based conservation that aligns with sustainability objectives (Maliao et al., 2023).

Local wisdom plays a crucial role in embedding the principle of accountability within community practices. Research on the cultural traditions of the Toraja people, for example, reveals dimensions of accountability that are applicable to the context of local governance (Randa & Daromes, 2014). In the same region, the *Rambu Solo* funeral ceremony reflects various layers of accountability, including emotional, socio-cultural, and material responsibilities (Paranoan, 2015). In Bali, the *Subak* irrigation system illustrates the embodiment of financial accountability through communal water resource management (Darmada et al., 2016). Similarly, in Legian, Bali, a study of the Village Credit Institution (LPD) found that tax compliance was expressed through corporate social responsibility initiatives grounded in the *Tri Hita Karana* (THK) philosophy (Darmayasa & Aneswari, 2016). This philosophy, which emphasizes the harmonious relationship between humans, nature, and the divine, also shaped accountability practices among village leaders (Putra & Muliati, 2020). Beyond Bali and Toraja, similar values are evident in other cultural and religious settings. In Sayung District, Demak, for instance, the promotion of individual moral development among village officials—through character-building efforts focused on faith, gratitude, patience, and righteousness—has been shown to reduce the incidence of fraudulent behavior (Wijayanti & Hanafi, 2018).

Local culture and traditional wisdom encompass not only notions of accountability but also non-material values that shape community practices. For instance, in traditional fish markets, pricing decisions are influenced by elements of emotional connection and mutual trust, reflecting a deliberate departure from purely economic calculations in determining the cost of goods sold (Antong & Riyanti, 2021). This emphasis on interpersonal values is also evident in traditional water management systems, where kinship ties significantly shape governance practices

(Kharmylliem & Kipgen, 2025). Likewise, the *Sekaa Suka Duka* organization in Bali exemplifies non-material values such as mutual respect, solidarity, and cooperation, as community members routinely assist one another in both joyous and sorrowful occasions (Musmini & Sirajudin, 2016).

Intangible or non-material values are closely intertwined with the concept of social capital and, by extension, social accounting. Forms of social capital—such as bonding, bridging, and linking—have proven effective in mobilizing both internal and external resources, as demonstrated in the case of community-run grocery stores in rural Denmark (Gandrup, 2025). Social capital is also deeply embedded in various local traditions. For example, funeral rituals in Tana Toraja exemplify social capital through collective cooperation and familial solidarity (Abdurahim, 2015). Similarly, the *Subak* system among Balinese transmigrant communities illustrates how traditional water management is sustained through strong social networks and community norms (Niswatin & Mahdalena, 2016). In Javanese culture, the wayang character Yudhistira also symbolizes the ethical and communal dimensions of social capital (Natalia, 2022).

Social capital plays a vital role in advancing sustainability, particularly within the domain of social sustainability. Collaboration is a key factor in shaping and strengthening social capital. Each individual—whether in a community or organizational setting—performs distinct roles that influence interpersonal dynamics and team effectiveness (Moczulska et al., 2025). This also applies in digital or virtual work environments, where individual relationships continue to affect organizational cohesion (Canals et al., 2025).

Empirical findings in rural solid waste management reveal that team performance, as indicated by waste management scores, is strongly correlated with the level of social capital within the community (Alipour et al., 2025). Furthermore, social capital significantly contributes to the sustainable management of natural resources for tourism purposes. The integration of culturally embedded practices with ecological assets enhances the appeal of tourist destinations while simultaneously delivering economic and social value to local communities. Such synergy ultimately supports the economic sustainability of the region (Setini et al., 2025).

## **2. Methods and Material**

This study employs a qualitative case study approach supported by descriptive analysis. Data were obtained through direct interviews with selected informants who play key roles in the Gumbregan tradition. All data were collected through in-person interviews. The list of informants is presented in Table 1 below:

Table 1. List of Informant Names

Method	Name	Role Description
Interview	Mr. A	Traditional leader
Interview	Mr. B	Village head
Interview	Mr. C	Family breeders and farmers
Interview	Mrs. D	Female figure
Interview	Mr. E	Youth representative

These individuals were chosen based on their familiarity with the symbolic and philosophical meanings of ritual components, their understanding of ceremonial procedures, and their involvement in planning and organizing the event. The informants represent five distinct groups: traditional leaders, village authorities, livestock-owning family farmers, female community figures, and youth representatives.

The interview data were analyzed by aligning the responses with the indicators outlined in the 17 United Nations Sustainable Development Goals (UN SDGs). SDG 1 targets the eradication of poverty, with key indicators including per capita consumption and equitable access to economic resources. SDG 2 focuses on achieving food security and promoting sustainable agriculture, particularly ensuring food access for vulnerable groups such as the poor, pregnant women, the elderly, and children. SDG 3 aims to promote health and well-being for individuals across all age groups. Education is addressed under SDG 4, while SDG 5 seeks to advance gender equality. Access to clean water and sanitation, recognized as essential to human health, is the focus of SDG 6. SDG 7 emphasizes the need for affordable and sustainable energy. Decent employment opportunities and inclusive economic growth are at the core of SDG 8, while SDG 9 concerns the development of resilient infrastructure and sustainable industrialization. Reducing inequalities within and among countries is the focus of SDG 10. SDG 11 promotes the development of inclusive, safe, and sustainable urban and rural environments. SDG 12 addresses sustainable consumption and production practices, and SDG 13 advocates for urgent actions to address climate change. The protection of marine and terrestrial ecosystems is covered under SDGs 14 and 15, respectively. SDG 16 supports the establishment of peaceful, just, and inclusive societies through access to justice and strong institutional frameworks. Finally, SDG 17 calls for revitalizing global partnerships and strengthening the means of implementation for sustainable development.

The data analysis in this study follows the framework proposed by Miles and Huberman (2024). The analytical process consists of four main stages: (1) data collection through in-depth interviews, observations, and a review of relevant literature; (2) data reduction by filtering and focusing on key themes; (3) data display, which involves organizing the information into visual formats such as charts or matrices; and (4) drawing conclusions based on patterns and insights derived from the data (Miles et al., 2014). These stages are illustrated in Figure 1 below:

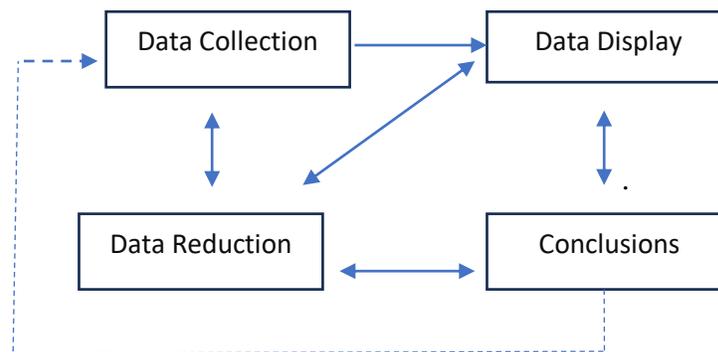


Figure 1. Qualitative data analysis flow (Miles et al., 2014)

### 3. Results

#### 3.1 Gumbregan Tradition Procession

The planning phase of the Gumbregan tradition begins with the determination of the date of the ceremony. This is based on the **Wuku Gumbreg** cycle in the Javanese calendar, which occurs approximately once every eight months. As described by informant Mr. C (Jepitu, June 10, 2025):

“The Gumbregan procession is a long-standing tradition passed down through generations and observed during every **Wuku Gumbreg**. During this time, the community offers sincere prayers to Allah, asking for the health, safety, and growth of their livestock. The perceived benefits include improved animal health, accelerated growth, increased productivity in farming—such as plowing fields and producing manure—and a steady source of food for the household.”

Mrs. D (June 10, 2025):

“Gumbregan is observed specifically during *Wuku Gumbreg*, a period calculated every eight months. As a result, the ritual does not always coincide with the harvest season—it may take place during the dry season or other agricultural cycles. The responsibility of informing and coordinating the timing of the tradition lies with the hamlet or village leaders. The entire community takes part in the procession, collectively praying to the Almighty for their livestock to be blessed with health (*ngreda widada*) and protection from harm (*slamet nir ing sambekala*).”

Once the ceremonial date has been determined, the next phase involves the preparation of ritual offerings. According to information provided by the informants, the details are as follows:

Mr. A (Jepitu, June 10, 2025):

“The offerings, or *sajen*, are arranged in bamboo trays known as *tampah*. Each tray typically contains one portion of *jadah worang* (sticky rice cake), one bundle of *ketupat pandawa*, one bundle of *ketupat bantal* (pillow-shaped rice dumplings), and one bundle of *ketupat lepet* (glutinous rice wrapped in coconut leaves). All *ketupat* are wrapped in *janur* (young coconut leaves). Additional offerings include *pulo*, a mixture

of finely ground fried corn and a handful of palm sugar, as well as *cengkaruk*—toasted rice sprinkled over the *jadah worang*. The ritual is completed with a serving of clean water. All offerings must be prepared using homegrown ingredients, cooked by the community members themselves, and wrapped in natural materials such as leaves.”

Mrs. D (Jepitu, June 10, 2025):

*“Women involved in the Gumbregan ceremony do not participate directly in the kenduren (communal feast), but are responsible for preparing the offerings (sajen) in their respective households. Each offering typically consists of one kilogram of jadah worang (sticky rice), divided into two portions, along with bundles of ketupat pendawa, ketupat bantal (pillow-shaped), and ketupat lepet. Additionally, two portions of hand washes are included. The pulo is made by mixing fried corn with Javanese palm sugar (gula jawa), measured by two clenched fists. Cengkaruk, made from fried rice and water, is sprinkled over the jadah as a finishing touch.”*

*“In preparing these items, approximately one kilogram of rice is used, which is referred to as two ‘mills’. These portions are typically brought either to the rice field or the village for use in the ceremony. All food is wrapped using natural materials—banana leaves for general wrapping and janur leaves for the ketupat. The offerings are then delivered to the hamlet, where prayers are led by Mr. A, a respected traditional and religious leader.”*

*“Community members are encouraged to use their own harvest for the offerings; for example, many mothers specifically grow small amounts of sticky rice in preparation for Gumbregan. All food must be home-cooked and made from locally sourced ingredients—packaged or store-bought foods are not permitted. While the cooking is generally done individually, it is common for mothers to help each other in the preparation process.”*

Mr. C (Jepitu, June 10, 2025):

*“The offerings are prepared and cooked by the women of the household. Once ready, they are divided into two portions and placed in bamboo containers. One container is brought to the livestock enclosure, while the other is taken to the hamlet for a communal gathering, where mantras and prayers are recited collectively by livestock owners and other residents of the hamlet.”*

Once the offerings are prepared, the heads of families carry a bamboo container of food to the hamlet as part of the communal feast. During this gathering, traditional leaders lead the recitation of mantras and prayers. The following is a statement from one of the informants:

Mr. A (Jepitu, June 10, 2025):

*“Every cultural tradition has its own specific mantras and prayers tailored to the intention behind the ritual. In the case of Gumbregan, I lead the ceremony by offering heartfelt prayers to Allah, asking for protection and well-being—particularly for the livestock, so they remain free from illness. The recited phrases include invocations such as: ‘The Cradle of Krandaaangng... Cheap. Cow. Forbid. Kandaangng...’.”*

*These mantras were repeated several times and responded to with the communal utterance of “amiin” by the participants of the Gumbregan feast.*

The procession of the Gumbregan tradition continued with the next process, according to the informant's statement as follows:

Mr. C (Jepitu, June 10, 2025):

*“After the traditional leaders completed the recitation of mantras and prayers, the event continued with a communal tea session and the sharing of food offerings brought in bamboo containers. The youth were responsible for preparing and serving warm, unsweetened tea to all attendees. Participants included livestock owners, residents from various hamlets, and other members of the community. The Gumbregan feast is open to all residents who keep livestock, and even those who do not bring offerings are welcomed to join and share in the communal meal. Attendance at the kenduren feast is traditionally male-only, with no female participants taking part in the ceremonial meal itself. There is no strict dress code for the event; participants are expected to dress modestly, typically wearing trousers or sarongs accompanied by a shawl. After the feast, any remaining food is exchanged among the participants and taken home. The cleanup of the site is carried out collaboratively by the youth. The Gumbregan ceremony is consistently documented by the youth and formally recorded by the Head of Padukuhan to preserve the tradition and share it with wider audiences.”*

Mr. E (Jepitu, June 10, 2025):

*“Youth play an active role in supporting the Gumbregan feast. They contribute by cleaning the venue—sweeping, mopping, arranging tables, and organizing the ceremonial equipment. In addition, they prepare and serve warm, unsweetened tea to all participants. After the meal concludes, the youth once again assist in cleaning up the area.*

*For those young people who no longer reside in the village, participation is still maintained symbolically; instead of returning home, they contribute financially by sending funds to their families or relatives in Jepitu to ensure the continuity of the tradition.”*

Although the communal feast marked the end of one stage of the Gumbregan ceremony, the overall ritual continued. As described by informant Mr. C (Jepitu, 10 June 2025):

*“The leftover food brought home after the feast was kept overnight. On the following day, it was taken to the rice fields and given to the livestock. In addition, water was poured over the backs of the animals as a symbolic act to refresh them—signifying that they are now ‘cooled and ready’ to assist with agricultural tasks or support the family's livelihood. To conclude the ritual, the farmers replaced the animals' harnesses with new ones, symbolizing the gifting of new clothing to the livestock.”*

Mrs. D explained:

*“After the men concluded the feast and finished their meal, the leftover food offerings were brought home—not their own, but those prepared by other livestock owners. As part of the tradition, participants exchange the remaining portions of offerings with one another. The following day, the women store and deliver the leftovers to the fields to be given to the livestock.”*

*“In Jepitu Village, all livestock are kept in enclosures located in the fields, far from residential areas. This is done intentionally, as having animal pens too close to homes is believed to pose health risks to the residents. Keeping livestock in the fields is considered a safer alternative, especially since most residents' agricultural plots are situated far from main roads and are inaccessible by motorbike. Many must walk long distances to reach their fields.”*

*“Although wild monkeys are often seen in the area, the livestock remain safe, as the monkeys typically do not attack the animals. Their disturbances are mostly limited to stealing crops—such as peanuts or cassava—before the farmers have a chance to harvest them.”*

Regarding the funding aspect, the Village Head, Mr. B (Jepitu, 10 June 2025), explained:

*“The Gumbregan tradition differs significantly from the Ngalangi or sea alms ritual. While the Ngalangi ceremony receives full financial backing from the government and is included in the Village Revenue and Expenditure Budget (APBDes), the Gumbregan tradition is entirely self-funded by individual livestock owners. Nonetheless, the village government remains supportive of cultural preservation efforts, whether through financial assistance or through non-monetary contributions such as logistical support, event coordination, and documentation for social media promotion.”*

Mrs. D added:

*“Unlike the more elaborate Ngalangi tradition, Gumbregan is a smaller-scale ceremony conducted at the hamlet level and requires minimal expenditure. Livestock owners only need to prepare modest offerings using ingredients from their own harvest, meaning the financial responsibility lies entirely with each individual household.”*

3.2. Data Reduction

The data reduction is presented in the table as follows:

Table 2. Reduction of Interview Results

Gumbregan Value	Informan Statement 1	Informan Statement 2	Relevance
Spirituality	<i>“Community members express their devotion through sincere prayers to God.”</i>	<i>Mantras and invocations such as: “The Cradle of Krandaaangng... Cheap. Cow. Forbid. Kandaaang...” are recited during the ritual.</i>	Spiritual dimension
Ecological Values	<i>“Offerings are prepared from homegrown crops, self-cooked, and wrapped in banana or janur leaves; packaged food is not permitted.”</i>	<i>“Leftover food from the ceremony is kept overnight and then taken to the fields to be given to livestock.”</i>	SDG 12 – Responsible Consumption and Production
Mutual Cooperation (Gotong Royong)	<i>“The timing of Gumbregan is based on the Wuku Gumbreg cycle and is coordinated by village or hamlet leaders to ensure inclusive participation.”</i>	<i>“Although women do not join the ceremonial feast, they work together to prepare offerings using their own harvests and assist each other in cooking.”</i>	Social Capital Dimension
Cultural preservation	<i>“The community earnestly maintains the tradition, praying for livestock health and family well-being.”</i>	<i>“Gumbregan is practiced regularly every Wuku Gumbreg, approximately every eight months, regardless of the season.”</i>	SDG 11 – Sustainable Cities and Communities

Following the data reduction process, the interpretation of the Gumbregan tradition in relation to sustainability is presented and analyzed. This interpretation is visually summarized in the chart below:

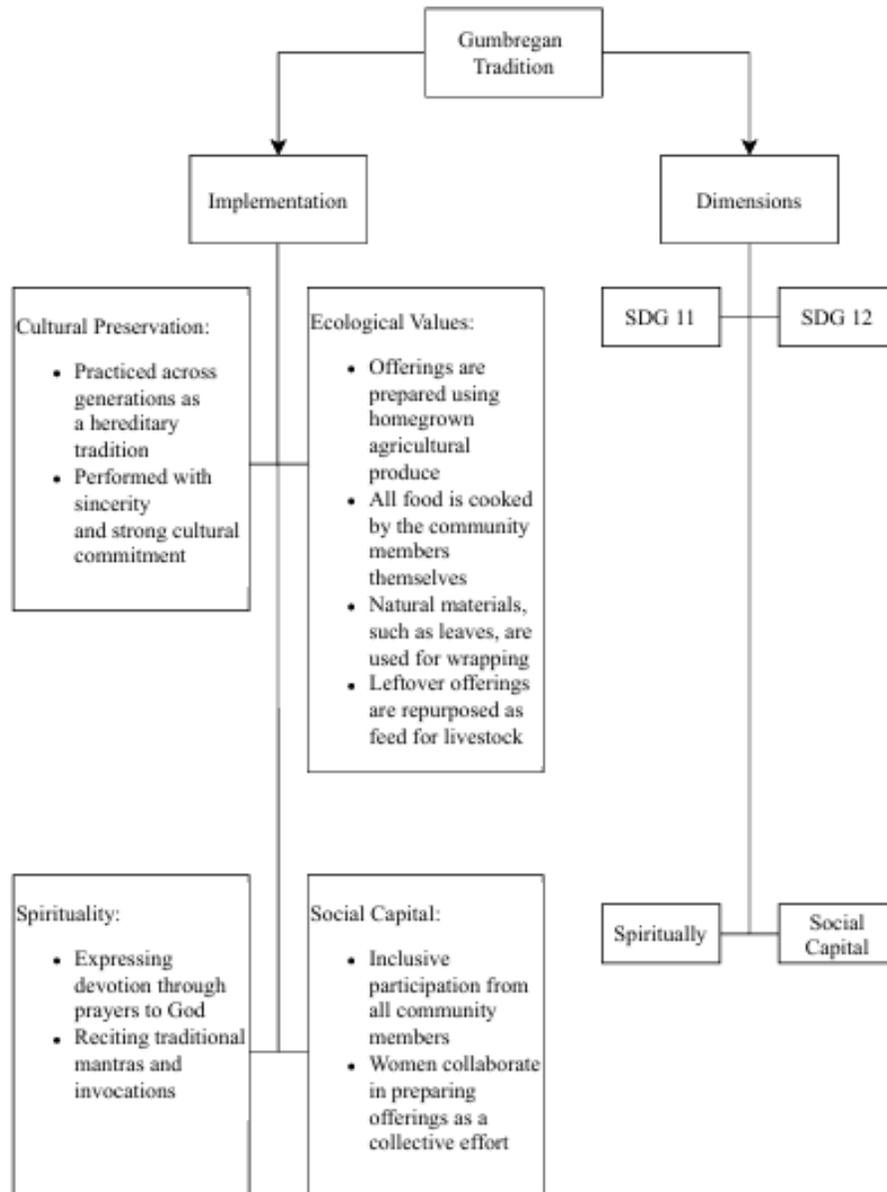


Figure 2. The Implementation of Sustainability and Its Related Dimensions in the Gumbregan Tradition

## 4. Discussion

### 4.1. Gumbregan and SDG 11

The objective of UN SDG 11 is to ensure that cities and human settlements are inclusive, safe, resilient, and sustainable. Informants frequently highlighted the term *nguri-uri budaya*, which refers to the act of preserving and continuing cultural practices. This reflects the community's commitment to upholding cultural traditions passed down through generations and practiced regularly. Cultural education aligns closely with one of the key indicators of SDG 11—namely, the strengthening of efforts to protect and safeguard the world's cultural and natural heritage. Preserving cultural heritage is vital, as it reinforces a sense of identity, encourages community engagement, and contributes positively to both economic and environmental sustainability. Cultural sustainability enhances identity, empowers local communities, and supports the long-term viability of urban life (Obed Livingstone Banda et al., 2024), (Sardaro et al., 2021). As a living cultural heritage, the Gumbregan tradition plays an essential role in affirming the identity of Gunungkidul's predominantly farming population. It fosters community participation—a key element of local social capital—and thus holds the potential to positively impact both environmental stewardship and economic resilience.

### 4.2. Gumbregan and SDG 12

UN SDG 12 focuses on ensuring sustainable consumption and production patterns. Sustainable production refers to the generation of goods and services that meet present needs without compromising the ability of future generations to meet theirs. Key elements of this process include resource efficiency, recycling, and waste minimization. Waste reduction, for example, can significantly benefit the environment, such as through the repurposing of waste as alternative fuel to prevent environmental degradation (Fodor & Klemeš, 2012). From this perspective, the Gumbregan tradition embodies the principles of sustainable production. Leftover food from the communal feast, which could otherwise contribute to environmental pollution, is instead exchanged among residents and repurposed as animal feed. This practice aligns with the *zero waste* philosophy. In addition to production, SDG 12 also emphasizes sustainable consumption. According to the United Nations Environment Programme (UNEP), sustainable consumption involves the use of goods and services that meet essential needs and improve quality of life, while minimizing the depletion of natural resources, the use of toxic substances, waste, and pollutant emissions throughout the product lifecycle—thus safeguarding future generations. The Gumbregan tradition reflects these sustainable consumption values. Offerings are made from the community's own harvests, wrapped in natural materials like banana or *janur* leaves, and placed in bamboo containers. The preparation is carefully measured to match the actual needs, and the use of leftovers reinforces a mindful and environmentally responsible consumption pattern already embedded in local practices.

### 4.3. The Dimension of Spirituality in the Gumbregan Tradition

The spiritual dimension holds a fundamental position in many Eastern traditions, serving as the foundation for values, purpose, and social behavior that extend beyond material concerns. In this

context, *spirituality* does not solely refer to formal religious practices but encompasses a deeper awareness of human interconnectedness—with nature, other individuals, ancestors, and transcendent forces. The Gumbregan tradition is deeply infused with spiritual meaning. The recitation of prayers during the ceremony reflects the community's earnest supplications to God Almighty, seeking health and protection for their livestock so that they may continue to support sustainable production practices. This strong spiritual grounding plays a significant role in reinforcing sustainability, as it fosters a sense of moral obligation among community members to preserve and carry on the tradition. Although spirituality is not explicitly outlined within the United Nations Sustainable Development Goals (UNSDGs), it nonetheless exerts a powerful influence in promoting sustainability. The internalized spiritual commitment seen in the Gumbregan tradition enhances the community's adherence to sustainable practices, thus indirectly supporting the broader objectives of the SDGs

#### *4.4. Gumbregan as a Social Capital-Based Approach to Sustainability Implementation*

The practice of *gotong-royong*—mutual assistance and cooperation—is a deeply rooted social norm within many Eastern communities. In rural areas such as Jepitu Village, residents are widely recognized for their strong sense of solidarity, collaboration, kinship, and loyalty. Every phase of the Gumbregan tradition reflects this communal spirit, as it involves the active participation of all members of society. From the preparation and cooking of offerings to event organization, execution, and post-event clean-up, all activities are carried out collectively. This deeply embedded tradition of mutual cooperation serves as a form of social capital that significantly enhances community engagement in sustainability-related practices. The collective commitment and cohesion fostered through *gotong-royong* contribute positively to the successful implementation of sustainable cultural practices.

### **5. Conclusions**

The Gumbregan tradition embodies various dimensions of sustainability, particularly those aligned with SDG 11 (Sustainable Cities and Communities) and SDG 12 (Responsible Consumption and Production). The community's aspirations for livestock health, expressed through prayers and mantras, reflect a spiritual dimension that enriches the broader sustainability agenda—especially within the context of Eastern societies, where spirituality holds significant cultural relevance. The effective realization of sustainability goals is further supported by the presence of strong social capital, as seen in the collective involvement of all societal groups throughout the Gumbregan ritual. This highlights the potential of local cultural practices to serve as foundational models for community-based sustainability, emphasizing the integration of cultural and spiritual values. Ultimately, the Gumbregan tradition offers valuable insights for expanding the theoretical framework of sustainable development. By incorporating elements of local wisdom, spirituality, and social cohesion, it contributes to a more holistic understanding of sustainability—one that complements and enriches predominantly Western-oriented models with indigenous and culturally rooted perspectives.

The Gumbregan tradition is performed annually during Wuku Gumbreg. In 2025, this occasion fell in the month of April. As this research was conducted in June, direct observation of the ritual was not possible. Consequently, the data collected were based solely on interviews, with visual documentation provided by informants. Future studies are encouraged to address this limitation by conducting field observations from the planning stages through to the implementation of the event. This approach would allow for a more comprehensive and in-depth understanding of the Gumbregan tradition.

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