Creating Safety and Beauty in the World Starting from Humans: Cultural Wisdom and Natural Disasters in Yogyakarta

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ABSTRACT—Cultural wisdom has a role in disaster management. Yogyakarta is situated in the Ring of Fire, prone to earthquake, tsunami, and eruption of nearby Mount Merapi. For centuries, people have been aware of the "bio-detectors" and "geo-detectors" that signal the approach of a disaster. However, such cultural wisdom is obscured by the rise of modern technological knowledge. The traditional Javanese cosmology positions humans as subordinate to the universe and its powerful forces. The traditional rulers of Yogyakarta strove to maintain harmony between human and human, human and nature, and between human and God. This cultural value is embodied in the ceremony of Labuhan, performed as a symbol of human gratitude towards God, nature, and the universe. Old manuscript accounts of fatal eruptions attribute the death toll to the failure of humans to respect their relations to God and nature. They also recount the efforts of past rulers to create harmony between the spirit of the sea, the spirit of the mountain, and the region of Yogyakarta through their own respect for nature and through management of their own attitude through meditation. By analogy, such attitude management on the part of everyone can achieve a more effective management of disasters in the present day. The watchword of Yogyakarta carried down from the past to the present is "creating safety and beauty in the world starting with humans."

Introduction

Humans and nature are interrelated. Nature has been given by God to human beings to be managed and utilized. Their care and concern for nature affects the lives of the inhabitants of the earth. Their well-being or suffering are consequences of human choices. This article is about human efforts to create harmony with nature in the Special Region of Yogyakarta, situated on the south coast of central Java (Figure 1).

Yogyakarta has the active volcano of Mount Merapi to the north and the Southern (Indian) Ocean to the south. These resources have great potential to bring prosperity to the people who live around them. The government has control over the utilization of these natural resources. If these natural resources are not well maintained or even treated carelessly, they will trigger natural disasters with very detrimental results.

Natural disasters are events that destroy livelihoods. Djati Mardiatno (2019) stated that the large scale of human casualties and property damage inflicted by disaster events in the past was more often due to the lack of awareness on the part of the government and the community and lack of understanding of the potential disaster and the means of mitigation. Yet people have known about disasters since ancient times. Our ancestors already had that knowledge and had long coexisted with the threat of floods, droughts, volcanic eruptions, earthquakes, and tsunamis. For example, people knew how to



Figure 1. The territorial borders of the Special Region of Yogyakarta (source: an attachment to Law of the Republic of Indonesia No. 13 of 2012)

observe the signs that precede a volcanic eruption, especially the "bio-detectors," such as the sound of certain birds, or the phenomenon of snakes and monkeys descending from mountains, or the "geo-detectors," such as the unusually low tides that signal an incoming tsunami (Mardiatno 2019). The relationship between nature and humans is also recorded in a number of ancient manuscripts. These manuscripts describe in detail the impacts of disasters and the cultural-based mitigation of these disasters through traditional wisdom.

Ahimsa-Putra (2009) has defined the term traditional wisdom as a set of knowledge and practices in a community that are used to solve problems and difficulties encountered. This knowledge and these practices were obtained from previous generations through oral transmission or through actions. Rahyono stated that by studying and living its own culture, a community will instill intelligence in its own members, because they are directly involved in the creation of their culture. Therefore, cultural wisdom should be regularly lived and applied in social life. The wisdom that is continuously developed and applied in life makes way for the advancement of civilization (Rahyono 2015).

Although we are aware of the positive influences of local wisdom on our daily life, the efforts to preserve such wisdom are constrained by modern beliefs and ideas which are seen as more practical and effective approaches, even though they can have unfavorable impacts on nature, because these approaches involve arbitrary or careless treatment of natural resources. For example, sand mining on the beach using heavy equipment has resulted in increased coastal abrasion and beach erosion. Such activity also damages the environment for marine life around coastal waters. Similarly, sand mining in the rivers at the foot of Mount Merapi has caused physical impacts such as landslides, reduced volumes of surface water (springs), and high traffic of trucks transporting sand that damages roads and causes air pollution. All of these have been done solely for the sake of improving the economy.

Roikhwanphut Mungmachon (2012) observed that there has been an erosion of local wisdom in Thailand because science and technology have rapidly changed the ways of life of Thai people that were earlier based on nature. She concluded that several actions undertaken solely for economic profit have destroyed natural resources because they ignored traditional wisdom and its inherent values. She proposed that the solution for recovery was to immediately revive traditional (Thai) wisdom while incorporating new ideas and manners in ways that do not supplant the traditional system of their culture (Mungmachon 2012).

At Yogyakarta, a local wisdom known as *hamemayu hayuning bawana kapurba dening manungsa*, meaning "creating the safety and beauty of the world starting with humans," has been used both as the basis for the cultural development of the region and a "shield" in the face of technological advances that come as a consequence of globalization. This piece of wisdom is contained in one of the region's official regulations (Regional Regulation No. 4 of 2011), but there are problems over how this idea should be implemented as a tool or principle for harmonization both between humans and nature and between humans and God the Creator. In this article, a hermeneutical approach is used to confront these problems. First of all, data were collected from several sources including ancient manuscripts, scientific publications, and information possessed by the

community. Second, the data was analyzed using an analogical and comparative mindset in order to understand the concept of *hamemayu hayuning bawana kapurba dening manungsa* as it is embedded in the repertoire of cultural and environmental knowledge that includes traditions and languages (Sunarto 2008).

This article discusses the efforts made by Yogyakarta's people to handle disasters, especially the eruptions of Mount Merapi, earthquakes, and tsunamis. First, some background is presented on Yogyakarta's history and cultural roots. Second, historical texts on past disasters are analyzed to show how Yogyakarta's leaders and people interpreted and reacted to these events. Third, the learnings from the past are brought to bear on disaster management in the present day.

The background of Yogyakarta

The Law of the Republic of Indonesia No. 12 of 2012 concerning the Privilege of the Special Region of Yogyakarta states that Yogyakarta holds a special administrative position in the Republic of Indonesia. The Region has a sultan as the governor, holding the title of Sultan Hamengku Buwana, and an *adipati* as the deputy governor, holding the title of Adipati Paku Alam, from generation to generation (Law on Privileges 2012). The first Adipati Paku Alam (r. 1813–1829) was the son of the first Hamengku Buwana (r. 1755–1792) with one of his concubines. The second Hamengku Buwana (r. 1792–1810, 1811–1812, and 1826-1828) was the son of the first Hamengku Buwana with his queen consort. Thus, the sultan and *adipati* are of one lineage. They are all the descendants of Panembahan Senapati, the first king of Islamic Mataram (r. 1575–1601).

The sultan and the *adipati* are responsible for maintaining and developing the culture of Yogyakarta. The culture is shaped through a long history of interaction between various cultures, Javanese, Hindu, Buddhist, Islamic, European, and contemporary cultures. Ki Hadjar Dewantara, known as the Father of Indonesian National Education, stated that culture always grows and develops along with the development of human thought, feelings, and determinations to gain prosperity and happiness in life. He proposed that culture develops by the Trikon or Three-Cons Theory of continuous, converging, and concentric developments, as follows:

Continuity means that the cultural values of the forebears should be maintained and implemented in everyday life.

Convergence means that space should be provided for dialogue between our culture and foreign cultures.

Concentricity means that any new culture created should be constructive and beneficial to people's lives.

He concluded that such a culture will not be easily uprooted from its foundations (Dewantara 1994).

Argo Twikromo (2021) stated that the main framework for the management of social life, the relations between humans and other humans, and relations with nature and with God are the foundations for a harmonious life passed down from the ancestors.

This harmony rests on several intertwined components including values and policies. Yogyakarta's values follow Javanese cultural values, which aim to mobilize all resources (golong gilig) in an integrated fashion (sawiji), through dynamic persistence, hard work (greget), confidence to act (sengguh), and unwavering determination to face any risk (ora mingkuh) (Regulation of the Special Region of Yogyakarta Province No. 4 of 2011).

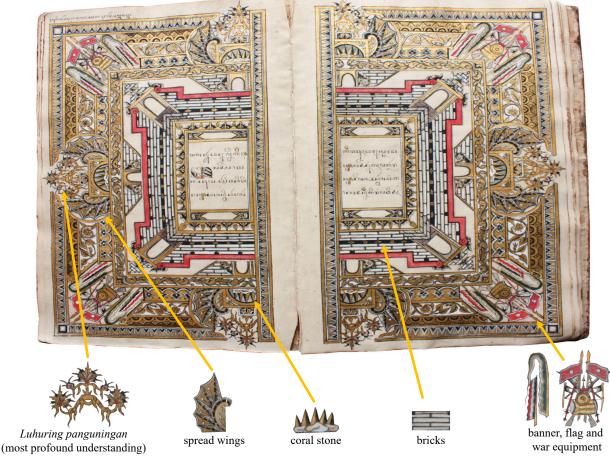


Figure 2. "Sawat Subajra Palguna Smu" (Source: Babad Matawis saha Candra Nata, Pura Pakualaman Library, Yogyakarta)

Historical accounts of interpreting and managing disasters

Old manuscripts record values and traits deemed useful for humanity. *Babad Matawis* is an ancient manuscript that tells the story of Panembahan Senapati from his early days until he gained glory as the first king of Islamic Mataram. The story was recomposed around 1830 based on an 1815 manuscript. The 788-page text was written in Javanese script and language, accompanied by beautiful illuminations. Each picture contains a message whose meaning can be understood after reading the text.

Sawat Subajra Palguna Smu

The following illustration, one of fourteen, contains a summary of Panembahan Senapati's story full of moral messages for leaders and their people, including ways to build harmony with nature (Figure 2). The sultan and people of Yogyakarta uphold these teachings to this day.

The illustration is entitled *Sawat Subajra Palguna Smu* meaning "With his wings spread wide, Palguna bears a resemblance to a shining gem." The illustration summarizes the life journey of Panembahan Senapati, the shared ancestor of all the sultans in Yogyakarta and Surakarta, through the following details:

- The bricks surrounding the text in the inner frame represent the first settlement of the Mataram land after which a brick fence was built around the palace area.
- The flags, banners, and war equipment in each corner of the background represent the efforts by Panembahan Senapati and his troops to expand their territory through warfare.
- The coral stone in the main frame represents the intervention of Kanjeng Ratu Kidul (the Queen of the Southern Ocean) to help achieve Panembahan Senapati's goals.
- The *Luhuring Panguningan* ("most profound understanding) at the center of the left and right portions of the outer frame represents the accumulation of teaching received by Panembahan Senapati from his advisors.
- The spread wings that surround the coral stone and *Luhuring Panguningan* symbolize Panembahan Senapati's success in improving the region and enhancing his people's prosperity as the result of hard work, the unity between the people and their leaders, and, particularly, God's permission.

In summary, the illustration can be interpreted as follows. Panembahan Senapati is analogous to Palguna or Arjuna in his youth. Palguna, who is diligent in meditating and actively practicing archery, becomes a smart, humble, and wise knight whose glory is famed. Sutawijaya, the son of a farmer, succeeds in becoming the king of Mataram and is later named Panembahan Senapati (Saktimulya 2016).

The Labuhan ceremony

Senapati's accomplishment was partly due to the support of Kanjeng Ratu Kidul, the Queen of the Southern Ocean. The text relates that the two loved each other and that Kanjeng Ratu Kidul promised to help him maintain the safety of the Mataram Kingdom for generations. The meeting at which they promised to care for each other and to strive for harmony between creatures is believed by the people of Yogyakarta to be the origin of the *Labuhan*, a ceremony where people present offerings in certain hallowed sites to prevent bad luck. The Kingdom of Mataram was divided into two parts, the Surakarta Sunanate and the Yogyakarta Sultanate, through the Giyanti agreement in 1755, yet the *Labuhan* tradition is still to this day carried out at least once a year by Sultan Hamengku Buwana, Adipati Paku Alam, and their Surakarta counterparts Sunan Paku Buwana and Adipati Mangkunegara.

The main purpose of the *Labuhan* ceremony is to ask for protection from God and the supernatural spirits that reign over the Southern Sea, Mount Merapi, Mount



Figure 3. Equipment for the Labuhan ceremony (source: Pura Pakualaman, Yogyakarta)

Lawu, and several other places. Through spiritual protection from various directions, the kingdom aims to create a balance in its relations with God, human beings, and nature (including that of other realms). This is part of the sultan's essential role of *mangku buwana*, meaning "to put the world on one's lap" or to "hold the world" as the ruler

of Yogyakarta or Surakarta. Because the legitimacy of the two *adipati* is constrained with their respective kingdoms, they conduct the *Labuhan* ceremony at Glagah Beach, Yogyakarta, and Mount Lawu in Central Java respectively.

The ceremony is an expression of gratitude, sincerity, cooperation, and love for one another. Humans should be grateful for God's abundant favors to them through the creation of this world, and should realize that they are also God's creations. Humans must be able to protect nature by not mistreating it or taking it for granted. Humans must also be willing to relinquish everything if God takes it away since it was entrusted to them by God. This is symbolized by various offerings made at the ceremony including vegetables and a mountain of sweet potatoes and rice (see Figure 3). Several clothing items favored by Kanjeng Ratu Kidul and belonging to the sultan or *adipati* are sent away on the sea as a symbolic act of gratitude. The values contained within the *Labuhan* ceremony are embedded in the hearts of Yogyakarta's people and regarded as a guiding code of conduct, reminding them to always be grateful and sincere in handling every situation.

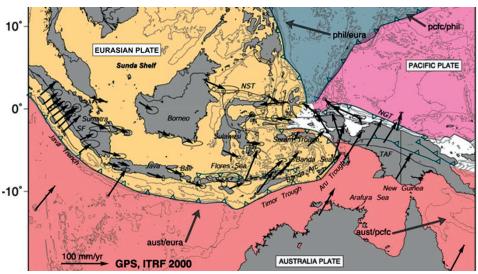


Figure 4. Indonesia and the three continental plates (Source: www.bmkg.go.id)

Earthquakes, tsunamis, and eruptions of Mount Merapi

For hundreds of years, Indonesia has experienced frequent earthquakes and tsunamis. A 6.3-magnitude earthquake struck Yogyakarta at around 05:53 on 27 May 2006. Since the epicenter was on land, the death toll was 4,659 persons (www.katadata. co.id). Indonesia is located in the Pacific "Ring of Fire" above three continental plates, the Indo-Australian, Eurasian, and Pacific (see Figure 4). The land is fertile because of the nutrient content of volcanic ash, abundance of springs, and numerous geothermal energy sources, but is prone to volcanic eruptions, earthquakes, and tsunamis.

The old manuscript of *Babad Pakualaman* states that on 10 June 1867, a terrible earthquake hit Yogyakarta. It lasted for about two minutes. The ground swayed as if being swung, and trembled as if it was about to be lifted. The earth and sky seemed to be

collapsing. The roar at the top of Mount Merapi was horrendous. High waves crashed on the coastline, sweeping water and fish on to the land. People did not have enough time to save themselves. Most of the estimated 1,000 victims were Chinese. According to the *Babad Pakualaman*, the terrible earthquake occurred because, among other factors, many people had become slack in their worship of God.





Figure 5. The eruption of Mount Merapi in November 2010 (source: above, Volcano Discovery; below, Bay Ismoyo/AFP/GettyImages)

Anaccount of another eruption of Mount Merapi appears in the *Babad Ngayogyakarta:* Hamengku Buwana IV dumugi V. On the afternoon of Friday 27 December 1822, Yogyakarta was struck by a sequence of strong earthquakes that kept coming and going until midnight. Mount Merapi emitted incandescent lava and the sky became bright. Fire

emanated from the mountain top. Rocks spewed from the belly of the mountain. The shocks, the molten lava, and the hurling stones from Mount Merapi destroyed several Dutch buildings and plantations on the slopes of the mountain. According to the *Babad Ngayogyakarta*, this disaster occurred because God heard the prayers of people who were oppressed by the arbitrariness of palace officials. Common people had to bear the impact of the higher-ups' decisions to rent land to private entrepreneurs for plantations of coffee and indigo. The people were so devastated that they could only scream asking God for justice.

The dates of the eruptions in the manuscripts accord with archival sources. The causes of the disaster are recorded only in literary works. The authors of the accounts stated that the disasters occurred because humans forgot to worship God (*Babad Pakualaman*) or because God heard the cry of the common people who were oppressed by the arbitrariness of palace officials (*Babad Ngayogya*). Both manuscripts were written by a palace clerk who lived decades after the natural disasters occurred.

Lucas Sasongko Trivoga (2010) studied the responses to the Merapi eruption in October-November 2010 by interviewing local people. The eruption was one of the largest in the history of Merapi as recorded by the National Disaster Management Agency. Merapi spewed materials from the bowels of the earth and blew a pyroclastic storm (wedhus gembel) toward Yogyakarta. Residences, livestock, and plantations were scorched by the storm. The government reacted immediately. People were evacuated, and later relocated to an area that was safe from the dangers of Merapi. Many refused to be relocated as they believed that living far from the slope of Merapi would not necessarily guarantee their safety and welfare. They were more confident and happier to live with Eyang Merapi (eyang is usually used to address a grandparent), a nickname for Mount Merapi. For centuries and generations, they had been able to adapt to living with the highly dangerous volcano. They believed that Mount Merapi was guarded by spirits, namely Eyang Rama, Eyang Permadi, Kyai Sapu Jagad, Nyai Gadhung Melati, Kyai Krincing Wesi, Kyai Petruk, and others. These guardians often informed the residents of Yogyakarta if something was about to happen to Merapi through messages in dreams or supernatural sightings (Triyoga 2010).

Triyoga (2010) further explained that such beliefs about Merapi are not superstition or religious belief but rather a system of knowledge and values that enables people to adapt to the natural environment of Merapi. All of Merapi's activities are closely related to the supernatural realm. This belief system generates awareness among the locals that supernatural forces exist in this universe, and that people can live and interact with them.

Cultural wisdom and Babad Matawis

The accounts written in manuscripts 200 years ago tell of two powerful and interconnected kingdoms of spirits located in the Southern Sea and Mount Merapi respectively. The *Babad Matawis* (1815) explains the relations between these kingdoms and Yogyakarta as follows.

In 1587, Sutawijaya was crowned as Kanjeng Panembahan Senapati. After the coronation, he meditated and received a message to meet Kanjeng Ratu Kidul, the Queen of the Southern Ocean. Following the direction of his advisor, Ki Juru Martani,

Panembahan Senapati went to Kanjeng Ratu Kidul, while Ki Juru Martani left for Mount Merapi. Their purpose was to establish an agreement between the rulers of the Southern Sea, the palace of Mataram, and Mount Merapi to guard each other continuously in order to create mutual peace and prosperity. Panembahan Senapati's meeting with Kanjeng Ratu Kidul is visualized in the manuscript in an illustration entitled *Dhatuning Samodra*, "Queen of the Ocean" (Figure 6), and interpreted as follows.

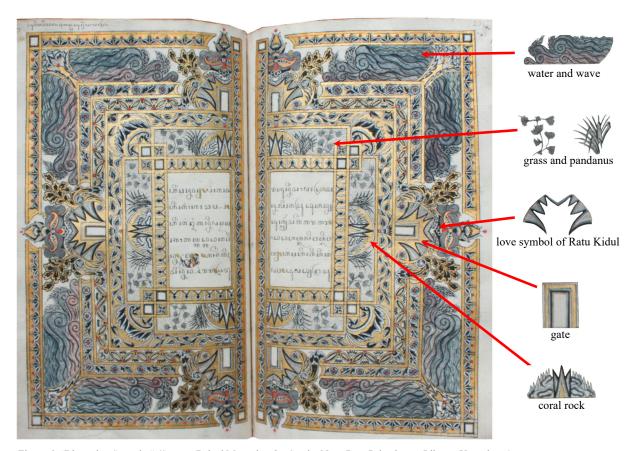


Figure 6. "Dhatuning Samodra" (Source: Babad Matawis saha Candra Nata, Pura Pakualaman Library, Yogyakarta)

Through his humility and his desire to draw closer to God, Panembahan Senapati journeyed to meet Kanjeng Ratu Kidul at the Southern Sea Palace. The Queen promised to help him when needed. Kanjeng Ratu Kidul's help and contribution in protecting the land of Mataram expressed her devotion to the noble Panembahan Senapati (Saktimulya 2016). This relationship is depicted in the illustration through the images of sand, grass and pandanus, coral rock, water and wave, gate, and the love symbol of Ratu Kidul.

The illustration shows that the sultan and *adipati* of Yogyakarta believe that they must show to Kanjeng Ratu Kidul, the spirit of the Southern Sea, and to Eyang Merapi, the spirit of the mountain, that they themselves respect God's creations and are able to maintain self-control. Otherwise, greed will emerge and drive people to exploit natural resources without considering the negative impact on the survival and livelihood of

later generations. If the inhabitants keep denying their responsibility and offer various excuses, such as ignorance, the earth will be ruined. Hence the proposition *hamemayu hayuningbawana kapurba dening manungsa*, which means "creating safety and beauty in the world starting from humans," is adopted by Yogyakarta as a guiding principle.

Rahyono (2015) stated that the cosmology of the Javanese is structured through the concept of *jagad gedhe* (big universe or macrocosm), meaning the physical world and its powers, and *jagad cilik* (little universe or microcosm), meaning humans. Thus, humans are dependent on the world and must cultivate a spiritual relationship with the *jagad gedhe*. This cosmology shows that the Javanese believe that both humans and the physical world or nature are God's creations and that both are part of a single structure. Humans must develop a communication network between humans and the universe that possesses supernatural powers. Javanese culture identifies humans and the universe as having a commonality, that is the world of life with different roles (Rahyono 2015).

The Javanese conduct various rituals to attain the safety and beauty of the world through the practices of remembering and being aware. To remember means to understand one's position as a creation of God so that one will try to carry out God's commands and avoid God's prohibitions. If a man remembers God, he will not act arbitrarily. The manuscripts, *Babad Ngayogyakarta* and *Babad Pakualaman*, record that when humans forget to worship God and act irresponsibly, God will warn them through natural disasters. Therefore, humans must always be aware of the turmoil of various desires that grow from within the human heart (small universe) so as not to disturb the peace of the world (big universe). Rahyono (2015) states that greed and arrogance will not be able to defeat the power and to take control of the nature that provides sustenance to humans. Arrogance can make the atmosphere of life uncomfortable and ruin the system of human life.

Cultural wisdom and disaster management today

What else can humans do to be in harmony with nature? In his writing on "Caring for Memory: Natural Disasters and Local Wisdom in the Island of Java," Djati Mardiatno stated that disaster management can be divided into several phases:

- 1. pre-disaster: mitigation and preparedness;
- 2. the immediate response: seeking shelter, evacuating, and responding to emergencies;
- 3. post-disaster: recovery through rehabilitation and reconstruction (Figure 7).

Those instructions bring positive results such as material assistance from the government, relocation, and counselling to recover from their trauma. However, these are inadequate. Many victims prefer to return to their old homes which are clearly prone to disaster. Government responses to natural disasters must raise the community's awareness through the cultural wisdom *hamemayu hayuning bawana kapurba dening*

manungsa (creating safety and beauty in the world starting with humans) by taking into account the locus of control of both microcosm and macrocosm.

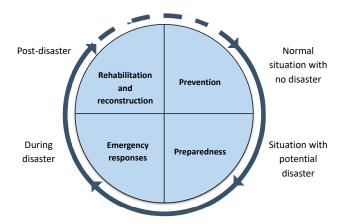


Figure 7. The cycle of disaster management (source: Guide to Contingency Planning for Disaster Management, BPNB 2017)

Mudji Sutrisno (2020) argues that respecting culture is a means to create a comfortable space for human life and development within the freedoms granted by God. Under this approach, disaster management takes a different form, as shown in Figure 8.

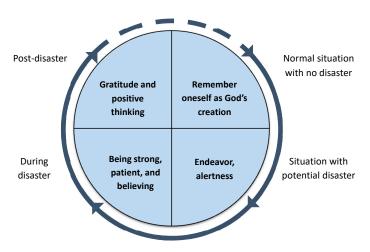


Figure 8. Disaster mitigation through attitude management (Source: Guide to Contingency Planning for Disaster Management (BPNB 2017)

This attitude management needs to be practiced by people every day. Humans should remember that they are creatures of God, and must be persistent, be alert, be strong, be patient, believe in God's love, be always grateful and think positively. According to the *Candra Nata* text, which records the character and attitude of Javanese rulers, such attitude management was exercised by Panembahan Senapati and passed down to his descendants along with all his people.

Since his youth, Panembahan Senapati was known for his fondness of mediation. He liked to go to places away from the crowd, such as *Gilang Lipura* near the Southern Coast, and meditate there from midnight until dawn. He thus drew closer to the Creator. He praised God and asked for protection, both physical and spiritual. Panembahan Senapati's perseverance in practicing meditation is recorded in numerous Javanese manuscripts, making him a paragon to be followed by later generations. Nowadays, songs describing his virtue are still broadcast on various mass media in various regions of Java. Even though it is difficult (but far from impossible) to follow his method of attitude management through regular meditation today, the values inherent in this practice remain relevant to the present time and must be allowed to take other forms appropriate to the spirit of our age.

Conclusion

Old manuscripts describe the enormity of natural disasters, their causes, and their mitigation. *Babad Ngayogyakarta* and *Babad Pakualaman* attribute these disasters to human neglect of God the Creator, acts of arbitrariness, and human greed. These texts never attribute these disasters to external factors such as changes in the Earth's orbit.

The authors of these old manuscripts and the past rulers of Yogyakarta used cultural approaches to maintain harmony between humans and other humans, humans and nature, as well as humans and God. The value system of *hamemayu hayuning bawana kapurba dening manungsa* (creating safety and beauty in the world starting with humans) is designed to make people responsible and adaptive because humans must live in harmony with nature, not as its rulers but as its caretakers.

Public awareness of protecting the environment can be nurtured through attitude management — by remembering oneself as a creature of God, being alert, being strong, being patient, believing in God's love, being grateful always, and thinking positively. This will bring peace, both in our hearts and on our earth. If practiced sustainably, the values will also increase people's awareness of climate change and guide their attitude to tackling the problem, starting from the simplest things around them.

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