

Gugon Tuhon as Java's local wisdom for supporting sustainable development goals

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Abstract. Sustainability is a global issue in all countries. Various efforts are made to prevent and overcome damage to the earth's surface, including through community rules and customs to support sustainability. Qualitative descriptive research was conducted to identify good experiences in community life in the form of Javanese community advice, namely Gugon Tuhon related to SDGs. The research began by taking Gugon Tuhon available on the internet by Agus Suksesetiono; then, a content analysis was carried out to describe the relationship between Gugon Tuhon and sustainable development goals (SDGs). The results of the analysis show that Gugon Tuhon supports sustainable development in the fields of clean water (SDGs 6), good health and welfare (SDGs 3), and zero hunger (SDGs 2). Local wisdom (Gugon Tuhon) must be disseminated through formal education (primary education) and non-formal (family environment) as a scientific context in learning to support sustainability.

1 Introduction

The development of science and technology makes human life easier. Knowledge resulting from human thought builds civilization [1], but humans themselves feel the impact of the development of science and technology [2-4]. Human anxiety about natural disasters such as floods, landslides, and forest fires is an unresolved problem. Global climate change is a concern for countries because it determines the sustainability of life on Earth. In addition to natural events, natural disasters are also caused by environmental damage due to human activities [5-8].

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Several other problems, such as hunger, education, health, availability of clean water, availability of energy, ecosystem damage, and the gap between the rich and the poor. Banerjee et al. [9], Menton et al. [10], and Messerli et al. [11] have also not been resolved and are still global problems. Various methods have been used to overcome these problems, including through policies [12-15], education [16-18], and community approaches [18, 19], especially those related to customs. Customs are the knowledge of a society that is passed down from generation to generation, which is the original knowledge used to solve life's problems.

Indonesia has more than 300 tribes or ethnicities; to be precise, there are 1,340 tribes. As many as 41% are Javanese. The Javanese are found on Java and other islands spread throughout Indonesia. Tribes still living in their origin area will continue to adhere to their customs. Tribes that have left their area of origin tend to adapt to their new residence. Certain ethnic groups, based on experience, have a distinctive outlook on life. A view of life to be in harmony with others, nature, and God [20, 21]. Balance with nature must be achieved because nature provides resources for humans and other creatures. Humans at peace with nature will avoid problems because nature is the source of life. As social beings with culture, Durkheim and Mauss stated that humans are always in contact with nature [22]. The relationship between culture and nature must be approached with scientific and cultural concepts. Over the past 30 years, environmental conservation efforts have been carried out, including using local knowledge to prevent and address environmental problems. Conservation involving the participation of indigenous communities and local wisdom is very important in conservation [23].

Local wisdom is an immaterial wealth that comes from culture. The existence of local wisdom is the result of human work, creativity, and initiative in responding to the environment in which they live. Leftover cultural values can affect environmental quality and resource degradation. Community-based conservation can occur due to cultural revitalization in the community, so that "custom (local wisdom)" has the potential to restore water conservation [24, 25]. The cultural values and humanist culture of the Balinese people affect environmental quality. Customs or "awig-awig" regulate the environment and socio-culture [26]. Culture refers to the knowledge, attitudes, habits, and behavior of a community that is believed to be true so that it is passed down from generation to generation. Physical and non-physical objects can represent a community's culture. Culture results from the learning process and interaction between humans and nature and their social environment [27, 28].

Culture results from human efforts to fulfill their life needs. Javanese society has noble values that regulate human relations with nature. These values are prohibitions, recommendations, and rules, which are part of the culture. Nature and the phenomena that accompany it teach humans so that various knowledge emerges [29, 30]. Non-physical culture can be in the form of oral and written speech to regulate human life [31-33]. The process of cultural inheritance is in the form of socialization or enculturation. Socialization is a learning process that helps someone understand how to live and think, play a role, and function in a group.

Cultural socialization begins with non-formal education from the family environment to learn language and how to walk, sit, eat, and behave politely in society. Javanese society, especially in rural areas, still adheres to "kejawen" (meaning: Javanese culture). Javanese customs can be in the form of speech, behavior, and objects. The noble values of Gugon Tuhon as part of local wisdom are still used as a tool to control people's behavior in interacting with humans and nature. Greetings from the ancestors of the Javanese tribe to the next generation (parents to their children) are given so that their lives are harmonious with other humans and nature. Oral expressions such as prohibitions or recommendations not to do something are known as Gugon Tuhon.

Gugon Tuhon in Javanese comes from the words "gugu" (believe) and "tuhu" (loyal). The meaning of Gugon Tuhon is a tradition that is believed in, and its people have loyalty and awareness to do something. Gugon Tuhon is related to the ethics of human relations with nature and the Javanese people's beliefs, so Gugon Tuhon is sometimes inseparable from myths. Even so, Gugon Tuhon has scientific value depending on the context. Gugon Tuhon is an extraction of the relationship between humans and nature that has occurred for centuries, thus giving rise to ethics in society to avoid prohibitions. Gugon Tuhon is sometimes considered a mandate from society to avoid danger and maintain personal and environmental security [33]. The expression Gugon Tuhon is usually a taboo in oral speech (Andari, 2020). Gugon Tuhon is an oral expression in Javanese, usually taboo by grandmothers or parents to advise children. This taboo is intended so that people do not violate it and do not do things that deviate from the customs that apply in society.

In the millennial era, young people have begun to ignore the previous generation's taboos (Gugon Tuhon) because the development of science and technology has influenced people's culture [34]. Young people are curious and need to be more trusting. Gugon Tuhon is considered ancient and mystical, so there needs to be strengthening to prove its truth and the taboos against it. The truth of Gugon Tuhon requires scientific proof through learning. The truth of the local wisdom of Gugon Tuhon can be justified logically and systematically to strengthen the existence of Javanese culture.

Gugon Tuhon is part of ethnosience. Ethnosience is a knowledge system. This community knowledge needs to be brought to the surface as a context for science learning and conservation. So that it can be taught to future generations to support the sustainability of life on Earth through technology [35]. This paper discusses the gugon tuhon culture and its potential to support sustainable development and identifies whether there is a match between Gugon Tuhon and the sustainable development goals (SDGs)?

2 Method

2.1 Types of research

The research method used is qualitative research [36]. The research method used is qualitative research. This design is used to promote local Javanese wisdom which tends to be forgotten and to describe the role of Gugon Tuhon in sustainable development goals (SDGs).

2.2 Data collection techniques

Research data was collected by step (1) downloading the link <https://bambanghuseenalmarie.wordpress.com/2019/04/28/gugon-tuhon-makna-tujuan-dan-beberapa-contohnya/> from the internet, which contains writings about Gugon Tuhon which its meaning has been described by Agus Suksesetiono as a form of local Javanese wisdom, (2) download the technical guidebook for preparing action plans for sustainable development goals (TPB)/sustainable development goals (SDGs) published by the national development planning agency (Bappenas) in 2020 [37], (3) analyzing the suitability of the content of the Gugon Tuhon and the goals of sustainable development using content analysis, (4) holding a focus group discussion to analyze the role of the Gugon Tuhon in the goals of sustainable development. These steps are summarized in Figure 1.

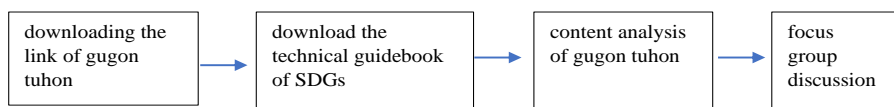


Fig.1. Research Steps

2.3 Data analysis technique

The analysis technique uses content analysis techniques which are focused on efforts to find, identify and critically analyze important elements in documents. Data analysis in this research consists of simultaneous activities: data reduction, data presentation, and concluding/verification. This cyclical process involves interactions before, during, and after data collection. Data reduction is used to select data related to research (Abdallah et al., 2019). Gugon Tuhon on Google with the link <https://bambanghusenalmarie.wordpress.com/2019/04/28/gugon-tuhon-makna-besar-dan-tidak-cepatnya/>. Furthermore, the process of coding sustainable development goals (SDGs) dengan rincian SDGs ((1) No Poverty (2) Without starving, (3) Healthy and Prosperous Life, (4) Quality Education, (5) Gender Equality, (6) Clean water and proper sanitation, (7) Clean and Affordable Energy, (8) Decent Work and Economic Growth, (9) Industry, Innovation and Infrastructure, (10) Reducing Inequalities, (11) Sustainable Cities and Human Settlements, (12) Responsible Consumption and Production, (13) Addressing Climate Change, (14) Ocean Ecosystems, (15) Land Ecosystems, (16) Peace, Justice and Resilient Institutions, (17) Partnerships to Achieve Goals) [38]. Verification and conclusions to find patterns in the role of Gugon Tuhon and sustainable development.

3 Results and Discussion

Gugon Tuhon as abstinence forbid, a Javanese oral culture has the potential to support sustainable development. Its use is through educational transformation, especially in science learning, although other subjects also have the same potential [39, 40]. Western science education utilizes nature as part of anthropocentrism [41, 42], so it needs self-reflection due to environmental damage [43, 44]. Gugon Tuhon is a taboo for the Javanese people to have compatibility with sustainable development. Using Gugon Tuhon as a learning context is seen as transformative learning that includes local wisdom for sustainability. This is one of the efforts to approach virtue ethics in education [45]. This is because the relationship between Javanese people and nature creates a culture that leads to sustainability. Gugon Tuhon and sustainable development goals are shown in Table 1 below.

Table 1. Gugon Tuhon and Sustainable Development Goals (SDGs)

No	SDGs	Gugon Tuhon
1	SDGs 6: Clean water and proper sanitation	Yèn nyapu ora rêsik, besuk bojone brewok (if someone sweeps the floor not clean then her husband will get beard),
		Aja sok kakêcèh, mêngko bêngi nèk turu mundhak ngompol (don't play in the water in the afternoon, tonight you can wet the bed),
		Aja ngidoni sumur, mundhak suwing/guwing lambene (Don't spit in the well, or you will have a cleft lip),
2	SDGs 2: without starving	Yèn madhang aja sok nyisa, mundhak mati pitike (if the meal is not finished, the chicken will die),
		Yèn mangan sêmôngka, sawo lan sanèsipun ingkang mawi isi alit-alit, aja nganti katut isine, mundhak thukul ana ngêmbun-

No	SDGs	Gugon Tuhon
		<p>êmbulan (if you eat watermelon, do not swallow the orange contents or it will grow on the crown),</p> <p>Aja dolanan beras, mundhak drijiane kithing (Do not play with rice, your hands will get leprosy)</p> <p>aja mateni kewan, mundhak bayine lahir kaya kewan (Do not kill animals while pregnant, the babies will be like animals/defects)</p>
3	SDGs 3: healthy and prosperous life	<p>Ora ilok mbuang uwuh neng longan (it is not good to throw garbage under the bed),</p> <p>Yèn mapan turu aja nganti gupak upa, mundhak ngimpi ditampêl lintah (in place, do not leave any food left, later you can dream of being bitten by a leech)</p>

Water is a source of life because most bodies of living creatures contain water. Humans, animals, and plants need clean water for growth. Clean water is essential for living things, especially those with water habitats [46, 47]. Contaminated water can cause disturbance to humans, animals, and humans. Water plays a role in the water cycle on Earth. The water cycle is essential for maintaining global climate balance. Waste management processes, pollution control, preservation of water ecosystems, and wise use of water are needed to ensure the availability of clean water for life on Earth [48, 49]. The moral message Gugon Tuhon Yèn sweep ora rêsik, besuk bojone beard (if someone sweeps the floor not clean, then her husband will get a beard) also refers to environmental cleanliness. A clean and healthy environment has a role in maintaining public health. Public health is the 6th goal of sustainable development.

Gugon Tuhon "Aja sok kakêcèh, mêngko bêngi nèk turu mundhak ngècèh" (do not play in the water in the afternoon, tonight you can wet the bed), advises on saving water. The meaning of the word "kekeceh" describes the waste of clean water to the environment. The amount of water on Earth is constant [50], but the amount that can be utilized by living things is getting less and less. This is caused by increasingly widespread pollution. Lakes are getting shallower, and the salt content of seawater is increasing. Pollution in freshwater causes the amount of clean water to decrease so that the amount of water that can be used for life decreases [51]. Gugon Tuhon forbids playing in water in order to save clean water. Saving water is a noble thing because it can save life on Earth.

The phrase "Aja ngidoni well, mundhak suwing/guwing lambene (Do not spit in the well, or you will have a cleft lip) advises not to pollute water and the surrounding environment. The effect of spitting on water sources or polluting the environment can be direct and indirect. Directly, the water in wells or water sources becomes contaminated by bacteria in saliva. On a broader scale, water pollution impacts the health of humans, animals, and plants [52]. Heavy metal pollution in water can cause abnormalities in fetal morphology, including morphological abnormalities such as cleft lip. This effect was predicted by Javanese ancestors based on centuries of experience. The experience of living with nature causes humans to make rules to lead to wisdom.

Rice is the staple food for the Javanese. The ancestral advice in the form of Gugon Tuhon "Yèn madhang aja sok nyisa, mundhak mati pitike (if the meal is not finished, the chicken will die), suggests that food is a natural resource that must be saved, even though rice is a renewable natural resource [53]. In certain places, rice as a natural resource may be abundant, while it does not produce rice in others. The ancestors of the Javanese people knew there was still famine in other places, so they imposed restrictions on their descendants not to throw away food. The food that has been taken must be finished with nothing left on the plate.

Logically, there is no connection between the death of a pet chicken and leaving food behind. If a family has chickens, the leftover food is given to chickens, but if they do not, it is wasted.

Rice comes from pounded paddy. Gugon Tuhon "Aja dolanan rice, mundhak drijiane kiting (Do not play with rice, your hands will get leprosy) forbids children from playing with rice. Rice made into toys has the potential to spill and waste food resources. Sustainable Development Goals who want to eradicate hunger from the face of the Earth will agree with the Javanese advice to their descendants not to waste food resources.

Javanese also prohibit killing animals without reason. Gugon Tuhon "aja mateni kewan, mundhak Bayine born kaya kewan (Do not kill animals while pregnant, the babies will be like animals/defects), advises not to kill animals because they are food resources containing protein [54]. Harvesting fish and slaughtering animals that are not yet old enough illustrates that natural resources must be appropriately utilized. The taboo against killing animals has nothing to do with the birth of babies like animals because traits are inherited through DNA so that humans, physically or morphologically, will not resemble animals. This taboo is only intended to ensure that natural resources do not run out quickly and that the world community is free from hunger.

These three pieces of advice illustrate that food resources must be saved and should not be wasted because they might be valuable items elsewhere. The whole world agrees to reduce hunger. Developed countries help countries with populations that have the potential to starve. The Sustainable Development Program aims to eradicate hunger from the face of the Earth. All human beings must receive adequate food and anti-hunger.

Logically Gugon Tuhon "Yèn mangan sêmôngka, sapodilla lan sanèsipun ingkang mawi isi alit-alit, aja nganti katut isine, mundak thukul ana ngêmbun-êmbunan (if you eat watermelon, don't swallow the orange contents or it will grow on the crown) this is nonsense. This advice is to scare children so they do not eat seeds, especially from fruits. Grains that enter the stomach will be digested in the digestive tract or excreted through feces [55]. The hidden message of this expression is to maintain biodiversity because grains returned to the environment will produce new plants and constitute a wealth of germplasm for watermelons, oranges, and sustainable small-seed plants on Earth.

Community health and welfare is the goal of sustainable development. This is the goal of SDGs 3, namely health and well-being. Gugon Tuhon "Ora ilok mbuang uwuh neng longan (it is not good to throw garbage under the bed) reminds the descendants of the Javanese always to live cleanly. Throwing trash under the bed causes odor and breeds bacteria and mold. The growth of pathogenic microorganisms causes disease [56]. The area under the bed is moist, which allows bacterial and fungal pathogens to grow more quickly [57]. The taboo against throwing trash anywhere, especially under the bed, is a habit among Javanese ethnic groups and is passed down from generation to generation.

Another Gugon Tuhon that refers to environmental health is " Yèn mapan turu aja nganti gupak upa, mundhak ngimpi ditampêl lintah (in bedroom, don't leave any food left, later you can dream of being bitten by a leech). Since childhood, Javanese ethnic children have been accustomed to washing their hands and feet before bed so that no food sticks to their bodies. This is prohibited because it invites ants to swarm the body and disturb sleep. These tips are essential to get used to a better life under the hopes of all nations worldwide that maintaining personal and environmental cleanliness is very important for living a healthy and prosperous life following the goals of SDGs 3. Before sleeping, one should clear the bed of food [58, 60]. It is essential to clean the bed so that insects such as ants and cockroaches do not disturb it.

4 Conclusion

Local Javanese wisdom in the form of advice (Gugon Tuhon) is an expression of prohibitions taught by the ancestors of the Javanese tribe who taught goodness in coexistence with nature. Nature provides blessings to humanity, and in return, humans must protect it by carrying out activities that do not damage nature and protect environmental resources. Gugon then contributes to sustainability in the fields of clean water and proper sanitation (SDGs 6), healthy and prosperous life (SDGs 3), and without starving (SDGs 2). The millennial generation does not know much about this local wisdom because of the influence of globalization. Local wisdom must be disseminated through formal education (elementary education) and non-formal (family environment) as a science context in learning.

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