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## Nangun Sad Kerthi Loka Bali and Its Relevance to Environmental Sustainability

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### ABSTRACT:

The environment is an essential and inherent aspect of human life; its existence plays a very vital role. The ideal environment is a spatial reality in which all supporting components, both biotic and abiotic, have a harmonious, mutually influencing, and integrative relationship. However, currently, the environment as a universal spatial structure is facing serious challenges, such as changes in the earth's temperature, the emergence of pollution, and the increasing intensity of pollutants, as well as the threat of climate change. Aware of its very important existence, the environment must be redefined. This redefinition will provide the view that the universe has moral status and is a subject equal to humans. This will have implications for the way humans preserve their environment. One of the methods used to protect the environment is the local conception of a Balinese genius known as Sad Kerthi. Sad Kerthi is a conception of spatial planning that integrates and harmonises each of its components (people, sea, lakes, and forests). This local knowledge can be used as a solution to the threat of catastrophe in the universe. 87 The aim of this research is to analyse the existence of Sad Kerthi from the perspective of environmental conservation efforts. In this research, the method used is a qualitative approach with triangulation as a way of collecting data, consisting of interviews, observation, and document study. The implementation of Sad Kerthi as a concept of environmental preservation is implemented by the Penglipuran Traditional Village community in Bangli Regency in conserving its bamboo forest. In addition, the community of Tenganan Pegriingsingan Traditional Village, Karangasem Regency, is also implementing the concept of environmental preservation by protecting forest areas and water sources. It can be concluded that Sad Kerthi is a concept as well as a human moral order in its harmonisation with the environment.

**Keywords:** environmental sustainability, Nangun Sad Kerthi Loka Bali

### Introduction

The existence of the environment, Earth, and universal aspects is fundamental for the lives of human beings. In the concept of earth ethics, it is explained that the Earth is not considered property or ownership. Instead, the Earth is analogized to a community of humans, where all aspects within it hold a position as moral subjects. This perspective explains that the existence of the environment and the Earth is a collective community consisting of animals, plants, water, soil, and air that are interconnected and form a system. In other words, human involvement is needed to recognise the potential environmental damage in order to maintain its sustainability. The concept of earth ethics, which portrays the environment as an integrative and continuous component, aligns with Thomas Kuhn's "problems and solutions" paradigm. This paradigm describes the ability to detect various types of problems and the necessity of human contributions to addressing these issues. The analysis of environmental degradation, especially the factors leading to the loss of natural sustainability, is also explained within the Frankfurt School paradigm. This analysis clarifies that the emergence of technology and capitalism is one of the factors contributing to environmental destruction. Therefore,





the environment's existence must be safeguarded using cultural dimensions. (Barry, 2021; Delanty & Harris, 2021; Susilo, 2012). Essential aspects require humans to protect the environment and its ideal form because the world has entered a "cosmopolitan enclave" where global dynamics also affect environmental sustainability. Thus, an open-minded approach is required to preserve the local environment. Actions to protect the existence and sustainability of environmental components are a result of social understanding or complex relationship analysis. This explains the actions and effects generated by these actions (Rey et al., 2021; Welch, Halkier, et al., 2020). Therefore, it can be said that the relationship between humans and the environment is reciprocal and complex. Human actions today will have implications for the environment's existence, and ultimately, what happens in the environment will impact humans themselves.

The interdependent relationship between humans and the environment is of utmost importance and should consistently be implemented. This relationship creates practical aspects for preserving the existence of the Earth and the universe. Preserving both biotic and abiotic components is a moral responsibility in the effort to conserve the constituents of the environment itself. The environment provides various resources for human life, including a primary one, which is food. Food is an essential part of life, deeply embedded in social and cultural aspects. Due to its centrality, these resources, including the environment, must be a priority for preservation. Recognizing the vital role of the environment as a source of human life and its moral significance, humans must cultivate experiences and build the quality of awareness, thinking of themselves as entities inhabiting the Earth (Debaise & Keating, 2021; Feldman & Goodman, 2021). The experiences built by each individual as entities inhabiting the universe will create a relationship or biosphere connection. It emphasizes a value worth preserving, especially concerning environmental ethics. Environmental ethics represent the values of good deeds for humans as "natural beings" (Morgan et al., 2021; Wu, 2021). So, the reciprocal relationship between humans and the environment and their preservation efforts is the implementation of the concept of ecocentrism, which views humans and the universe as having an egalitarian position and equal moral status.

However, the reciprocal relationship between humans and the environment is often not well implemented. This is due to various factors, one of which is the emergence of modernization, which degrades local values such as local wisdom. In the era of globalisation, individuals and society face challenges in reshaping spatial arrangements, creating boundaries, and establishing a scale that separates humans from the supporting components of their lives. The 21st century has created a situation that depicts a decline in environmental support. Complex aspects of modern life have the potential to result in destruction, risks, or conflicts within a structure (Kwet, 2022; Smyth, 2021; Walby, 2021). The primary sources of dynamism in the modern era are gas, oil, and coal. Resources generated from fossil carbon create rapid and substantial movements in modern society. The energy generated from these sources contains a lot of plastic, cosmetics, pesticides, and fertiliser components. Simultaneously, the combination of these materials creates ecological problems such as climate change, loss of biodiversity, and a decline in soil quality. The creation of global ecological destruction is also due to the increasing temperature or temperature changes due to environmental shifts. Capitalism, as a form of human calculation, also impacts environmental exploitation with a profit-oriented focus (Ailon, 2020; Folkers, 2021; Plessis, 2021). In other words, it can be said that ecocentrism, which views the environment as a moral subject with the same status as humans, is hindered by anthropocentrism, which considers humans to be the centre of the environment. This is further compounded by the accelerating reality of modernization and the increasing demand for natural resources.

The presence of modernization as the current reality of life and its implications for the environment can be anticipated by using local genius or local wisdom. Local wisdom can be considered a solution to environmental degradation. Environmental preservation practices using aspects of local wisdom are implemented by the Tenggerese community, guided by the values of Tri Hita Karana, essential values that serve to establish conservation principles. Environmental conservation principles are reflected in the aspect of harmony, which aims to foster a harmonious relationship between humans and the universe. This concept is used by the local community to protect the Ranu Pani area (Presilia et al.,





2018). Local wisdom used to maintain environmental sustainability is also practiced by the Sasiringan Village community in Banjarmasin. In the process of making sasirangan, the local people use natural materials from the environment that are eco-friendly and do not involve the use of chemicals to reduce river pollution (Permatasari et al., 2021). The farmers in Sembungan Village also possess local wisdom in preserving the environment. This local wisdom involves the creation of deep ditches designed to collect rainwater and soil from land cultivation. These ditches are constructed on land with uneven contours (Harini et al., 2020). On the other hand, local wisdom is also utilized by the communities in Central Kalimantan, specifically by using gelam wood as the foundation posts for local residents' houses. The use of gelam wood is aimed at conserving peat swamp forests because this type of wood is durable and has a long lifespan, reducing excessive wood usage for similar constructions (Supriyati et al., 2015). The Wonolelo Village community also has a local genius known as Kinanthi, a local wisdom to honour Mount Merapi. This local genius is used as a way to create harmony with nature (Mount Merapi) and as a hope that God will always provide safety to the local community in the event of an eruption (Widodo & Hastuti, 2019).

The implementation of local knowledge is also carried out by the people of Kampung Naga, Tanah Parahyangan, who use local architecture to build houses. Utilisation of local knowledge as a basis for building design using the principle of land use by considering the economizing use of natural resources so that these resources are maintained as well as having an impact on improving the quality of human life (Asriningpuri et al., 2015). The coastal communities of Banyutowo, Dukuhseti, and Pati, also apply the concept of local wisdom to respect the environment, especially the sea as a symbol of life. The local wisdom that is carried out is implemented in the sea alms ceremony. This ritual is carried out in the month of ruwah (sya'ban) ahead of the arrival of the month of Ramadan, as a symbol of respect for the sea, a plea for abundant resources, and an effort to preserve the marine environment so that it does not suffer damage. (Taufiq, 2017). Furthermore, the people in Tun'noe Village, East Miomaffo District, and North Central Timor Regency have a local wisdom called banul. Banul is a rule as well as a prohibition for indigenous peoples that are used to regulate the actions of local communities in their activities within customary forests. Actions that cannot be taken by the community include cutting sandalwood, and tamarind wood, or slashing gardens prematurely. The principle of implementing banul is that the people of Tun'noe Village view the environment and nature as "mother", so its sustainability must be maintained so as to create a harmonious life with humans. (Atanus et al., 2018). Then, the Alas Purwo community used the concept of "prohibition" as an effort to preserve the forest. This concept is used as a value for conserving forests. This local knowledge is a form of social capital to create a balance between socio-cultural life and maintaining the sustainability of forest conservation (Setiawan et al., 2021). Furthermore, the use of cultural knowledge is also carried out by the people of Kampung Bandarharjo, Semarang, in an effort to utilize water. Communities in this area conserve water so that clean water is available at all times. Also in this area, the community has alternative actions in the form of disaster mitigation capabilities. The local knowledge of the people of Kampung Bandarharjo regarding water conservation and disaster mitigation is passed down from one generation to the next (Ameir et al., 2020).

The people of Dukuh Village, Ciroyom Village, Cikelet District, Garut Regency use local wisdom in the form of the sacred forest concept in an effort to conserve forests. The concept of sacred forests prohibits local people from cutting down or even taking rotten wood from the forest. This is done so that the sustainability of all types of biota in the forest is maintained (Syukur & Qodim, 2016). The musung tradition is a local genius of the people in the Pelawan Forest area, Central Bangka Regency, Bangka Belitung to maintain the availability of honey produced by Apis dorsata (wild honey). This tradition uses rivers to get honey from this type of bee. The aim of using sunggau is to ensure that honey found in the wild can still be used without destroying the bees' natural habitat. Local people also believe in the myth about the Heimioporus sp. fungus growing on T. merguensis host trees during thunderstorms. The myth of growing this mushroom is an effort to preserve this species so that it does not disappear in the wild (Henri et al., 2018). The priority for environmental preservation, especially water, is also carried out by the people of Margodadi Village, Sleman Regency, Yogyakarta. In this area, there are efforts to conserve water; the water used by the local community comes from a large bingin tree called Tuk Sibebug. The community believes that the water that comes out of the tree must





be preserved because its existence is used for ritual bathing and flows through the river for irrigation purposes. (Triastianti et al., 2017). The existence of the Sancang Forest in the South Garut area has very sustainable conditions. This is caused by the wisdom of the local community regarding sacred legends to protect the existence of the forest. The legends used to protect the existence of the Sancang Forest include the forest as a representation of the greatness of their ancestor, namely King Siliwangi. Belief in this matter is able to create an attitude that glorifies the existence of nature. This also gave rise to the local community's taboo attitude not to destroy forest areas (Rosyadi, 2013).

The presence of the environment is an essential aspect of human life. Therefore, its existence must be consistently preserved to ensure its sustainability. Regarding efforts to preserve the environment using local wisdom, the Balinese community also takes similar actions to maintain harmony and balance between human life and the universe. The concept of ecocentrism and environmental conservation among the Balinese people is embodied in the concept of 'Sad Kerthi.' Sad Kerthi consists of six sustainability concepts that focus on preservation and harmony with the universe: a) Atma Kerthi, which is harmony with the One Almighty God as the giver of life to all beings in the world. This concept also explains purification activities through religious ceremonies to honour the soul, which is the essence of life. b) Samudra Kerthi, which is the process of preserving sustainability, creating harmony, and maintaining balance with the sea or ocean as a crucial part of human life and other living creatures. c) Danu Kerthi, which is the process of preserving sustainability, harmonising, and maintaining balance with lakes as a source of freshwater. d) Wana Kerthi, which is the process of preserving sustainability, harmonising, and maintaining balance with forests as the habitat for various biotic and abiotic elements and as a crucial aspect for the continuity of human life. e) Jana Kerthi, which is the process of harmonising and maintaining balance in social relations among individuals in the context of social life. f) Jagat Kerthi, which is the harmonisation and balance of all elements consisting of Atma (soul), Samudra (sea), Danu (lake), Wana (forest), and Jana (human) within an interdependent system. Understanding the relationship between humans and the environment is crucial, especially as society enters the era of 5.0, dominated by materialism and existentialism. This era is characterised by technological dominance, which may encourage destructive actions. Therefore, the combination of local wisdom, ecology, and spirituality will foster collective awareness of the relationship between humans and the environment and their connection to God as the creator. The internalisation of ecological wisdom will create a balanced ecological system (Holilah, 2015; Kenoba & Bala, 2021; Rahmawati et al., 2021). In summary, the potential destructiveness arising in this era can be anticipated by using locally-based harmony wisdom to maintain ecological balance.

The implementation of local wisdom, Sad Kerthi, as a form of awareness for preserving the environment and maintaining harmony among the elements of the universe, is an essential and urgent aspect to continue. This is because the sustainability of the environment and the universe is also determined by the consistency of using local culture as considerations and parameters for preserving each element that constitutes an environment. Especially in the current context, the environment is highly vulnerable to various destructive actions that result in consequences such as climate change. Climate change disrupts the geospatial system, leading to various adverse impacts on both the environment and human life, such as increased flood intensity, extreme rainfall, rising temperatures, and more. Furthermore, the environment is also confronted with the issue of population mobility, which directly affects energy consumption. The use of energy and environmental resources also has an impact on water quality. Additionally, the Earth is predicted to experience a population increase of 9.7 billion people by 2050, with 68% of the population's activities concentrated in urban areas. The environmental impacts resulting from this population increase include ecological degradation, soil quality deterioration, loss of animal habitats, and environmental quality degradation (Babu & Patnaik, 2021; Meulen et al., 2022; Rojas et al., 2022; Wollschlaeger et al., 2022). Urbanisation also affects sanitation aspects, such as increased pollution from vehicle emissions and soil contamination due to metal deposits. These facts bring the environment into a condition known as dystopia. The dystopian condition also directly impacts biotic and abiotic life (Baba, 2020; Callahan et al., 2019; Faust & Iler, 2022). Therefore, by implementing Sad Kerthi as a culturally-based environmental preservation effort among the Balinese community, ecological awareness and intelligence will be created to perceive and protect the environment as an entity that balances the cycles of the universe. The purpose of this





research is to analyse the concept of Sad Kerthi as the local genius of the Balinese community, used as a guide in environmental preservation. Sad Kerthi becomes the conceptual thinking and behavioural pattern of the Balinese people in viewing the environment as a reality with moral status. Because of this moral status, there is an effort to form an attitude towards maintaining a relationship with the universe. The consistency of environmental preservation through Sad Kerthi is reinforced by the use of a "local law" called awig-awig. Awig-awig becomes a social fact that binds the actions or behaviour of the Balinese community, especially concerning the environment.

### Research Method

This research uses a qualitative method. Qualitative research is a research method that focuses on comprehensive explanations. The explanations generated are derived from the process of understanding the values and ethics held by a particular community or society. Qualitative research also employs a theory to create a thinking system for explaining a concept. The data obtained must be explained using an ethical framework (Ferretti et al., 2022; Glynn, 2021; Hayward et al., 2021). The most crucial aspect of qualitative research is maintaining a distance between the researcher and the subjects being studied. This is done to avoid bias. Additionally, maintaining distance aims to focus on data collection during the research process and implement research ethics in the field. Complex field research requires the researcher's focus to understand the social structure or behavioural patterns of a particular community (Caswell & Turner, 2021; Podschuweit, 2021; Souza, 2022). In summary, qualitative research is a type of research that seeks to understand and interpret social phenomena or patterns of behaviour in a society based on social facts agreed upon by the community.

This research involves three subjects, including Jro Bandesa from the Penglipuran Traditional Village, Bangli Regency (42 years old), a local resident from the Tenganan Pegringsingan Traditional Village, Karangasem Regency (60 years old), and the Kelian Adat from Tajun Village, Buleleng Regency (55 years old). The selection of these research subjects was based on the fact that these three villages have sustainable forests and strong customary regulations. This context is seen as an implementation of the Sad Kerthi concept as local wisdom in environmental preservation. However, the research process only involved 2 subjects, namely Jro Bandesa from the Penglipuran Traditional Village, Bangli Regency (42 years old) and the local resident from the Tenganan Pegringsingan Traditional Village, Karangasem Regency (60 years old). This was because Kelian Adat from the Tajun Village, Buleleng Regency (55 years old), could not be interviewed during the research process due to ongoing traditional ceremonies in the local village. Consequently, the potential interviewees prioritised their time to participate in and complete the traditional ceremonies held in their village.

The data collection method for this research uses triangulation techniques, including observation, interviews, and document analysis. First, observations were conducted in the bamboo forest area of the Penglipuran Traditional Village, Bangli Regency. Subsequently, observations were also carried out at the "beji" (water source) and the forest of the Tenganan Pegringsingan Traditional Village, Karangasem Regency. During the observation process, the researcher used instruments as a guide to observe the environmental conditions in the Penglipuran Traditional Village, Bangli Regency, and the Tenganan Pegringsingan Traditional Village, Karangasem Regency. The researcher observed the physical conditions of the Penglipuran bamboo forest, which is still well preserved, as well as the Tenganan Pegringsingan forest, which is also in very good condition. Additionally, during the observation process, observations were made at the water source of the Tenganan Pegringsingan Traditional Village, which serves as the source of clean water for the local community. Furthermore, in the interview process, the research participants included Jro Bandesa from the Penglipuran Traditional Village, Bangli Regency (42 years old), and a local resident from the Tenganan Pegringsingan Traditional Village, Karangasem Regency (60 years old). The instrument used was a list of interview questions, consisting of 20 questions. The topics covered in the interviews are presented in the following table:

No.	List of Interview Questions
1.	Regarding the presence of forests/water sources in this village, in your opinion, how important





	is the presence of “awig-awig” in protecting the environment as an essential entity for the community's livelihood?
2.	With the documentation of “awig-awig” and its becoming a mutual agreement among the villagers, is the implementation of these rules effective in preserving forest/water conservation? Please explain!
3.	Currently, society has entered an era of modernization. Does the existence of “awig-awig” as a binding rule for village residents related to forest/water preservation still endure? If “awig-awig” still persists, what factors have contributed to its preservation up to this day?
4.	Does the “awig-awig” contain rules or local terms that prohibit village residents from damaging the forest/water source?
5.	What are the values within the “awig-awig” that teach the concept of Sad Kerthi (the Balinese local wisdom in environmental conservation, including the preservation of lakes, forests, oceans, mountains, etc.)? Please explain!
6.	In this village, are there any prohibitions related to the utilisation of environmental resources? For example, are there restrictions on cutting specific trees, only allowing the extraction of water on certain days, or permitting water extraction solely for ceremonial purposes? Please explain!
7.	Does the “awig-awig” include prohibitions against damaging the forest/water source? If so, please explain the prohibitions as stated in the “awig-awig.”
8.	Regarding the existence of prohibitions on preserving the forest/water source, how important is the environment's presence for the village community?
9.	Does the village community have a specific term (local name) for referring to the forest/water source?
10.	What sanctions are imposed if village residents violate the prohibitions that have been mutually agreed upon?
11.	Have you ever heard of the concept of Sad Kerthi? If so, please explain the meaning of this concept!
12.	Menurut Bapak/Ibu, seberapa penting keberadaan <i>Sad Kerthi</i> terhadap pelestarian lingkungan?
13.	In your opinion, will the concept of Sad Kerthi endure in the era of modernization? Please explain!
14.	According to you, aside from the concept of preserving the environment, how important is the implementation of Sad Kerthi for human life?
15.	In your opinion, how important is the existence of forests for the village residents?
16.	Is there a special ceremony to honour the presence of the forest?
17.	In your opinion, how important is the existence of springs for the village residents?
18.	Is there a special ceremony to honour the presence of water?
19.	Referring to the concept of Sad Kerthi, have there ever been instances of forest destruction in this village?
20.	Referring to the concept of Sad Kerthi, have there ever been instances of water source destruction in this village?

Lastly, documents. In this process, the researcher obtained documents in the form of village regulations, or "awig-awig" from the Penglipuran Traditional Village, Bangli Regency, which were provided by Jro Bandesa in a soft file format. The researcher also documented the condition of the bamboo forest in this area. However, in the Tenganan Pegringsingan Traditional Village, Karangasem Regency, the researcher was unable to access the "awig-awig" because these local rules were kept at the Pura Baleagung, a sacred place, and not just anyone could access the documents that were considered sacred by the local community. Nevertheless, the researcher obtained information about how the local community maintains their environment based on "pararem" (oral rules that serve as agreements and derivatives of the "awig-awig"). The researcher also documented the existence of the forest and the water source ("beji") in this village.

The data analysis technique in this research consists of data collection, data reduction, data presentation, and drawing conclusions. Firstly, the data collection process was carried out using





triangulation techniques, which included observation, interviews, and documents. The observation process was conducted in two locations: the bamboo forest area of Penglipuran Traditional Village, Bangli Regency, and the forest and water sources in Tenganan Pegriingsingan Traditional Village, Karangasem Regency. Interviews were conducted with Jro Bandesa of Penglipuran Traditional Village, Bangli Regency, and local residents of Tenganan Pegriingsingan Traditional Village, Karangasem Regency. Documentation was collected from the "awig-awig" obtained from Jro Bandesa of Penglipuran Traditional Village, "pararem" from the local residents of Tenganan Pegriingsingan Traditional Village, and documentation of the forest and water sources in these two villages. Secondly, in the data reduction process, the researcher selected interview results that specifically discussed "awig-awig" or "pararem" as rules for the indigenous people in maintaining their environment. In this stage, the researcher also focused on interview results related to the implementation of the Sad Kerthi concept by the local communities in their respective local activities. Examples included the "nyeeb" ceremony in Penglipuran Traditional Village for fertility blessings, "nyungsung toya" as a water tribute, and more. Data focused on Sad Kerthi was also collected from interviews with the local residents of Tenganan Pegriingsingan Traditional Village, who implemented the Sang Hyang Embang or Sang Hyang Suwung concept to mention and conserve their village environment. Thirdly, the data presentation process involved synchronising the data collected from observations, interviews, and documents from both research locations to draw conclusions. Finally, the fourth step was drawing conclusions. From the data presentation process, it was concluded that the presence of "awig-awig" and "pararem" was very effective in environmental conservation efforts, and Sad Kerthi remained a concept that was consistently implemented and served as a guide in the process of preserving the universe.

## Results

The research aimed at analysing the Sad Kerthi concept as the local genius of the Balinese community used as guidance in environmental preservation has been conducted through observations, interviews, and document studies. The implementation of this research is presented in Figures 1 and 2. The research findings indicate several aspects related to the implementation of Sad Kerthi in the context of environmental preservation. Some of these findings include: First, the existence of "awig-awig" as local rules for environmental conservation in Penglipuran Traditional Village, Bangli Regency, and Tenganan Pegriingsingan Traditional Village, Karangasem Regency. The presence of "awig-awig" (local village rules) is a fundamental necessity for a traditional village, including Penglipuran Traditional Village in Bangli Regency. The existence of "awig-awig" is of great importance because it contains various guidelines for conducting traditions and managing resources, which are considered the wealth of the traditional village. "Awig-awig" holds a vital position as a reference for governing the traditional village, explaining the boundaries and principles of local customs that must be consistently upheld. "Awig-awig" is created to regulate every component within the traditional village as an integrated system. One aspect regulated in the "awig-awig" of Penglipuran Traditional Village is "palemahan" (physical environmental scope), including the bamboo forest, which is considered essential for the community's livelihood. The bamboo forest in this village is viewed as a crucial component that supports various activities, both religious and social. Due to its significant benefits and role, the bamboo forest's customary status as a conservation area is strengthened by the formation of "pararem." "Pararem" is an unwritten rule agreed upon by the indigenous community, specifically addressing the existence of the bamboo forest. These rules are based on the "awig-awig" as the parent rules of the traditional village. "Pararem" declares that the bamboo forest is a protected conservation area governed by customary rules and the indigenous community, and its preservation is a collective responsibility. The strength and binding power of "awig-awig" and "pararem" are significant, as the process of creating customary rules takes place in the "pura" (Hindu place of worship), and their endorsement also occurs in these sacred places. The purpose of crafting "awig-awig" and "pararem" in the "pura" is to imbue them with a religious vibration, signifying that the process of rule-making and the formation of social consensus pass through sacred stages.







Picture 1. Bamboo Forest in Penglipuran Traditional Village, Bangli Regency



Picture 2. Forest and Beji (Water Source), Tenganan Pegringsingan Traditional Village, Karangasem Regency

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The people of Penglipuran Traditional Village believe that the formulation of customary rules follows the principles of "skala" and "niskala. Skala refers to the relationships between human beings and nature, as well as the commitment among these components to maintain harmony. On the other hand, the aspect of niskala relates to the relationship and commitment of humans with **Ida Sang Hyang Widhi Wasa** or the **Almighty God** as the entity that grants life. Violating the rules means, on a skala level, creating disharmony among individuals, and on a niskala level, bearing sin and causing the village environment to become leteh (polluted; impure). The process of formulating and validating



awig-awig and pararem is carried out on a dewasa ayu or auspicious day according to the Hindu calendar. In Penglipuran Village, the process of "melaspas" (validating) awig-awig and pararem took place on Saniscara Wage, Wuku Julungwangi, Titi Panglong Ping Kalih, Icaika Warsa 1911, Sasih Karo, Masehi August 19, 1989. The purpose is to ensure that the people of Penglipuran Traditional Village are capable of consistently adhering to and implementing the agreed-upon rules. Based on awig-awig, in this village, the bamboo forest is categorised as "tanah ayah desa" or ancestral land, a specific area traditionally owned and managed by the village community. Therefore, all the potential and consistency in the conservation of this protected area are the rights and responsibilities of the village community.

Awig-awig, as an effort to preserve the environment in the Penglipuran Traditional Village community, is specifically outlined in Paos (article) 28, which states, "Any act causing harm, destruction, or changes in the natural order and structure, if not in accordance with dresta (customary practices) and perarem (derived rules from awig-awig). Uprooting or felling any trees that grow naturally in the area, such as jackfruit, coconut, enau, durian, and other similar tall trees that might fall into the village, roads, buildings, gardens, or residential areas and endanger the public, or trees that may have spiritual significance, requires prior notification and permission from the Iprajuru Adat or the respective banjar (village community organisation) heads and the payment of a fine as determined by customary law. If a person plants a tree, the purpose should be communicated to the neighbour. Notice should be given to the Iprajuru Adat or the village head, and banjar if it will not be planted in the manner customary to the villagers. If someone plants tall plants, especially in gardens, the owner should take measures to ensure that it will not overshadow their neighbours' land, as determined by customary law. It is not permitted to plant a plant or build a building or any other construction that will affect the environment, especially in the conservation area, without first obtaining permission from the Iprajuru Adat or the village adat. If a person cuts down a tree, he or she should communicate with the owner of the land on which the tree stands to avoid disputes and misunderstandings. If an agreement is not reached, the Iprajuru Adat will mediate in the case. If a tree or its branches reach the temple area, they must be trimmed by the owner. If the owner neglects this, the Iprajuru Adat has the right to take action and give notice." In summary, it is prohibited to engage in any activities that harm or damage the environment, as this goes against customary practices and derived rules from awig-awig. These rules govern various aspects, including tree planting, construction, and land use, emphasising the importance of community consensus and adherence to traditional norms in preserving the environment.

In the era of modernization, the existence and implementation of awig-awig as a means to preserve the forest are still well-maintained. This is because the local community, including the traditional village residents, adheres strongly to customary law. These rules represent the life of the local community, which has a reciprocal relationship with its environment. Furthermore, within the awig-awig of Penglipuran Traditional Village, particularly regarding the preservation of the bamboo forest, there is a very strong binding force. Anyone in the village who does not contribute to forest preservation efforts will face social and customary sanctions. Social sanctions for villagers who violate the provisions of awig-awig include not receiving customary services, such as support from the community when the rule violator has ceremonies. Additionally, customary sanctions for those who break the rules involve a penalty known as "kena banten," where the rule violator must create offerings as a way to seek forgiveness from the Almighty, as they have harmed the forest area. Furthermore, a purification ceremony known as "mecaru" is performed, which aims to cleanse the village of all negative elements, as forest destruction and violations are considered impure. The mecaru ceremony is conducted to neutralise any negative influences, ensuring harmony in village life. The bamboo forest in the Penglipuran Traditional Village is viewed as a sacred area. The mecaru procession must take place in several locations, including at the Pura Kahyangan Tiga (three places of worship representing the Hindu trinity, namely at Pura Baleagung for worshipping Lord Brahma, Pura Puseh for worshipping Lord Vishnu, and Pura Dalem for worshipping Lord Shiva). The mecaru ceremony also takes place at "catus pata" (village crossroads). Bamboo forest destruction is seen as a sin; hence, the offerings are used as a means to seek forgiveness and absolution from the Almighty. The villagers have a term, "emik," to refer to this area as "megaleng keluan" or a concept that explains





that the bamboo forest is analogous to the anatomy of the human body. The bamboo forest is considered the "head" because it is located in the north (luan meaning up), and it is also near the Pura Baleagung of Penglipuran Village. Therefore, its presence is considered sacred and important; harming the forest is akin to harming the anatomy of the body. This aspect explains the harmony that nature represents in the human body. This concept also elucidates preservation efforts by avoiding land conversion, especially in bamboo forest areas. "Megaleng keluan" is also interpreted as a way to regulate privacy spaces among village residents. Respecting private spaces fosters mutual respect among village residents, thereby promoting harmony.

Regarding the utilisation of forest resources in Tenganan, if a village resident violates the customary rules outlined in the awig-awig, the sanction imposed is a moral one. The rule violator will be paraded around the village, where fellow villagers are given the opportunity to mock or taunt the offender. The form of punishment involves carrying a pole, and on this pole, every villager is allowed to place whatever they wish, whether it be an item or something else, as a sign of their displeasure. Of course, in the process of carrying out this punishment, the customary village leaders are obliged to accompany the offender. In the spiritual aspect (niskala), the offender must also atone for their actions by performing a ceremony as a way to seek forgiveness from the Almighty. The people of Tenganan Pegringsingan believe that humans grow both in the visible world (skala), from the womb of their mothers and the womb of the universe and in the spiritual world (niskala), according to the divine will. Therefore, there needs to be harmony between these two aspects.

Secondly, Sad Kerthi is a concept of environmental preservation. The presence of bamboo forests in the village of Penglipuran plays a central role in implementing the concept of Sad Kerthi. The community refers to these bamboo forests as "karang tiying" (areas with abundant bamboo). Their existence is carefully preserved because, ecologically, these forests serve as reservoirs for groundwater. Additionally, they also function to prevent soil erosion. In the socio-religious aspect, the presence of bamboo is inherent because the local community believes in the idiom "uli lekad ked mati nganggonang tiying," which means from birth to death, every individual and the wider community require bamboo in their lives to support social activities and religious ceremonies. From birth, the local community uses bamboo for "manusa yadnya" purposes, which are ceremonies dedicated to honouring human existence. For example, it's a local belief that the umbilical cord of a newborn baby should be planted in the house's yard and covered with a bamboo cage. In house construction, the people of Penglipuran use bamboo as the foundation. Another activity that relies on the presence of bamboo is "ngendihang api" or cooking activities where bamboo is still used as fuel. In local funeral ceremonies, a "page" or a bamboo-made carrier is used to transport the deceased to the cemetery in the village. Bamboo is also considered an environmentally friendly material, so its use does not result in environmental pollution.

Furthermore, this plant is a sustainable biota, which means that when it is cut down, it will regrow relatively quickly. According to the local community's beliefs, the bamboo forest in their village is referred to as "tiying kekeran" or bamboo used to fortify and protect the traditional village area from unwanted events. The term "tiying kekeran" originates from the village elders (traditional leaders), who believe that the existence of bamboo in their village has its roots in the heroic tale of the Panji Sakti troops (brave troops from the Buleleng Regency). These troops left behind bamboo that they intended to use as sharp bamboo weapons to fight against the Dutch colonialists, which has now become the bamboo forest of the Penglipuran Traditional Village. The bamboo they initially intended for weaponry was of high quality, as it was meant to be used as a weapon. The bamboo they brought with them and left behind subsequently grew into bamboo of good quality. The term "kekeran" specifically refers to an area that is constantly monitored, observed, and protected. It is this aspect that designates the bamboo forest area as a conservation area, where its existence is continually observed and protected. In their efforts to preserve the bamboo forest, the local community has specific rules for managing its resources. Bamboo can be used according to one's needs. However, customary rules also stipulate that not every moment is suitable for people to harvest bamboo from the conservation area. According to the Balinese calendar, bamboo cannot be harvested on specific dates like "pinanggal pasah," "soma sukra," "sri," "ingkel," and "buku. In Balinese cultural concepts, especially





in the harmonious context of the Penglipuran Traditional Village, it is considered inappropriate to cut plants that have joints ("buku"). It is believed that if bamboo is cut on these dates, it will quickly flower and die. When it starts to flower, it's an indicator that the bamboo will soon rot and die.

Conceptually, Sad Kerthi is a theoretical aspect advocated by the Governor of Bali in an effort to preserve sustainable universes. However, in practice, the Sad Kerthi concept has already been implemented by the community of the Penglipuran Traditional Village since ancient times. Regarding this concept, the local community has used the bamboo forest as an implementation of "wana kerthi" (environmental preservation). The existence of Sad Kerthi as a concept for environmental preservation in the modernization era relies heavily on Bali's social system, especially the presence of traditional villages and their leaders ("prajuru"). The presence of "prajuru" is fundamental to educating and instilling ecological ideas within the community. "Prajuru" is seen as both an example and a role model in implementing various ideas, especially those related to the life aspects of the indigenous people. Another practical action based on the Sad Kerthi concept, particularly in the "wana kerthi" aspect in the modernization era, is the implementation of the "nyeeb" ceremony. The "nyeeb" ceremony is performed with the aim of seeking blessings and fertility. During this ceremony, one buffalo is offered, and the ceremony takes place in the upper part of the village. After the buffalo has been offered, its skin is removed and distributed among the villagers. The skin is then planted in each garden or farmland with the hope that the land will become fertile and that all the plants and biota in the area will thrive. Furthermore, geographically, the Penglipuran Traditional Village does not have a coastline, but ceremonies to honour the existence of the sea are still held. One such ceremony is performed during "Purnama Kaenem" (a date in the Balinese Hindu calendar), where the community conducts a "mecaru" ceremony (a religious ceremony aimed at neutralising negative energies). In this ceremony, a cow is offered to Sang Hyang Baruna, the god of the sea and oceans. Specifically, the local community refers to this ceremony as "nangluk merana," a religious ceremony aimed at seeking safety and warding off misfortunes. This ceremony is an implementation of the "segara kerthi" aspect. In the concept of "danu kerthi," the people of the Penglipuran Traditional Village have a ceremony to honour the existence of a lake as a symbol of the hydrological cycle. This ceremony is known as "nyungsung toya," a special ceremony to honour the presence of water, performed at Pura Paneluah. In the "Jagat Kerthi" concept, the Penglipuran Traditional Village community implements a clean way of life, making it one of the cleanest villages in the world.

The implementation of "Jana Kerthi" in the Penglipuran Traditional Village community is carried out through the practice of "nepasin." "Nepasin" is an action taken by the "prajuru adat" (traditional village leaders) to admonish community members who do not follow the "awig-awig," especially concerning social relationships among villagers. An essential aspect of the "nepasin" action is to admonish people who plant "tuuh" or coconut trees, in their yards. Planting coconut trees in every villager's yard is prohibited because, spatially, the distance between one house and another is very close. If tall coconut trees grow and their fruits fall into the yards of other villagers, especially causing damage, this has the potential to lead to conflicts. Therefore, social relationships among villagers can be disrupted. In conclusion, the concept of Sad Kerthi as an effort for environmental preservation and harmonising humans with the universe is already implemented in the daily life of the Penglipuran Traditional Village community.

Furthermore, the implementation of Sad Kerthi in the Tenganan Pegringsingan Traditional Village, Karangasem Regency, is also carried out through various actions to preserve forest resources as ecological assets. The presence of the forest plays a significant role and provides benefits to the local community. The forest serves as a place for air circulation and the hydrological cycle that supports life processes. Topographically, Tenganan Village is situated between three hills, namely Bukit Kangin (located to the east of the village), Bukit Kaja (located to the south of the village), and Bukit Kauh (located to the west of the village). The village is positioned just below these three hills. On the eastern side of the village, there is a water source called "beji," which is used for various purposes, especially drinking water. The locals believe that the beji water comes from the eastern hills of Tenganan. The volume of beji water remains significant to this day, and even during the dry season, the water continues to flow. This serves as an indicator that the Tenganan forest is still very





sustainable. <sup>2</sup> Aware of the importance of the forest and water, which provide livelihoods for the village residents, the local wisdom of the people of Tenganan refers to the forest as "Sang Hyang Embang" or "Sang Hyang Suwung. Terminologically, "Sang Hyang" means a revered entity with the essence of holiness; "Embang" means vast or spacious; and "Suwung" means silent, peaceful, or quiet. So, when the people of Tenganan use the terms "Sang Hyang Embang" or "Sang Hyang Suwung," it carries the meaning that God is present in the world, filling all aspects of space and time, including the forest and all its components (water, soil, plants, and more). Humans who are born and live in this world are at the will of God, and thus, humans should both request and hope for the blessing of "Embang" or "Suwung. "Embang" or "Suwung" reflect the presence of God, in the form of the forest as its concrete manifestation. "Embang" or "Suwung" in the form of the universe provides all aspects of life for the benefit of human existence on Earth.

The presence of the forest in the Tenganan Pegringsingan Traditional Village, which is still very sustainable up to the present, is, according to the local community's concept, allowed to be utilised for its resources, such as wood or leaves, solely for religious ceremonies. The community typically collects wood from various tree species like "tingkih," "teep," "pule," "kepuh," "jaka," and "bayur" for ceremonial purposes. However, before harvesting wood from these various plant species, there are clear guidelines that need to be considered. One of these guidelines is that the individuals assigned to gather the wood are chosen within the village's "paruman" or deliberation. Furthermore, the wood or plants utilised for ceremonies must be collected according to need. For the construction of "tetaring" (shelters) or places for placing "banten" (offerings), only wood from old trees is permitted to be used. If the community requires wood as fuel for preparing ceremonies, then it should come from unproductive trees, those that are already dead, or those with branches that have naturally fallen to the ground. From the perspective of the Tenganan community, wood from unproductive trees must be "pralina" (utilised) to allow new shoots to emerge later. This selection process aims not only to preserve plant life but also to safeguard the quantity and quality of groundwater, which serves as the <sup>92</sup> primary source of springwater for the local community. Tenganan Pegringsingan Traditional Village is located at a considerable distance from the sea, making the presence of groundwater an essential and vital element that must be preserved.

Sad Kerthi is an environmental conservation concept that, in practice, emphasises that the existence of the universe is a reflection or manifestation of human actions. Because the universe is a reflection of human behaviour, humans bear significant responsibility for creating persistent actions, particularly in preserving and maintaining the environment. In their environmental preservation efforts, the community of Tenganan Pegringsingan Traditional Village has already implemented harmony with their surroundings. In other words, before the establishment of Sad Kerthi by the Bali Provincial Government, the people of Tenganan Pegringsingan had already been living in harmony with nature. These practices were passed down from their ancestors to <sup>25</sup> the current generation in Tenganan. It can be explained that the practical aspects of Sad Kerthi have been carried out for a long time, but the theoretical and formal aspects have only emerged today. The practical actions taken by the people of Tenganan Pegringsingan have been a form of implementation of their observations of the environment and the inheritance of ecological values. The local community focuses on specific environmental aspects that serve as their ecological assets, such as the Tenganan forest as a manifestation of "wana kerthi," the presence of "beji" as a water source representing "danu kerthi," and the synchronisation between the forest and water preservation symbolising the universe as a whole, known as "jagat kerthi.

Sad Kerthi is a fundamental aspect of defining the universe and how humans should establish their relationship with the environment. It is impossible for life to exist without the support of the environment. Sad Kerthi serves as guidance for humans in creating harmony with <sup>61</sup> their physical environment. This concept acts as protection by preserving the environment to support the lives of present and future generations. Without the concept of Sad Kerthi, the potential for disharmony in the universe would arise, posing a threat to humanity's civilization. Therefore, environmental preservation efforts conceptualised within Sad Kerthi serve as both a guiding principle and a way of life for the community of Tenganan Pegringsingan Traditional Village."





## Discussion

The research results indicate that, first, awig-awig (local environmental preservation rules) exist in the Adat Village of Penglipuran, Bangli Regency, and the Adat Village of Tenganan Pegriingsingan, Karangasem Regency. The creation of rules, in the form of awig-awig as written rules and pararem as unwritten rules, is a form of social fact aimed at regulating the sustainability of the environment as an essential aspect. The essentiality of establishing rules that govern the ecosystem of the environment signifies that cosmic space becomes an integrative dimension in human life. The environment is no longer viewed as a segmental or partial dimension separate from social space. This context explains the moral aspect of human existence as living in harmony with nature, or the "natural world. Humans are independent moral agents who create a systemic order. The systemic order created by humans is an effort to build subjective and objective opposition as a life experience, especially in understanding the existence of the universe (Abbott, 2019; Atkinson, 2021). The binding of a society to a rule to preserve the environment is a reality that the dominant human desire as an entity that considers itself "superior" must be degraded. Because if humans continue to perceive themselves as dominant beings and the environment as a recessive aspect, the potential for ecological risks will threaten human life itself. The creation of regulations aims to create collective awareness among individuals that the environment also deserves and holds moral status. Harmony between humans and the environment is a characteristic of life in both individual and supra-individual aspects. Because the existence of these two aspects is the substance of life, The perspective on the position of humans and the universe as an egalitarian order creates an ethics of harmonious life as a reality to be achieved (Boy, 2021; Fuchs, 2021). So, the creation of cosmic space is an effort to position the relationship between humans and the environment in the same order. With its creation, the desire for dominance and exploitation of the environment can be avoided.

The creation of awig-awig and pararem involves a process of sacralization by applying binary laws, namely the scale (something perceivable by the senses) and the non-scale (something imperceptible by the senses). The use of the concept of the seen and the unseen serves as an indicator that the environment is not merely a physical reality but also an entity and moral subject created by metaphysical entities. In other words, every element that supports the environment, both biotic and abiotic, is a representation of divine power. This perspective creates a concept known as pantheism. The concept of pantheism holds that God is present in every element of the environment and the universe. Harming the environment and its supporting elements is equivalent to disrespecting the manifestation of God as a transcendent force. Views like these cannot be separated from the background and identity of a community, especially in religious practices. This reflects the character and order of nature that represent human life and relations. The religious, cultural, and ideological background of a society in understanding its environment is a form of legitimacy and an expression of the group's experiences. Socio-culturally, beliefs about something, especially how to define the environment, are efforts to create conditions oriented towards the future (Glenzer, 2021; Jodhka & Fazal, 2021; Welch, Mandich, et al., 2020). In other words, it can be explained that the understanding of the environment as immanent to God is a way to create continuity in the sustainability of the universe in the future.

The content within Article 28 of the Penglipuran Adat Village's awig-awig explains that humans, together with the environment, form a systematic pattern. This means that humans and the environment are a unified entity within cosmic space. Because they exist within the same spatial unity, there should not be determinism between humans and the environment, which are crucial components of the universe. In various forms of life, both on a large and small scale, the substance of the universe is always influenced by two factors that interact and create balance. The ethics of life like this are not built instantly but are consistently shaped by the reality of life (Gerdner, 2021; Yoneyama, 2021). Nature and the environment grow according to the laws of the universe, which have the potential to create disasters. Therefore, human intervention is necessary to minimise the potential for disasters and their adverse impacts. Similarly, humans, who grow with rational and transactional abilities, have the capacity to affect the environment. The environment also signals that if human presence dominates spatial aspects, particularly in resource exploitation, it has the potential to create a





disaster for humanity. Awig-awig and pararem are efforts to preserve the environment from the existence of humans as rational beings. Each individual has an ecological obligation to create knowledge or paradigms that contain intrinsic cultural values in line with the social and ecological character of their environment. Local rules and knowledge are important for enhancing management sensitivity when detecting environmental risks or hazards. Human contributions to preserving the universe will create interconnections and have implications for the creation of a well-balanced and healthy order (Brown et al., 2021; Lambert & Shadbolt, 2021). Therefore, it can be explained that the presence of humans and the environment form a reciprocal or mutually influential pattern where dysfunction in one component will affect the other.

To reinforce the implementational aspect of human commitment to environmental conservation, humans have created sanctions as consequences for violating a rule. The sanctions provided are not merely meant to punish individuals deemed inconsistent. Instead, the sanctions are given as a serious effort to prevent larger and more massive damage. This context aligns with the emergence of the ecological emancipation movement, which has arisen in recent decades. This concept tendentially emphasises the essence of restructuring socio-ecological relationships. The movement also seeks to establish environmental justice because the environment is considered to be degraded due to the emergence of consumerist and capitalist societies. Therefore, consistency in human actions is required to safeguard the sustainability of the environment. Socio-ecological phenomena heavily depend on social organisation, which requires the participation of each individual in creating regulations and sanctions with the vision of creating a sustainable environment (Blühdorn, 2022; Hornborg, 2021). The environment, viewed as a representation of the human body's anatomy, is similar to the local wisdom of the Penglipuran Adat Village regarding the concept of "megaleng keluan" or the existence of bamboo forests located to the north of the village, considered the "head. Damaging the bamboo forest is seen as hurting or harming the head of a human. Because if the head is injured, it will affect the functioning of other systems within the body. Therefore, the implementation of sanctions is crucial to ensuring the existence of the central element supporting life, namely the bamboo forest (identified with the head), is preserved, preventing dysfunction and disharmony in the social "anatomy" of the community's activities. The local wisdom of megaleng keluan in the Penglipuran Adat Village as an environmental conservation concept has shaped the local community's habitus. Habits are formed based on personal experiences regarding ethnic characteristics and backgrounds. Subsequently, this aspect will lead to actions as practices in the social context. Megaleng keluan as habitus is then used as a tool to enhance the interest and awareness of the local community in protecting their natural forms (Hornsey & Gubby, 2021; Salpina, 2021). Thus, the creation of rules and sanctions represents the formation of habitus as the consistency of ecological behaviour within a community to preserve its environment's sustainability.

Awig-awig, as a local regulation aimed at governing the behavioural norms of a community, derives its values from the socio-ecological and religious realities of the local population. This context also aligns with the concept of "tata sukerta" or the behavioural norms of the Tenganan Pegringsingan Adat Village in Karangasem Regency, particularly in the contexts of social life, the physical environment, and religion, which are based on several orientations. First, there is the orientation towards values, where one fundamental aspect shaping the religious behaviour of the local community is the belief that the forest and the physical environment are considered sacred entities. Thus, the continuity of environmental preservation is seen as a way of maintaining a good relationship with God in a vertical, upward pattern. Furthermore, there is an orientation towards "tattwa" (philosophical truth) and "drestha" (truth derived from the behaviour and customs of the Tenganan community). This context explains the effort to establish environmental ethics based on the internalisation and institutionalisation of customs and conventions within a local community. The concept of environmental preservation, framed within the context of religion and culture, becomes of utmost importance. The presence of religion and culture serves as a process to create knowledge and a means of communication among individuals. The development of communication among individuals, especially concerning ecological communication, emphasises the distribution of power and enthusiasm for responsibility, particularly for environmental sustainability. Local knowledge, as indigenous knowledge, is the most potent aspect in building readiness to adapt and withstand any





environmental changes (Archer & Souleles, 2021; Hjelm, 2014; Mafongoya et al., 2021). Therefore, the establishment of local rules as a fusion of social, religious, and ecological values is a way to ensure environmental sustainability and a means of adaptation in the face of environmental changes.

For the residents of Tenganan Pegringsingan village, individuals who are not consistent in adhering to awig-awig as an effort to preserve the environment will face sanctions. The conception and implementation of a sanction are not merely seen as a reciprocal aspect, where when an individual violates the rules agreed upon by the community, they are penalised with specific consequences as a logical outcome of their actions. Instead, in the context of Sad Kerthi, this is a manifestation of the ethical obligation of humans to redefine the essence of the universe. Thus, the flow created by this context is "jana kerthi" (humans) - "wana kerthi" (forest) - "jagat kerthi" (the universe), or a transition from anthropocentrism to ecocentrism. This pattern illustrates the interconnectedness between biotic aspects (including humans) and abiotic aspects. The interconnectedness of the components of the environment (human and non-human) explains the roles and functions of these components within the cosmic system. This context aligns with the Kantian paradigm, which posits that in the cosmos or the environment, there are always two interrelated aspects: the human world and the physical world (Dobson, 2022; Enroth, 2021). Therefore, humans no longer perceive themselves as subjects and nature as objects. Instead, the sanctions enacted as a reflection and moral practice view nature as an ecological subject with an egalitarian position alongside humans.

Secondly, Sad Kerthi is a concept of environmental preservation. In the context of the Penglipuran Adat Village community, it is implemented through the idiom "uli lekad ked mati nganggonang tiying" or "from birth until death, every individual and the broader community require the presence of bamboo." Therefore, the existence of this biota is highly significant in the social and religious activities of the local community. Recognizing its crucial importance, the implementation of Sad Kerthi in safeguarding the "wana" (forest) from the local community is demonstrated by the imposition of prohibitions based on the Balinese calendar. The local community is not allowed to harvest bamboo on specific dates such as "pinanggal pasah," "soma sukra," "sri," "ingkel," and "buku." In the harmonious concept of Balinese society, especially in the Penglipuran Adat Village, it is considered inappropriate to cut plants with joints, including bamboo, on these dates. It is believed that cutting bamboo on these dates will cause the bamboo to flower prematurely. Once it starts flowering, it is an indicator that the bamboo will decay and die quickly. When interpreted, the concept of Sad Kerthi in the local practice that prohibits the community from bamboo harvesting on specific days is a form of sublimation to curb human desires for excessive natural resource utilization. It is also used to control human impulses in exploring environmental wealth. The concept of sublimation of actions to control human desires in utilizing environmental resources is an integration of local community planning aimed at creating ecological balance. Ecological balance depicts the interaction of the physical environment (the universe) with social space as a unified and mutually influential entity. The creation of reflective actions in an effort to control the desire to exploit environmental resources is a process to understand the substance of the mind and body (as a microcosmic aspect) as well as the universe (as a macrocosmic aspect). The perception of the local community in understanding the environment also serves as a means to enhance ecological quality (Miab et al., 2022; Parikh et al., 2020; Springgay & Truman, 2022). In other words, it can be explained that the local practice of prohibiting bamboo harvesting on specific days is a means of control and self-introspection for humans to understand nature as their "home."

The implementation of Sad Kerthi by the community of Penglipuran Adat Village encompasses various aspects: Wana Kerthi: This involves the preservation of bamboo forests and the performance of the "nyeeb" ceremony. Segara Kerthi: This includes the execution of ceremonies such as "mecaru" and "nangluk merana," conducted during the full moon on the Kaenem day, as well as the reverence for Sang Hyang Baruna as the god of the sea. Danu Kerthi: It entails the observance of the "nyungsung toya" ceremony to honour the presence of lakes and water bodies. Jagat Kerthi: In this context, the Penglipuran Adat Village community practices a clean and environmentally friendly way of life, making it one of the cleanest villages in the world. The implementation of the Sad Kerthi concept, especially as practiced by the Penglipuran Adat Village community, is a form of







synchronisation of all cosmic aspects that support life, forming an integrated system. The creation of an integrative system between humans and the environment is an essential value of ecological efficiency, where the environment is given space to thrive. This context also creates an equivalent way of life because no component dominates over the others (Brimblecombe, 2019; Yamasaki et al., 2021). The execution of religious ceremonies is a tangible expression of Earth ethics, where the Earth is not seen as a commodity to be bought and sold but as a collective subject. This relationship is cyclical because the existence of the universe and all its benefits are utilised to support human life, and in return, humans create a means to show appreciation for the environment through liturgy or religious activities. The act of showing respect through ceremonies signifies that the environment holds an equal position with divinity. This is because the environment is the immanence of transcendent power; in other words, respecting the environment is akin to honouring the presence of God as the *causa prima*. The implementation of religious ceremonies with the substance of honouring the environment is a form of local (traditional) community action. This action is a representation of respecting the natural cycle and cosmological determination. Cosmological determination emphasises the environment's inherent role within the ecosystem. This means that the sustainability of the environment will impact human life (Gebara et al., 2021; Johnson et al., 2021). In summary, when the concept of Sad Kerthi as an environmental preservation concept is consistently carried out by social agents, it results in the harmonization of the elements that support life (the universe and humans).

The implementation of Sad Kerthi is also carried out by the community of Tenganan Pegringsingan Adat Village in Karangasem Regency. The ecological preservation implementation is indicated by the use of the terms "Sang Hyang Embang" or "Sang Hyang Suwung" to refer to the forest. In ecological terms, it can be interpreted that the existence of the environment represents the presence of God in the world. The forest is considered to have a central role, similar to the causative power, and therefore, its existence must be preserved and sustained. The preservation and sustainability of the forest will create conditions of harmony, represented by the term "suwung" (quiet, calm, or peaceful). Silence symbolises the synchronisation of life-supporting elements within the ecosystem, which causally creates a feedback loop in the relationship between humans and their natural environment. This concept emphasises the human ecology way of thinking, or a paradigm that explains anthropo-ecological relationships. The implementation of this way of thinking involves dimensions of religiosity, the existence of nature, human existence, and the dimension of time as interconnected and systemic components. The use of local terminology to refer to the environment is also an effort to promote environmental conservation by informing individuals about the presence of nature as the source of life (Armawi, 2013; Dewi et al., 2020). This context also represents the implementation of the "wana kerthi" concept as one part of Sad Kerthi, which seeks to reinstitute the values of local wisdom. It tends to explain the vital role of the environment and the essential essence of the relationships among its components, including human contributions to understanding and preserving its physical environment. In the context of environmental preservation, Sad Kerthi explains that the existence of "bhuwana agung" (the environment and the universe) is a reflection of "bhuwana alit" (the human body). The interconnectedness of the universe (environment) with human life is a representation of ecological interaction. Ecological interaction is a fundamental aspect of biodiversity, both biotic and abiotic. The diversity of biotic and abiotic aspects as components of the environment determines the composition of a community. As it determines the composition of a community, the existence of bio-physical components must be preserved using cultural norms as social variables (Fontúrbel et al., 2021; Napieralski, 2019). In conclusion, it can be said that damaging the environment is akin to harming or injuring ourselves, and conversely, creating harmony with the environment means creating peace for ourselves.

The community of Tenganan Pegringsingan Adat Village has an ethic when it comes to utilising natural resources that involves careful selection of what they will take, and anything taken must be in accordance with their needs. In the concept of Sad Kerthi, the process of selecting which resources can be taken and which cannot, with various categories, emphasises the long-term thinking pattern of the community. This means that natural resources are only utilised according to their needs, with the aim of ensuring that, in the future, the available resources can still be managed or used. The Sad Kerthi concept regarding the respect of the Tenganan community for their customary forest also





indicates a commitment and follow-up behaviour of the community as agents of environmental sustainability. It signifies that consistent human actions towards environmental sustainability will lead to ecological stability. Ecological balance can only be achieved through consistent actions to preserve the natural environment. The natural environment is preserved by nurturing various components to improve the quality of nature and human life. Components that have essential value in the environmental cycle and must be preserved include trees, grassy land, flowers, and shrubs. Environmental preservation through the use of local knowledge indicates the reality of humans as entities concerned about the environment while preserving ecological traditions (Ngurra et al., 2021; Sun et al., 2021). In conclusion, the existence of the Sad Kerthi concept provides a perspective for individuals to continually care for the components that make up the environment (trees, land, and others). Local knowledge serves as a guide, highlighting the essential nature of ecocentrism.

The implementation of the vision and mission of Sad Kerthi, which has been carried out by the ancestors of Tenganan Pegringsingan Adat Village for a long time, especially the implementation of wana kerthi, danu kerthi, and jagat kerthi, is a concept of coexistence with nature. The practical environmental conservation efforts carried out by the Tenganan Pegringsingan community, where conservation efforts are derived from their daily observations and experiences, shape a behavioural pattern where the environment becomes a central aspect of their daily lives. In ecological terms, this is a form of environmental dominance, where environmental dominance influences the mindset, behaviour patterns, and ethos of a community in terms of viewing and preserving the environment or the universe as a morally significant subject in their lives. Because if the environment is not preserved, the context of human life potentially faces the risk of catastrophe, such as significant changes in the Earth's system that affect human life. Therefore, the presence of humans and communities, with all their cultural products and cognitive abilities, essentially must maintain consistency in preserving the physical and biological aspects of the environment (Sahay, 2021; Simon, 2021). It can be said that Sad Kerthi, as a local wisdom of the Balinese community, provides an understanding of the coexistence of the environment and humans in a spatial system. The presence of non-human and human entities is a mutually influential reality.

## Conclusion

The implementation of Sad Kerthi as an environmental conservation concept held by the Balinese community is consistently carried out by individuals and local communities. The consistency in implementing this environmental conservation concept can be seen in the use of awig-awig (local regulations) that govern the behaviour patterns of the people of Penglipuran Adat Village, Bangli Regency, in their efforts to preserve their bamboo forest areas. Likewise, the ecological actions of the people of Tenganan Pegringsingan Adat Village, Karangasem Regency, in preserving their forest areas. Sad Kerthi serves as the theoretical foundation for understanding how the Balinese community, as reflected in the areas of Penglipuran Adat Village and Tenganan Pegringsingan Adat Village, positions themselves in harmony with nature. In other words, practical efforts to conserve and harmonise with the environment have been carried out since ancient times, and this is an embodiment of Sad Kerthi as the foundation of their thinking. From this reality, it can be explained that local knowledge is a representation of a local community. Local knowledge represents the behavioural patterns of a society, so the presence of Sad Kerthi can be used as a foundation that is not only implemented locally but also contains a universal substance in the effort to preserve the environment.

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## Declaration of Competing Interest

The author declare that they have no known competing financial interest or personal relationship that could have appeared to influence the work reported in this paper.

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