



THE EXISTENCE OF *PRANATA MANGSA* CALENDAR IN THE MIDST OF GLOBAL CLIMATE CHANGE

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Abstract: This study discusses the existence of the *Pranata Mangsa* calendar in the midst of global climate change. This research uses qualitative research methods with a literature review approach. The *Pranata Mangsa* calendar is familiar in Indonesia, especially the Javanese people. This calendar is a seasonal calendar that has been used by Javanese people thousands of years ago. This calendar is synonymous with the circulation of the sun's rotation, which is sometimes also referred to as the agricultural and fishery calendar. Farmers use this calendar because it is a guideline in farming. For example, when Mangsa Rendeng (December-February) is a month of storms, rains, floods, and landslides, while Kawolu (February-March) informs farmers to prepare for plant diseases and catastrophes affecting humans and animals. This study explains how the existence of the *Pranata Mangsa* calendar in the present where climate change occurs erratically.

Kata kunci: Existence, *Pranata Mangsa*, Climate

1. INTRODUCTION

Climate change is one of the world's problems. Increasing air temperatures and erratic rainfall patterns, causing various natural disasters, deteriorating health quality, and threatened food availability. Related to the last issue, weather uncertainty often causes droughts and floods. Agricultural land is affected so that crop failure often occurs. This condition is certainly very detrimental, especially the Indonesian people are very dependent on the agrarian sector. Knowledge of climate is indeed very useful for agriculture. The arrival and end of the rainy and dry seasons is very decisive for the time of planting, until the time of reaping the harvest.

Today, the source of knowledge about climate and weather (for agriculture) rests on modern science, which blends various disciplines, such as meteorology, soil science, hydrology, agronomy, and so on. Then, how do farmers determine the time of planting before the development of these scientific fields? One of the sources of such knowledge is *Pranata Mangsa*. *Pranata Mangsa* or *Pranotomongso* is a Javanese farmer season dating system, based on readings of various natural signs, such as the appearance of stars, wind movements, and the physical appearance of flora and fauna movements. Sindhunata mentioned that this system is a peasant culture that has been ingrained in the lives of Javanese and Sundanese farmers. *Pranata Mangsa* was used before the arrival of Hindu influence. *Pranata Mangsa* (allegedly) contributed to the greatness of agrarian countries, such as Ancient Mataram, Pajang, and Islamic Mataram.

In Indonesia, there are three calendars that are deeply rooted in the pattern of people's lives, because this calendar system seems to be ingrained in all community activities so that the three seem impossible to separate. These calendars are the Gregorian Calendar (Musonnif, 2011). It is this calendar that is widely used throughout the world that serves as the administrative system of the country. Another calendar is the Hijri Calendar (Darsono, 2010). This calendar is a calendar used by Muslims to determine the times of worship. Third is the Javanese Calendar, also known as the *Pranata Mangsa* calendar. *Pranata Mangsa* is a traditional Javanese way of predicting weather and climate that has existed for a long time, which is based on natural events, so users of this method must "remember" (in Javanese: *titen*), when to plant and harvest (Shidiq, 2012).



The Javanese calendar of *Pranata Mangsa* is one of the legacies of human civilization that is very famous and important for human survival, especially the Javanese people. With the calendar or calendar makes it easier for humans to identify and mark events or events that have passed (Saksono, 2007).

2. METHOD

This research is qualitative research that is a library research that uses books and other literature as the main object. The type of research used is qualitative, namely research that produces information in the form of notes and descriptive data contained in the text under study.

3. ANALYSIS OF STUDY FINDINGS

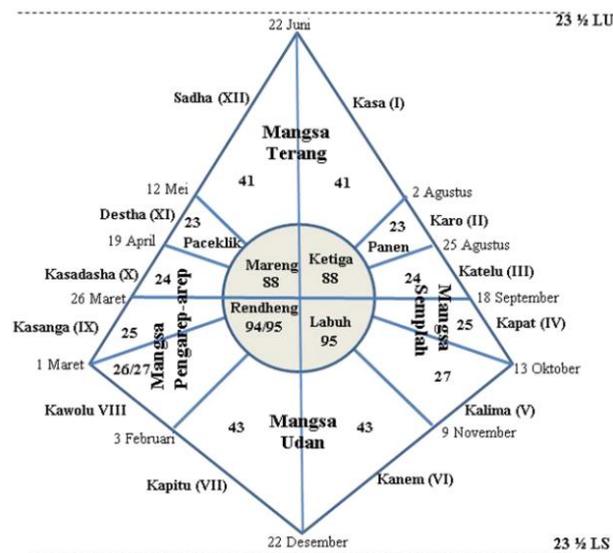
3.1 *Pranata Mangsa*

Linguistically, the word *Pranata Mangsa* itself consists of two syllables, namely the institution which means rules, and the *Mangsa* which has the meaning of time, season or periodization of the climate on earth caused by the shift in the solar orbit line or commonly called solar system dating. In islitah itself, the *Pranata Mangsa* is a calendar that becomes a guideline for Javanese people to understand signs from nature that are used to determine the season that will be used as a benchmark for their survival. The *Pranata Mangsa* itself is a periodization within a period of one year which is then divided into 12 *Mangsa*. These 12 *Mangsa* are based on the circulation of the sun (Surya Sangkala) with its wisdom in reading signs from nature such as the location of the sun, wind direction, weather, animal and plant behavior that are connected between people with their surroundings who have the aim of understanding, respecting, and belonging to each other.

Institutions *Mangsa* is one of the Javanese calendar that is very important for the survival of human life. *Pranata mangsa* is a legacy of the civilization of the ancestors of the ancient Javanese tribe. If there is no calendar or calendar, it will be difficult. This is because the community will have difficulty or difficulty determining the activities that will be carried out in the future, especially the design of activities related to time or *Mangsa* (Riza, 2018). The *Pranata Mangsa* has actually been used for a long time by the Javanese tribe community which has been inherited from the time of the Hindu kingdom of Mataram as guidance in agriculture, economy, administration and military defense. However, this calendar was only established as an official calendar by Sri Susuhunan Paku Buwono VII in Surakarta, namely on June 22, 1855. The determination of the use of the *Mangsa* Institution by Sri Susuhunan Paku Buwono VII was not only to regulate the peasant system, but also to provide certainty to the people so that they could carry out their activities smoothly. This is because at that time there were four kinds of time introductions, namely Saka, *Pranata Mangsa*, Sultan Agung and Gregorian. With this certainty, Sri Susuhunan Paku Buwono VII hopes that the public will no longer be confused and can know the start and end of a *Mangsa* (Minani, 2017). June 22 was chosen to be the first day, because at that time began the shift of the position of the sun from the northern equinox to the southern equinox.

At that time the *Pranata Mangsa* has been used as a guide to prepare for natural disasters and also related to weather forecasting. With this *Mangsa* institution, the community can avoid future things that do not cool the incident. This *Pranata Mangsa* uses a local calculation system used by Javanese people who have been adopted for a long time. Where in one year the *Pranata Mangsa* will be divided into 12 symmetrical *Mangsa*, as seen from the picture below (Minani, 2017).

Figure 1- *Pranata Mangsa* dating concept



In this dating system is divided into two periods, namely the first period and the second period. The first time starts from *gauze victims (first victims) who have an age of 41 days to mangsa kanem (sixth victims) who have an age of 43 days* . The second period starts from the *kapitu victim (seventh victim) who has an age of 43 days to the kasadha man (twelfth victim) who has an age of 41 days* . Details and explanations of each victim in the *Pranata Mangsa* are as follows:

Gauze Mangsa or the first *Mangsa* is 41 days, starting from June 22 to August 1. *Karo Mangsa* or the second *Mangsa* is 23 days starting on August 2 to August 24. *Katelu Mangsa* or third *Mangsa* is 24 days, starting from August 25 to September 17. *The fourth Mangsa* amounted to 25 days, starting from September 18 to October 12. *Kalimo Mangsa* or the fifth *Mangsa* is 27 days. This *kelimo Mangsa* starts from October 13 to November 8. *Kanem's Mangsa* or sixth *Mangsa* amounted to 43 days starting from November 9 to December 21. *Magsa Kapitu* or the seventh *Mangsa* amounted to 43 days starting from December 22 to February 2. The *Kawolu Mangsa* or eighth *Mangsa* is 26 or 27 days depending on February 28 or 29, which starts from February 3 to March 1. The *Kasanga Mangsa* or ninth *Mangsa* is 25 days long, starting March 1 to March 25. The tenth *Mangsa* of *Keshadasa* or *Mangsa* amounted to 24 days, which began on March 26 to April 18. *Dhestha's Mangsa* or eleventh *Mangsa* totaled 23 days, starting from April 19 to May 11. The *Sadha Mangsa* or twelfth *Mangsa* numbered 41 days, which began on May 12 to June 21.

The circulation system used in the Kaelnder *Pranata Mangsa* is to use the Solar LUNI system where this system uses the Sun reference as its circulation system. Because it uses a solar reference, the number of days in a year is between 365 days or 366 days. In other words, this *Pranata Mangsa* is almost similar to the Gregorian calendar because both use solar references. In this *Pranata Mangsa* , its circulation contains various natural phenomena and symptoms that can be used for guidance in farming activities and in order to prepare themselves to face seasonal changes that will occur.

3.2 Global Climate Change

One of the issues or problems What is happening in the world is global climate change causing human activities. Global climate change is a common problem that must be faced and overcome together. The impact of global climate change is felt by various



walks of life. Therefore, the issue of climate change must be a special concern so that all human activities and activities can run smoothly.

Penanggalan Jawa Pranata Mangsa is one of the local wisdom of the Javanese people related to agricultural land management. The application of the Javanese Pranata Mangsa calendar shows that Javanese people will never be separated from the environment. Since ancient times, the Javanese have viewed nature as a subject, which means they are subject to nature (Rizqa, 2016). Viewed climatologically, the *Pranata Mangsa* collects information about seasonal changes as well as the times that apply to areas of Java that are affected by monsoon winds, which in turn are also controlled by the direction of the Sun (Faizah, 13).

But what needs to be remembered is that in the Javanese calendar Pranata Mangsa does not describe variations that may arise due to some natural phenomena. For example, due to the emergence of several symptoms such as ENSO (*El Nino Southern Oscillation*) which is meteorologically described in the *Southern Oscillation Index (SOI)* value, *El Nino* phenomenon which extends the dry season and *La Nina* which extends the rainy season and is influenced by monsoon circulation which causes climate differences between the rainy and dry seasons and the influence of regional phenomena such as the *Inter Tropical Convergence Zone (ITCZ)* which is an area of cloud growth and sea surface temperature conditions around the territory of Indonesia. So that this becomes a weakness of the Javanese Pranata Angsa dating system (Fidiyani et al, 2012).

3.3 The Existence of Mangsa Practice in the Middle of Global Climate Change

Along with the changing times marked by the increasingly advanced science and technology, especially in agriculture, farmers, especially in Java, began to forget and eliminate the use of the *Pranata Mangsa* as a guideline in farming. This is because global climate change makes seasonal changes erratic. Erratic seasonal changes make it difficult for traditional farmers to read the phenomenon of natural change as a marker of seasonal changes becoming erratic. Erratic seasonal changes make it difficult for traditional farmers to read the phenomenon of natural change as a marker of seasonal changes (Rizqa, 2016). However, even though environmental changes continue to occur and efforts to observe the phenomenon of natural change are increasingly difficult. However, some farmers in Java are still trying to preserve the use of Pranata Mangsa as a guideline in farming.

Therefore, seasonal uncertainty affects community activities, especially farmers. Because without the results of farmers we will not be able to get food sources. Therefore, with the Pranata Mangsa calendar that has been used, it needs to be updated again because it is slightly different from the current situation.

4. CONCLUSION

Pranata Mangsa is a calendar that becomes a guideline for Javanese people to understand signs from nature that are used to determine the season that will be used as a benchmark for their survival, one of which is to grow crops. Regarding the existence of the Pranata Mangsa calendar in the midst of global climate change, most Javanese people no longer use this calendar because climate change in the present is uncertain and no longer in line with the signs contained in the Pranata Angsa calendar.

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