

Optimist And Pessimist Moon-Sighting: The Study Of Islamic Calendar Determination In Indonesia

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Abstract: *The Islamic calendar decision has always been a public discourse among Muslims at the beginning of Ramadan, Shawwal, and Dhuhbijab. It is often the case that different decisions made among Muslim groups in determining the first of Ramadhan, Syawal, and Dhuhbijab which will affect the public holiday in Muslim majority countries. This study incorporates the theory of limit proposed by Muhammad Syabrou to analyze the ongoing contestation of Islamic calendar determination. Based on the in-depth analysis, this study suggests that the height criteria of the crescent can be categorized as optimistic and pessimistic criteria. Crescent's altitude of 3 degrees is the lower limit of optimism in crescent observations. Pessimism can be seen from astronomical calculations in which hilal altitude is below 3 degrees. These two criteria could be supported by the existing scientific proof through the image of the hilal altitude below 3 degrees.*

Keywords. *Islamic Calendar; Mohamad Syabrou; Limit Theory; Optimistic, Pessimistic.*

Pendahuluan

The discussion related to the beginning of the Islamic calendar has always been the main focus of Muslim communities before the coming of the holy month of Ramadan, Shawwal, and Hajj. The main factor causing such disagreement is the absence of unity criteria to determine the Islamic calendar. (Azhari 2012; Izzuddin 2012) (Butar-butur 2014; Djamaluddin 2017) Each of these groups has their arguments used as references to strengthen their criteria and is accompanied by strong religious arguments. Thus, even though the Indonesian government has tried to provide a middle way with *imkanurrukyat* criteria, the effort to date has not shown satisfactory results.

Aside from the issue in Indonesia, the Islamic calendar determination has also become a global issue in various countries. In 1978, Turkey began to respond to this discourse (Ruskandana 1994) and was later followed by Morocco, Indonesia, Malaysia, and several other countries (Hamdun 2017) From these conferences, however, no consensus and criteria from all state representatives have been found to seek the common ground. The united criteria are not binding and tend to be only a momentary agreement so that its implementation can not be seen from Muslims around the world. For example, the criteria agreed upon at the Falak International Conference of Islamic Astronomy held at the end of 2017 in Jakarta that was attended by several state representatives. The conference resulted in an agreement called Rekomendasi Jakarta 2017. Thomas Djamaluddin said that the Jakarta Recommendation was a response to the 2016 Turkey Islamic Calendar Conference and was considered more accurate

because it had accommodated several regions, particularly in the Southeast Asian region. In other words, this recommendation is one step ahead of the criteria agreed in Istanbul a year before (Djamaluddin 2017). Moreover, the result of the agreement has not reached the level of government policy until now. The Indonesian Ministry of Religious Affairs remains using the previous *imkanurrukyat* criteria and does not incorporate the conference's recommendation.

This paper aims to elaborate on the historical perspective of the criteria for the beginning of the Hijri Calendar and the epistemological review of Muhammad Syahrur's Theory of Limitations on the criteria for determining the beginning of the Hijri Calendar. The argument built from this paper is that the unification of the calendar in the Islamic world (Hijri Calendar) has undergone significant developments and several theoretical changes. In the perspective of Muhammad Syahrur's Limit theory, the initial determination of the Hijri Month can be classified into two categories, optimistic moonsighting, and pessimistic moonsighting. Optimistic moonsighting represents the criteria that allow the new moon to be seen using both fiqh and astronomy perspectives. While the pessimistic hilal method is the hilal position which is difficult to prove its observations. The position of pessimistic is below the hilal criteria agreed at the last astronomical conference. With this division, then Muslims can predict whether the new moon to be observed is an optimistic Hilal or a pessimistic Hilal.

Method

This conceptual study unpacks the contestation phenomenon of the Hijri Calendar through the use of the theory of limits (Syahrur 1990). We employed the theory to analyze the ongoing contestation of Islamic calendar determination. Syahrur's theory was mostly employed to unpack fiqh issues such as inheritance, marriage, and others. There have been no previous studies discussing Islamic calendar determination using Muhammad Syahrur's theory so this paper could provide a distinctive perspective around the issue.

Discussion

Islamic Calendar and The Development of Criteria

The Hijri Calendar is an official calendar used by Muslims around the world which is used as a foundation to decide major Islamic traditions such as Hajj and Fasting. Besides, this calendar is also used as guidance by several community groups to decide the performance of local cultures such as Sekaten, Grebeg Suro, Tabuik, and several other traditions of Islamic societies in Indonesia. Besides, some Muslim traditions in the world are also guided by the Hijri Calendar. For example the Chand Raat Tradition in India, Ramadan Bayram in Turkey, Commemoration of Ashura Day in Kerbala, Iraq as well as several other Islamic community traditions in other parts of the world (Kurniawan 2014). These traditions continue to survive in the middle of the hegemony of the Anno Domini calendar which is used by almost all countries in the world.

The Hijri calendar was firstly used by the Caliph of Umar bin Khattab. The Prophet Muhammad's Hijrah journey from Mecca to Medina was made as to the beginning of the Calendar that characterizes this Islamic civilization (Anwar 2008). In the initial period, this calendar was used to mark the time of worship and mu'amalah. The time of worship based on this calendar is Ramadhan Fasting, Hajj, women's iddah period, kafarah fasting, and ila's time guide for husbands. While in terms of mu'amalah, this calendar is used to record various matters related to daily administration in Islamic

countries such as determining the payroll period of civil servants, payment of taxes, education and other matters relating to economic, social and political in Islamic countries or the majority of the population is Muslim (Kiranlar 2014). Some of the uses of the Islamic calendar do not necessarily make Islamic countries unite in supporting this use and making it the official state calendar. One reason is the difference in the method of determining the beginning of the month between the *rukyyat* method and the *bisab* method. The difference in this method causes differences in the determination of the beginning of the month in various countries and even within one country itself there are differences when the calculation results between the *bisab* and *rukyyat* methods experience differences. This problem will eventually cause friction and problems amid social life in the Muslim world (Azhari 2012). To overcome this difference, several religious institutions that are members of the OIC then initiate world-class meetings to harmonize the unification method that can be a guideline for establishing the Islamic Calendar throughout the world.

Although some Muslim scholars had begun discussing the contestation of Islamic calendar determination for centuries, the unification process of the Islamic Calendar remains a challenge in the 20th century. Some Muslim scholars have started to develop criteria early in the period since the development of Astronomy in medieval Islamic civilization. Some of these Muslim scholars include Ibn Thariq, Habash, Al-Khawarizmi, Al-Khazin, Al-Tabari, Al-Fahhad, Al-Farghani, and Al-Biruni Ibn Sina. Some non-Muslim astronomers have begun to offer the unification method of the Islamic calendar such as Fotheringham, Maunder, Bruin, Yallop, and Schaefer (Odeh 2006). The scholars conveyed their ideas with various models of approaches that were adapted to the scientific development of their time. While the event that became the beginning of twisting to unite the Global Islamic calendar was the Istanbul Conference in 1978. This conference was held on 27-30 November 1978 or coincided with the 26-29 Dzulhijjah 1398 Hijri. Several agreements reached from this conference raised global awareness of the importance of the unification of the Islamic Calendar. Some of the decisions reached from the conference were:

1. Legal origin of the determination of the beginning of the month of Hijri is *rukyyat* based on observations with the naked eye or observations made with the help of modern instruments;
2. Beginning of the month is determined on the condition that the moon is already above the horizon after sunset so that it can be observed by the eye;
3. Hilal conditions can be observed by the eye is the elongation angle of 8 degrees (actually the hilal can be observed if the elongation angle is between 7-8 degrees, but to get a safe value of 8 degrees agreed). The next requirement is the height of the moon at least 5 degrees above the horizon at sunset, these criteria are taken based on some astronomical research results at that time.
4. Each country can observe the new moon in their respective regions but the initial determination of Fasting, Shawwal and Hajj will be announced simultaneously and centrally by chosen formal institution
5. Decision making related to the determination of the beginning of the Hijri month will be carried out centrally and involve experts in Falak, Astronomy, and Ulama based on the principles agreed upon in 2,3 and 4 points. (Ruskandana 1994).

The decision taken by the conference was considered by several parties to be a brave decision considering that the decision regarding the initial determination of the Hijri month was based on observing by the naked eye. The use of the elongation criteria 8 degrees and 5 degrees hilal height by some parties is considered as legitimacy to

eliminate *rukyat*. Another serious concern from some groups is the use of global *mathla'* (observation). The consequence of this global *mathla'* is whether the results of *rukyat* in a region on earth can be made a global decision given there are time differences in each region. Whereas previously prevailing was the acceptance of the results of *rukyat* in the area that only managed to see the new moon. With many issues that arise and have not been answered, this conference decision cannot be applied or applied by some countries.

Responding to the results of the 1978 Istanbul conference, Malaysia then held a similar meeting entitled Seminar and Workshop on the Interfaith Islamic Calendar on 7-8 June 1988. The meeting was followed by an International Meeting entitled Towards Implementation of the A Unified Islamic Calendar held in Penang on 8-10 October 1991. The results of both meeting's decisions were essentially introducing the *imkanurrukyat* method which became a middle way for differences at the beginning of the new month from the *hisab* and *rukyat* methods (Anwar 2014). The *imkanurrukyat* method is a possibility that approaches the certainty of the sighting of the new moon (crescent) to the eye. Although this meeting has agreed on *imkanurrukyat*, it has not yet decided on the agreed month criteria and is a guideline in determining the beginning of the Hijri month so that the results of this meeting are still considered raw. Another decision of the conference was the establishment of the ILDL (International Lunar Date Line) introduced by Muhammad Ilyas through his book *A Modern Guide to Astronomical Calculations of Islamic Calendar, Times and Qibla* (Ilyas 1984).

The formulation of *Imkanurrukyat's* criteria which was not yet firm then initiated MABIMS (Minister of Religion of Malaysia, Brunei Darussalam, Indonesia, and Singapore) and held a meeting in the same year. An important decision taken at the meeting was the use of the MABIMS *Imkanurrukyat* criteria based on the results of the agreement of four member countries and began to be used in 1992. According to Sado (2014) the MABIMS *Imkanurrukyat* criteria agreed were:

1. The minimum altitude of the new moon at sunset is at least 2 degrees;
2. The elongation angle between the Sun and Moon from the observation point is at least 8 degrees or;
3. The minimum age of the moon is 8 hours after the occurrence of conjunction.

The results of the conference were finally applied in the ASEAN countries participating in the MABIMS conference. After several years, this criterion experienced some criticism of the hilal height of 2 degrees which was considered too low and could not be proven scientifically based on the latest research results. A value of 2 degrees is considered to be the result of observation with the naked eye but scientific truth is still doubtful. Therefore, in the following years, astronomers held a meeting to find common ground on a set of criteria that could be mutually agreed upon and based on proven scientific principles.

In addition to MABIMS countries, efforts to strengthen the unifying Islamic Calendar are also carried out by countries in other parts of the world including Western countries. These studies have received quite serious attention and attracted some astronomers outside the Islamic world to join in discussing this discourse in numerous scientific forums. Some conferences that took place in the Western world (Europe and America) include the conference in Virginia on June 10, 2006, with the theme Conference on Hilal Sighting. Then it followed by the 2007 First National Moonsighting Conference that was held in Northern California. The following year, a conference was held in the Netherlands entitled *Asy -Syar'i al-Falakī Lidirāsati Mas'ali al-Ahillah*. The most recent conference was the Islamic Lunar Calendar in Light of Scientific Knowledge held in 2012 in Paris, France (Hamdun 2017). These conferences showed that astronomical scientists in the Western world also had the support and real

effort to a single criterion for the Hijri Calendar and resolve differences in methods that have not reached for decades.

A similar conference was also held in Morocco to discuss the integration of the Hijri Calendar. The participants of this conference were Islamic Law experts and astronomers from Islamic countries or countries with a majority Muslim population. The conference was held on 15-16 October 2008 with the theme of The Second Experts Meeting for the Study of the Islamic Calendar and resulted in 6 points of agreement. The main point of the agreement is the acceptance of *Hisab* as one of the methods used to determine the beginning of the Hijri Calendar. This is analogous to the calculation of prayer times based on the use of astronomical reckoning data without making direct observations on each prayer time determination. This point the authors consider as a revision of the results of the Istanbul conference which states that the *rukyat* method is the only method used in determining the beginning of the Hijri Calendar.

Responding to the results of conferences held by Western countries and other Islamic countries, Turkey as the main initiator of the unification of the Global Hijri calendar also held a similar conference in 2016 in Istanbul. The Scientific Meeting was attended by no less than 200 representative participants from 50 countries in the world. The conference was held in collaboration with the Turkish Ministry of Religious Affairs (Diyaret) with other Islamic astronomical institutions such as the Islamic Crescent Observation Project (ICOP), the European Council for Fatwa and Research (ECFR) and Bogazici University's Kandalili Observatory. This conference offers the concept of the Singular Zone Calendar and the Bizonal Calendar. The Singular Zone calendar divides the earth into 2 Zones, namely the East Zone and the West Zone. This concept is based on the proposal of Mohammad Syaukat Odeh and Nidhal Guessoum. This division is certainly with some consequences that accompany and theoretically still need to be reviewed. Whereas the Unizonal concept was inspired by the concept offered by Jamaluddin Abdurrazik. This concept requires a hilal height of at least 5 degrees and an elongation angle of 8 degrees (Anwar 2016).

The two concepts offered later became an interesting discussion material at this conference. After a long and tiring discussion, the organizing committee finally did the voting because each group did not reach an agreement. In the end, the Unizonal calendar gets the most votes and becomes a new criterion in determining the beginning of the month at the global level. Of the 200 votes, Unizonal Concept obtains 80 votes, while bizonal obtains 27 votes. While other participants declared abstention and some were invalid. The results of this conference were then taken by each participant to their home country and many of them did not apply the criteria for the 2016 Turkey Global Islamic Calendar as a criterion for determining the beginning of the month, including Indonesia (Djamaluddin 2017).

Responding to the Istanbul 2016 criteria, the Indonesian Ministry of Religious Affairs one of the members of MABIMS then held an International Seminar on Islamic Law and Falak in November 2017. The seminar invited MABIMS members and representatives of several friendly countries to re-discuss the concepts produced in 2016. This seminar ultimately resulted in the 2017 Jakarta Recommendation that was different from the 1992 MABIMS criteria and the 2016 Turkey Conference Results. Criteria agreed at this meeting are the three-degree criteria for the minimum hilal height at sunset and the elongation angle of 6.4 degrees. This criterion is considered more suitable for the Southeast Asian region where the Indonesian territory already represents Malaysia, Brunei Darussalam, and Singapore. This criterion is also considered as a solution to the differences in the *Hisab* and *Rukyat* methods which have become the major groups for determining the beginning of the month in Indonesia (Djamaluddin 2017).

Based on the results from the Istanbul conference in 1978 to the last Jakarta meeting in 2017, the criteria for a single Hijri calendar had not been fully agreed by each group and country (Rofiuddin 2019). There needs to be even more effort for Falak science activists to contribute again in the framework of unifying calendar criteria. The Jakarta 2017 recommendation which was considered as the result of the last conference was not yet able to be implemented by the Indonesian Ministry of Religion as a new criterion replacing the 1992 MABIMS criteria.

Muhammad Syahrur and the Limit Theory

Muhammad Syahrur was born in Damascus City, Syria, on March 11, 1938. After completing his secondary school, Syahrur continued his study in Civil Engineering in Moscow in 1957. In 1964, he got a Diploma in Civil Engineering and going home to Syria. Subsequently, he works as a lecturer at the Faculty of Engineering at Damascus University until now (Shah, M. Aunul Abid and taufiq 2001). His masters' degree was obtained in 1969 at Ireland National University, in the field of Land Mechanics and Foundations. He obtained his Doctorate in 1972 in the same field and university. Although his educational background in the field of engineering, and his writings in the field are widely scattered in Damascus, his interest in studying various other scientific disciplines especially Islamic studies is very high. Moreover, supported by the ability to master several foreign languages such as Arabic, English, and Russian. As for several fields of interest Syahrur include Philosophy of Humanism, Philosophy of Language especially contemporary linguistics and Arabic Semantics (Saeed 2008).

Concerning the context of the current Islamic society, between scripturalist-literalist and modernist-secularist attitudes, Syahrur offers a new method of returning to Inzal (Alquran), the original text of God's revelation which was conveyed to the Prophet Muhammad, namely to formulate various authentic thoughts originating directly from the Koran by utilizing various findings of contemporary science. According to Syahrur, the main errors of Islamic fiqh and conventional Qur'anic interpretations today stem from methodological errors that do not pay attention to the characteristics and flexibility of understanding the texts of the scriptures, so that they burden Muslims and are no longer compatible with the progress of science and the situation and conditions of this century (Fitria 2012).

Syahrur introduced this hudūd theory based on the assumption that God in the Koran established the concepts of maximum and minimum law (al-Istiqāmah) and humans always move within this boundary (al-Hanifiyah) (Syahrur 1990). Syahrur believes that the real power of Islam lies in these two qualities. Syahrur described the relationship between al-hanafiyyah and al-istiqaamah like curves and straight lines that move on a matrix. The X-axis represents the era or context of time and history. The Y-axis is the law that Allah has set. The curve (al-hanafiyyah) describes the dynamics, moving in line with the X-axis. But the movement is limited by the legal limits that have been determined by Allah (Y-axis). Thus, the relationship between curves and straight lines as a whole is dialectical, which is fixed and that changes are always interrelated. Dialectics is the necessity to show that law is adaptable to the context of space and time. Therefore, from this theory, it is hoped that various alternatives will emerge in establishing Islamic law in accordance with the development of human life systems. so that in the future Islam will be able to respond to various problems that arise, to and wherever Muslims are. There are 6 Boundary theory models offered by Muhammad Syahrur based on the legal verses in the Qur'an. In general, it can be captured that what Syahrur said through his theory shows that Islamic law is flexible and not rigid. This can be seen from the shape of the curve and coordinates seen from the theories. In addition, Syahrur also wanted to show that the verses of the Koran are always

appropriate and relevant to every development of the times and scientific developments both natural science and social science (Mustaqim 2011).

Limit Theory and Islamic Calendar Discourse

Muhammad Syahrur's Limit Theory is certainly a magnum opus which is a fundamental foundation for Islamic law scholars who are then contextualized to the problems of the global society today. One issue that has not been resolved until now and has experienced a long journey in its discussion is the problems related to the Islamic calendar. The long discussion that had been held so intensely was not a success, but several alternative solutions emerged. The choices turned out not to make Islamic astronomers united, instead, they tend to defend their opinions and they are not in accordance with the original purpose of the start of discussions related to this Islamic calendar (Saksono 2007)

After studying and exploring the related theories of Limit and the like, I feel that of the six models offered, one of them is certainly able to be a solution to this problem. Although Muhammad Syahrur did not directly declare the benefits of his theory on the unification project of the Islamic Calendar, his thought contribution had a separate role in the study of Islamic law, especially studies related to the Islamic calendar. This theory has also been able to solve the problem of usury in Islamic law which has been an interesting discussion in recent years. Through his Limit theory, Syahrur succeeded in unraveling the tangled threads that appeared in the Riba case (Ghattis 2016) and provided a solution that offered an extraordinary solution.

Muhammad Syahrur's explanation related to the first model of the Theory of Limits that discusses verses that discuss women who should not be married and debt. This model offers a lower legal limit without an upper limit so we don't need to pay attention to the maximum value of a case. The minimum value of the case is the main consideration. Humanitarian considerations are the main reason behind the formulation of this first model.

This first model then if it is contextualized with the Hijri calendar discourse becomes very interesting. Many times the discussion on the criteria for the new moon height is running on the spot due to the lower limit of the criteria that has not yet been agreed (Guessoum 2012). In the context of Indonesia, Muhammadiyah and NU disagree with regard to the height of the new moon where Muhammadiyah wants 0 degrees while NU stands within the height criteria of 4 degrees. The Government of Indonesia then introduced the *imkanurrukyat* method to provide a middle way for these differences. At a global level, Turkey's 1978 and 2016 criteria are an imprint that can never be erased in discussions relating to the unification of the Islamic Calendar at the Global level. Through the two agreed criteria, some countries agreed and others did not meet the agreement as mentioned in the previous discussion.

The last criterion that becomes an international agreement is the 2017 Jakarta Recommendation. The author makes this criterion as the main reference because after this criterion was announced to the public, there have not been any other criteria. Taking this theory is purely a sample selection based on the latest scientific developments. This criterion requires that a value of 3 degrees be the lowest value of the sighting of the new moon or the lowest value of the acceptance of the witness of the new moon sight. This means that if the testimony of the new moon with the height of the crescent moon is below 3 degrees, then the testimony must be rejected and not recognized by Islamic law. This 3-degree number according to the theory of the first model limit is the lower limit so that testimony with a height above the lower limit is recognized. This has a disclaimer when the hilal testimony below the lower limit can be proven scientifically and supported by images obtained through these observations.

The lower limit criterion which becomes the lowest point in the observation of the new moon eventually gives rise to a sense of optimism when the height of the new moon is above or equal to 3 degrees. This optimism was also followed by the stakeholders because it was considered that the figure had exceeded the minimum limit so that it was almost certain that the new moon would be seen in the observations of that day. This sense of optimism is sufficient to have a strong foundation considering that in the history of hilal observations in Indonesia, the new moon can always be observed when its altitude is above the MABIMS criteria (2 degrees), especially if this criterion has a value of 1 degree higher.

On the other hand, this optimism is then accompanied by a sense of pessimism when the hilal height is below the lowest criteria of 3 degrees. The policymakers are concerned that there will be differences in the implementation of the holidays and have an impact on other aspects such as social, economic, and cultural (Ramenzoni 2015) because Muhammadiyah also still adheres to the criteria of wujudul hilal. If the hilal position is below 3 degrees and above 0 degrees, then the Indonesian Muslim community will certainly be pessimistic about celebrating the holiday together. However, behind the pessimism, there is a challenge. The challenge is how Islamic astronomers can take the hilal image below 3 degrees. If this can be met, then the optimistic criteria (> 3 degrees) can be corrected again to be lower. The correction must be based on scientific principles that can be proven through images that have been or have not yet been processed

Conclusion

The Limit Theory initiated by Muhammad Syahrur could answer the problems of Islamic societies related to Islamic law. Problems such as Riba, inheritance, and marriage can be solved using Syahrour's theory. The author then proposes the use of this theory in attempting to solve the scientific and social problems of the Hijri Calendar. Through this theory, the author proposes two categorizations of Islamic calendar determination, namely optimistic and pessimistic. Optimistic observation refers to the situation when the height of the new moon at the time of observation is above 3 degrees. Conversely, if the height of the new moon at the time of observation is still below 3 degrees, astronomers need to worry about differences in the determination of the Islamic Calendar. Such categorizations are in accordance with the first model of the Limit Theory which requires a lower limit without an upper limit as proposed by Syahrour.

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