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# Single Global Hijri Calendar in the Muhammadiyah Perspective: Integration of Hisab, Rukyat, and Dates Unification

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**ABSTRACT**

The discrepancy in determining the beginning of the month of Qamariyah remains an annual issue in the Islamic world, particularly in relation to the fasting of Ramadan, Eid al-Fitr, and Eid al-Adha. Muhammadiyah, through the manhaj tarjih, offers a solution based on the concept of the Single Global Hijri Calendar (KHGT), which is grounded in essential hisab and the criteria of global imkanur rukyat. This research employs a qualitative method, drawing on a literature study of the decisions made at the 47th and 48th Muhammadiyah Congresses, official documents of the Tarjih and Tajdid Councils, and the results of the 2016 Turkish Congress. The results of the study show that KHGT plays a role as an instrument of unifying Muslims in setting the calendar, without changing the local daily worship time. The implementation of KHGT is projected to enhance Islamic ukhuwah, provide certainty of worship times, and serve as a model for integrating astronomy and Islamic law in the contemporary era.



## I. Introduction

The Hijri calendar plays a vital role in the religious life of Muslims, serving as the basis for establishing time-related worship such as fasting during Ramadan, Eid al-Fitr, Eid al-Adha, and Hajj. However, in practice, Muslims in various countries often experience differences in determining the beginning of the month of qamariyah due to different

methodologies, such as rukyat (observation of the moon) vs. hisab (astronomical calculations), as well as differences in the visibility criteria of the moon (such as moon height, elongation, and others). This difference is not only technical, but also touches on social, religious, and ethnic aspects [1].

Muhammadiyah, as one of the major Islamic organizations in Indonesia, has responded to this problem through the manhaj tarjih, which proposes the integration of essential hisab and the criteria of global imkanur rukyat within the framework of the Single Global Hijri Calendar (KHGT). The goal is to produce a globally uniform Islamic calendar, especially for administrative purposes and the identification of Islamic holidays, while maintaining the authenticity of shari'a postulates and local religious sentiments [2].

Recent studies show that efforts to unify the calendar not only focus on astronomical aspects or the criteria of the hilal, but also involve fiqh, historical, and an understanding of the benefits of maslahat in Islam. For example, the study "Reconstructing Ijtihad in Unifications the Islamic Calendar: Jasser Auda's Maqāshid al-Sharīʿah Approach" emphasizes that the integration of rukyat and hisab can be done in accordance with the principles of maqāshid al-Sharīʿah, especially in the interests of the ummah and maintaining unity [3]. Likewise, the study "The Harmonizing the Hijri Calendar: A Comparative Insight of Indonesia's Imkān al-Ru'yah Crescent Visibility Criteria with Malaysia and Saudi Arabia" illustrates that there are some different hilal visibility criteria among significant Muslim countries [4].

The historical aspects and thought of scholars also received attention; The work "Hisab-Rukyat Transformation in the Determination of the Beginning of the Hijri Month in Muhammadiyah" explains how Muhammadiyah underwent a methodological transformation in refining the criteria and strengthening its argumentative foundation to be relevant to the contemporary conditions of religion and astronomy [5]. The study of Islamic Unity (Persis), which has been more inclined towards hisab, also shows a shift by incorporating elements of rukyat into its approach [6].

Socio-religious implications also strengthen the urgency of unifying the global Hijri calendar through KHGT: the certainty of the time of worship can strengthen Islamic

ukhuwah, reduce disputes in the implementation of the holiday, and facilitate cross-border coordination of Muslims [7].

In addition, the research "A Robust Unified Islamic Calendar Proposal for the World" presents a technical proposal for a global calendar that takes into account the visibility of the young moon, the application of criteria based on regions (topocentric), and international standards such as UTC and international date lines [8].

The primary issue faced by Muslims today is the inconsistency in determining the beginning of the Hijri month, which repeats every year, resulting in variations in the implementation of fasting during Ramadan, Eid al-Fitr, and Eid al-Adha across different countries within the same region. This difference stems from the diversity of methods used to determine the month, such as local rukyat, hisab with different criteria, and various factors from religious authorities [1]. As a result, this not only confuses the ummah but also has implications for weakening Islamic ukhuwah and the loss of certainty in planning worship and social activities [7].

To address these issues, an integrative approach is necessary that combines the scientific accuracy of essential hisab with the legitimacy of global shari'i imkanur rukyat. This approach aligns with the view of maqāshid al-Sharī'ah, which emphasizes the benefits and unity of the ummah [3], as well as Muhammadiyah's vision in proposing a Single Global Hijri Calendar (KHGT) as a solution to unify the world's Islamic calendar [9]. Through the framework of Muhammadiyah's manhaj tarjih, KHGT is offered as a solution that balances the authority of the nash, the benefits of the ummah, and scientific certainty, so that it can be a way out of the problem of calendar differences while strengthening the unity of Muslims at the global level [10].

## II. Method

This research employs a qualitative approach, utilizing the library research method. The main sources of research consist of official documents of Muhammadiyah, especially the results of the 47th Congress in 2015 and the 48th Congress in 2022, the minutes of the Tarjih and Tajdid Council on hisab, rukyat, and the concept of KHGT, as well as the decision of the

2016 Turkish Congress, which discussed the unification of the global Islamic calendar. In addition, the research also utilizes secondary sources, including the latest journal articles, books, and proceedings, that are relevant to the issue of the Hijri calendar, from the perspectives of astronomy, jurisprudence, and maqāshid al-sharī'ah.

Data collection is carried out by examining and critiquing scientific papers and documents that discuss the problem of hisab-rukyat, the concept of global imkanur rukyat, and the idea of unifying the Hijri calendar. All collected data were then analyzed using both descriptive and analytical approaches. The analysis process began with data reduction through the grouping of main issues related to KHGT, followed by the presentation of data in the form of a relationship between the results of the literature review and the decisions made by Muhammadiyah and international organizations. It ended with the drawing of conclusions to identify the advantages, weaknesses, and potential implementation of KHGT. With this approach, the research is expected to provide a comprehensive understanding of the epistemological relevance and prospects of applying KHGT as a solution to the differences in the Hijri calendar in the Islamic world.

## III. Results and Discussion

The results of the literature review and official documents of KHGT indicate that the concept of the Single Global Hijri Calendar (KHGT) encompasses not only an administrative system but also an integrative proposition between the nash shar'i, the principles of the Muhammadiyah madhhab tarjih, and modern astronomical methods. In this section, the author outlines some of the key findings and critical discussions based on fiqh, astronomy, and implementation challenges.

### 3.1 The Concept of KHGT, Syar'i Evidence, and Fiqh Principles

Based on the official website of the KHGT, one of the main footholds is that the determination of the time of worship and the Islamic calendar must be universal (common to humans). The phrase "لِلنَّاسِ" (for humans) in QS. Al-Baqarah: 189 is considered an indication that the time of worship is global, not just local.

In addition, QS. Yunus: 5 mentions "al-ḥisāba" (calculation) gives legitimacy to the use of hisab (calculation) as an instrument of determining time (including the beginning of the month). In the aspect of fiqh, KHGT inserts the principle of imkanur rukyat (the possibility of seeing the hilal) as a bridge between hisab and rukyat (observation). In the document "Simple Explanation of the Requirements for the Single Global Hijri Calendar", it is stated that the KHGT does not ignore rukyat, but requires that the hilal must meet a minimum height of ≥ 5° and an elongation of at least ≥ 8° in order to be said to meet the requirements of imkanur rukyat.

It is also stated that the KHGT should not declare the turn of the moon before the conjunction (ijtimaʿ), and that the eligible area should not be postponed without reason according to the principle of "if you see the moon, then fast; When you see it, then have a feast." The KHGT website [11] also affirms its conceptual pillars as "two pillars": shari'i postulates and scientific evidence (astronomy), which means that KHGT expressly seeks not only to rely on astronomical calculations, but also to maintain the legitimacy of shari'i (nash) as a normative foundation.

In this case, Muhammadiyah advocates that the Islamic calendar must be a system that connects religious and world affairs simultaneously (religion and science). From the perspective of the Muhammadiyah school of tarjih, ijtihad in adopting KHGT is a form of reinterpretation of traditional methodologies to make them relevant to the challenges of the times and the conditions of global Muslims. This step is referred to as the "leap of ijtihad of Muhammadiyah" in the development of a globally uniform Islamic calendar.

Several Indonesian astronomical studies have criticized the technical aspects of the KHGT, particularly those related to the formulation of astronomical criteria (altitude, elongation, geocentric vs. topocentric), as well as the discrepancies in results with local criteria, such as MABIMS. For example, Professor Thomas Djamaluddin (a member of the national hisab-rukyat team) wrote an analysis that, in the 1447 H calendar, between the MABIMS criteria and the Turkish criteria (which are used as a reference in the KHGT), there are six differences in the territory of Indonesia (50% of the month) [12]. In this case, he demonstrates that the use of geocentric heights (such as those employed by the KHGT) and topocentric heights (as specified in the Turkish criteria) can lead to date discrepancies.

In his note, Djamaluddin also stated that the KHGT application needs to be adjusted to use topocentric height, not just geocentric, so that the results are more consistent with international criteria, such as those of the Turkish Diyanet. In addition, he argues that the KHGT is not always "in line" with the calendar calculated by other institutions when the moon's position is very low (below-horizon) or visibility conditions are difficult.

The document "Prospects and Polemics of the Single Global Hijri Calendar (KHGT)" also addresses several technical and methodological issues in implementing KHGT, including rounding problems, integrating global astronomical data, and addressing time zone uniformity and date line effects (IDL) [13].

Furthermore, theoretical studies in astronomy faculty documents (e.g. studies at UMM) discuss the concept of imkān rukyat and the visibility of the hilal as a methodological bridge between hisab and rukyat. In this study, imkān rukyat is defined as the possibility that the moon can be seen, based on the calculation of the moon's position and the sun's position, as well as local atmospheric conditions, which forms the basis for the compromise between the hisab and observation methods. On the practical side, the KHGT website indicates that the KHGT calendar is calculated and published concurrently by the Tarjih and Tajdid Council of the Muhammadiyah Central Government, complete with a hilal visibility map and calculation tables.

Additionally, Muhammadiyah offers public access to this calendar through the MASA website and application, allowing the wider community to view the KHGT calendar at no cost (as part of its socialization and transparency strategy) [14]. Administrative & religious implications: The KHGT presents the certainty of a global calendar (one day, one date), which allows for the coordination of worship (such as fasting, Eid al-Fitr, Eid al-Adha, Hajj) across countries without differences in administrative dates. It is expected to reduce disputes and confusion in society and strengthen global Islamic ukhuwah (Abdul Mu'ti, in his statement, that KHGT also answers the challenges of the ummah and universal nationality)

### 3.2 Weaknesses and Challenges of KHGT Implementation

Although KHGT offers a comprehensive solution to unify the Islamic calendar, its implementation is inextricably linked to several weaknesses and challenges. First, there are

technical differences in astronomical criteria. As stated by Djamaluddin, the use of geocentric altitude rather than topocentric altitude has the potential to produce date differences, especially when the moon's position is at a low altitude [12]. Additionally, other technical factors, such as the rounding of the moon's position, delta-T calculations, and atmospheric variations in various locations, also impact the accuracy of moon visibility.

Second, the issue of religious legitimacy and authority remains a crucial concern. Muhammadiyah, through the manhaj tarjih, has established the KHGT [2]; however, other Islamic organizations and most Muslim countries still use established local criteria, such as the MABIMS criteria in the Southeast Asian region. This difference in legitimacy makes the KHGT potentially difficult to be widely accepted without a global consensus involving official religious and state authorities.

Third, there is sociological resistance among the community. For some Muslim communities, traditional rukyat holds its own symbolic and spiritual value because it is considered more in line with the Sunnah of the Prophet. The switch to a modern hisab system, such as the KHGT, can raise doubts or even rejection, especially among those who have become accustomed to local methods for generations.

Fourth, in terms of astronomical complexity, KHGT faces challenges in integrating global astronomical data to ensure consistency worldwide. Uniformity of algorithms, unification of ephemeric databases, and differences in geographical and climatological conditions require a more careful approach so that the calculation results do not cause disparities with the reality of rukyat in the field.

Fifth, political and state policy factors are also very decisive. In practice, the determination of holidays in many countries is the responsibility of the government, not just mass organizations. Therefore, although the KHGT has been prepared scientifically and in accordance with Sharia, its implementation depends on the state's political will and policy to adopt it.

To face these challenges, systematic solution steps are needed. Local astronomical studies, such as those proposed by [12], recommend the use of topocentric heights and more precise calculation algorithms to align the KHGT with the results of real astronomical

observations. On the other hand, educational strategies and inter-institutional dialogue are necessary so that KHGT can be accepted without causing methodological conflicts with local traditions. An inclusive dialogue between Islamic organizations, the government, and the international scientific community is the key to making KHGT not only an internal discourse of Muhammadiyah but also an instrument of global Muslim unity [10].

Overall, KHGT from the perspective of Muhammadiyah appears as a model of compromise and contemporary ijtihad: not reducing nash or old methods, but mediating and uniting in a scientific and Sharia framework. However, the success of its implementation depends largely on how religious parties, states, and the scientific community can respond to and reconcile technical and authoritative differences.

**Discussion**

This study demonstrates that the Single Global Hijri Calendar (KHGT) represents a contemporary form of ijtihad by Muhammadiyah, aiming to bridge the gap between sharia principles, fiqh methodology, and modern astronomical instruments. The foundation of the shari'a of KHGT can be traced back to the verses of the Qur'an, such as QS. Al-Baqarah: 189 about the function of the moon as a determinant of time for humans and QS. Jonah: 5 who recognizes the legitimacy of hisab in determining time. These verses are the normative basis that justifies the use of hisab hakiki and imkanur rukyat globally as a dating instrument.

In fiqh, KHGT represents an integrative approach that accommodates the value of rukyat—by ensuring that the hilal is in the position of imkanur rukyat—while affirming the authority of hisab to provide certainty of time. Within the framework of maqāshid al-sharī'ah, the unification of this calendar fulfils the principle of maslahat and the unity of the ummah [3]. Thus, KHGT is not only a technical instrument, but also a strategic step in strengthening the Islamic ukhuwah.

However, the challenges of implementing KHGT are not simple. The difference in astronomical criteria, social resistance, authoritative legitimacy, and state political factors shows that the issue of the Islamic calendar is not only a matter of astronomy but also involves sociological, theological, and geopolitical dimensions. Therefore, the implementation of KHGT requires a multi-level strategy: technical adjustments at the astronomical level, strengthening fiqh arguments at the academic level, and collaborative dialogue at the institutional and international levels.

In the Indonesian context, the presence of KHGT can be seen as both an opportunity and a challenge. On the one hand, Muhammadiyah, with the support of the Tarjih and Tajdid Councils, has provided a concrete model that integrates astronomy and Sharia. On the other hand, there are still differences between the MABIMS criteria adopted by the government and those of other mass organizations [10]. This situation demands a more inclusive national and international dialogue forum so that KHGT is not only an internal product of Muhammadiyah, but also part of the consensus of the world's Muslims.

If one looks closely, the debate about KHGT is a continuation of the long-standing dynamics of hisab and rukyat in the history of Islam. Differences in methodology have given rise to a diversity of practices; however, in the era of globalization, Muslims require a unifying calendar that serves as a standard reference point for all. Thus, the KHGT holds a strategic position, serving as a bridge between tradition and modernity, between locality and globality, and between Sharia and science.

## IV. Conclusion

The Single Global Hijri Calendar (KHGT) initiated by Muhammadiyah is an essential innovation in the effort to unify the world Islamic calendar. KHGT stands on two main pillars: the foundation of Sharia in the form of postulates from the Qur'an and hadith regarding the function of the moon and rukyat, and the scientific foundation in the form of calculating the essential Hisab with the criteria of global imkanur rukyat. By integrating the two, the KHGT not only offers administrative certainty for the date of worship but also seeks to maintain the authority of the Sharia that has been inherited in the Islamic tradition.

This research found that KHGT was able to provide a solution to the classic problem of determining the beginning of the month of Qamariyah, which has caused discrepancies in Islamic holidays, both between countries and within a single region. The KHGT emphasizes that the time of liturgical worship (prayer, fasting, etc.) is still determined based on local phenomena, while the global calendar serves to unify the administrative calendar. Thus, KHGT can be seen as a unifying instrument for Muslims that bridges theological, sociological, and astronomical dimensions.

However, the study also highlights several significant challenges, including technical differences in astronomical criteria, the interplay between religious and state legitimacy,

social resistance to change, the complexity of global astronomical data, and the influence of political factors. To overcome this, a strategy for technical improvement, strengthening the fiqh base, and dialogue between institutions, both at the national and international levels, is needed. Socialization and public education efforts are also crucial so that KHGT can be understood and accepted by the wider community.

Overall, KHGT is a contemporary ijtihad that has the potential to become a unifying force for Muslims in the modern era. If supported by international consensus and a proper implementation strategy, KHGT can achieve its great goal: to present a global Hijri calendar, unite the ummah during worship, and strengthen Islamic relationships across nations.

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