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Aqdi Rofiq Asnawi, Syukron Affani and Zaenatul Hakamah

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# SCIENTIFIC QUR'ĀNIC EXEGESIS IN INDONESIA: CONTRIBUTIONS BY SCHOLARS, INSTITUTIONS, AND THE GOVERNMENT

Aqdi Rofiq Asnawi\*, Syukron Affani\*\* and Zaenatul Hakamah\*\*\*

**Abstract:** This paper investigates the impact of Islam's relationship with science on the Qur'ānic interpretations given by Indonesian scholars. The discussion goes further to conclude their epistemology and approaches. It continues by examining the government's role in providing a scientific Qur'ānic exegesis and several Indonesian institutions that deal with Islam and science integration in interpreting the Qur'ān. This study employs a qualitative research methodology by investigating all possible references and inducing the compiled data into sections based on predetermined research objectives. This article demonstrates that scientific Qur'ānic exegesis has grown in Indonesia since the 1960s and has been produced by Indonesian scholars in many works using various methodologies. Most of those works involved the integration of religion (Islam) and science. However, some of their epistemology tends to Islamisation, Qur'ānic justification or dealing with the concept of Islamisation of knowledge. The government uses scientific Qur'ānic exegesis to develop science and technology and propagate policies related to many sectors.

**Keywords:** *scientific Qur'ānic exegesis, Indonesia*

## THE EMERGENCE OF SCIENTIFIC QUR'ĀNIC EXEGESIS

Numerous scholars assert that scientific Qur'ānic exegesis began in the fifth century Hijri/ 11th-12th centuries CE. The emergence is demonstrated by al-Ghazālī's (d. 1111) work, *Ihyā' 'Ulūmuddīn* [The Revival of the Religious Sciences] and *al-Jawāhir al-Qur'ān* [The Jewels of the Qur'ān].<sup>1</sup> In his works, al-Ghazālī points to several science disciplines in the Qur'ān, like medicine, cosmology, biology and anatomy. Abd al-Majd al-Mutasab regards it as a theoretical foundation for scientific interpretation of the Qur'ān, even though al-Ghazālī does not employ scientific theories in his interpretations in either work.<sup>2</sup>

\* University of Darussalam (UNIDA) Gontor-Indonesia, aqdi.asnawi@unida.gontor.ac.id.

\*\* State Islamic Institute of Madura (IAIN Madura) Indonesia, syukron.affani@iainmadura.ac.id.

\*\*\* Islamic State University Sunan Ampel, Surabaya-Indonesia, zaenatulhakamah969@gmail.com.

<sup>1</sup> Ahmad Thaḳif Bin Ismail and Aqdi Rofiq Asnawi, "Scientific Approach in Quranic Exegesis: The Emergence and Issues," *Journal of Contemporary Islamic Studies* 7, no. 1 (2021): 63.

<sup>2</sup> 'Abd al-Majīd al-Muḥtasab, *Ittijāhāt Al-Tafsīr Fī al-'Aṣr al-Rāhin* [Interpretation Trends in The Current Era] (Amman: Maktabah al-Nahḍah al-Islāmiyyah, 1982), 164.

If scientific Qur'ānic exegesis is using scientific theories to interpret the Qur'ān, Fakhr al-Dīn al-Rāzī (d. 1209) is the first interpreter (*mufassir*) to employ scientific theories in his commentary *Mafātīḥ Al-Ghayb* [The Keys to the Knowledge of the Unseen].<sup>3</sup> After al-Rāzī interpreted various Qur'ānic verses in his book, it was as if scientific Qur'ānic exegesis withered away, as it did not entice other interpreters to perform the same thing. Scientific Qur'ānic exegesis resurfaces in the modern age through the writings of Muḥammad 'Abduh (d. 1905), Rashīd Riḍā (d. 1935), Ṭanṭāwī Jawharī (d. 1940) and Zaghlūl Al-Najjār, among others.<sup>4</sup>

The emergence of scientific Qur'ānic exegesis in the modern era results from scientific and technological advancements, the challenges of secularism within Islam, and efforts to demonstrate that religion and science are not incompatible.<sup>5</sup> Al-Najjār argues that establishing a link between Islam and science through scientific exegesis effectively converts individuals to Islam.<sup>6</sup> As a result, numerous scientific Qur'ānic interpreters, who specialise in natural or social sciences (rather than Islamic Sharia), interpret the Qur'ān for preaching.<sup>7</sup>

## THE DEVELOPMENT OF SCIENTIFIC QUR'ĀNIC EXEGESIS IN INDONESIA

Scientific Qur'ānic exegesis is thriving in Indonesia, owing to the country's rapid modernisation, which is characterised by the advancement of science and technology. Since the 1960s, Indonesian scholars have released countless works on the relationship between the Qur'ān and science in the form of commentaries, books, articles and receptions. Muchlisin and Nisa divide the development of scientific Qur'ānic exegesis in Indonesia into three phases: the introduction phase (from the 1960s to the 1980s), developmental phase I (1990–2009) and developmental phase II (2010 onwards).<sup>8</sup>

The work of Indonesian exegesis that proves the beginning of scientific Qur'ānic exegesis in Indonesia since the 1960s is *Tafsir al-Qur'anul Madjied An-Nur* [Interpretation of the Glorious Qur'ān An-Nur] by Hasbi Ash-Shiddieqy. In this book, Ash-Shiddieqy uses physical theories in interpreting several verses of the Qur'ān.<sup>9</sup> For example, in his interpretation of al-Baqarah (2):164, Ash-Shiddieqy mentions the law of attraction, the theory of evaporation of seawater, the theory of tides from James Jeffreys, and the planetesimal

<sup>3</sup> 'Ādil bin 'Alī al-Shiddī, *Al-Tafsīr al-'Ilmī al-Tajrībī Li al-Qur'ān al-Karīm* [Experimental Scientific Interpretation of the Holy Qur'ān] (Riyadh: Dār al-Waṭn li al-Nashr, 2010), 26–27.

<sup>4</sup> Ismail and Asnawi, "Scientific Approach in Quranic Exegesis," 64.

<sup>5</sup> Ibid., 65–68.

<sup>6</sup> Zaghlūl al-Najjār, *Qaḍiyyah Al-I'jāz al-'ilmī Fī al-Qur'ān al-Karīm* [The Issue of Scientific Miracles in the Noble Qur'ān] (Amman: Jam'iyah al-Muhāfazah li al-Qur'ān al-Karīm, 2008), 64–65.

<sup>7</sup> Ismail and Asnawi, "Scientific Approach in Quranic Exegesis," 69.

<sup>8</sup> Annas Rolli Muchlisin and Khairun Nisa, "Geliat Tafsir 'Ilmi di Indonesia dari Tafsir Al-Nur hingga Tafsir Salman" [The Stretch of 'Scientific Interpretation in Indonesia from Tafsir Al-Nur to Tafsir Salman], *Millati: Journal of Islamic Studies and Humanities* 2, no. 2 (2017): 246.

<sup>9</sup> Ibid., 247.

theory of Chamberlin-Moulton.<sup>10</sup> Also, Bisyrī Mustafa, in his commentary *Tafsir al-Ibriz li Ma'rifati Tafsir al-Qur'an al-'Aziz* [Tafsir Al-Abriz to know the Interpretation of the Qur'ān], uses scientific theories to explain the verses of the Qur'ān, such as in the interpretation of al-Fussilat (41):11, which is based on scientific theories.<sup>11</sup>

If in the first phase (introductory phase) scientific Qur'ānic exegesis in Indonesia was a small part of the book of interpretation, then, according to Muchlisin and Nisa, in the second phase several special books appear, which contain scientific interpretation of the verses of the Qur'ān. For example: *Seri Tafsir al-Qur'an bil 'ilmī: Al-Qur'an, Ilmu Pengetahuan dan Teknologi* [Series Tafsir al-Qur'ān bil 'ilmī: The Qur'ān, Science and Technology] by Ahmad Baiquni (1995), *Al-Qur'an dan Ilmu Pengetahuan Kealaman* [The Qur'ān and Natural Science] by Ahmad Baiquni (1996), *Al-Qur'an dan Energi Nuklir* [The Qur'ān and Nuclear Energy] by Wisnu Arya Wardhana (2007), *Metode Ayat-Ayat Sains dan Sosial* [The Method of Science and Social Verses] by Andi Rosadisastra (2008), *Ayat-Ayat Semesta: Sisi al-Qur'an yang Terlupakan* [The Verses of the Universe: The Forgotten Sides of the Qur'ān] by Agus Purwanto (2009) and so forth.<sup>12</sup> In the third phase, which began in 2010, several volumes of scientific commentary works were published, compiled by a team from the Indonesian Ministry of Religious Affairs in collaboration with the Lembaga Ilmu Pengetahuan Indonesia (Indonesian Institute of Sciences (LIPI)) (2011-2017). In addition, *Tafsir Salman Tafsir Ilmiah atas Juz 'Amma* [Tafsir Salman: Scientific Interpretation of Juz 'Amma] (2014) also appeared, compiled by several ITB Bandung lecturers.<sup>13</sup>

Muchlisin and Nisa have not explained the significant difference between the second and third phases. They also do not mention the works of Indonesian scholarly interpretation in the 1970s to 1980s. In fact, since the 1970s, works of scientific Qur'ānic exegesis have been compiled thematically.

According to Syarifuddin and Azizy, the first work on thematic scientific Qur'ānic exegesis in Indonesia was *Al-Qur'an dan Perkembangan Alam Raya* [The Qur'ān and the Development of the Universe] by Muhammad Munir Faurunnama (1979).<sup>14</sup> However, according to Akhmad Supriadi, Nazwar Syamsu's works *Al-Qur'an Dasar Tanya Jawab Ilmiah* [Basic Qur'ān: Scientific Questions and Answers] and *Tauhid dan Logika: Pelengkap Al-Qur'an Dasar Tanya Jawab Ilmiah* [Tawhid and Logic, Complementary to Basic Qur'ān: Scientific Questions and Answers], which appeared in the 1970s, were the first works of

<sup>10</sup> Hasbi ash-Shiddieqy, *Tafsir Al Quranul Madjied An Nur* [Interpretation of the Glorious Qur'an An-Nur], (Jakarta: Bulan Bintang, 1965), vol. 2, 44–46.

<sup>11</sup> Bisyrī Mustafa, *Tafsir Al-Ibriz Li Ma'rifati Tafsir al-Qur'an al-'Aziz* [Tafsir Al-Abriz to know the Interpretation of the Qur'ān] (Kudus: Menara Kudus, n.d.), vol. 2, 1714.

<sup>12</sup> Muchlisin and Nisa, "Geliat Tafsir 'Ilmi di Indonesia," 248–49.

<sup>13</sup> *Ibid.*, 251–53.

<sup>14</sup> M. Anwar Syarifuddin and Jauhar Azizy, "Thematic Scientific Interpretation of the Qur'an in Indonesia," in *Proceedings of the International Conference on Qur'an and Hadith Studies*, ed. Yusuf Rahman and Kusmana (Paris: Atlantis Press, 2017), 46, <https://doi.org/10.2991/icqhs-17.2018.7>.

scientific Qur'ānic commentary in Indonesia compiled thematically.<sup>15</sup> Both contain explanations of the verses of the Qur'ān through physical theories.

Translation of books on the Qur'ān and science, as well as non-Indonesian-authored scientific Qur'ānic commentary, have contributed to the development of Indonesian scientific Qur'ānic exegesis over time. A good example is a translation of Maurice Bucaille's *La Bible le Coran et la Science* (1976) by H. M. Rasjidi with the title *Bibel, Quran dan Sains Modern* [The Bible, the Qur'ān and Modern Science] (1978).<sup>16</sup> Rahmani Astuti translated another Bucaille book entitled *What is the Origin of Man? The Answers of Science and the Holy Scriptures* (1984). This book was translated into Indonesian with the title *Asal-Usul Manusia Menurut Bibel, Al-Quran, Sains* [The Origins of Man According to the Bible, the Qur'ān, Science] (1986).<sup>17</sup>

Several translations of “foreign books” with a scientific Qur'ānic exegesis focus were discovered with the dawn of the new millennium. In their Indonesian edition, the books were prepared in the style of an encyclopedia. For instance, Harun Yahya's books have been translated into Indonesian in multiple volumes under the title *Ensiklopedia Mukjizat Ilmiah Al-Quran dan Hadits Nabi* [Encyclopedia of Scientific Miracles of the Qur'ān and Ḥadīth of the Prophet]. The miracle of creation, enzymes, cells, hormone systems, electricity in the body, blood and heart eyes, smell and taste, photosynthesis, seeds, animal migration, mosquitoes, termites, and bees are among the themes covered by Harun Yahya.<sup>18</sup> This book captures the interest of many children due to its abundant images. Similarly, Harun Yahya's other books bear the title *Ensiklopedia Mukjizat Ilmiah Al-Qur'an* [Encyclopedia of Scientific Miracles of the Qur'ān].<sup>19</sup> Zaglul al-Najjar and Abdul Daim Kahil's writings on scientific Qur'ānic exegesis have also been translated into an encyclopedia titled *Ensiklopedia Mukjizat Ilmiah Al-Quran dan Hadis* [Encyclopedia of Scientific Miracles of the Qur'ān and Ḥadīth].<sup>20</sup> Before these translations, an Indonesian scientific commentary in an encyclopedia written by Ahsin Sakho Muhammad had been published.<sup>21</sup>

<sup>15</sup> Akhmad Supriadi, “Integrating Qur'an and Science: Epistemology of Tafsir Ilmi in Indonesia,” *Refleksi* 16, no. 2 (2017): 158.

<sup>16</sup> Maurice Bucaille, *Bibel, Quran Dan Sains Modern* [The Bible, The Qur'ān and Modern Science], trans. H. M. Rasjidi (Jakarta: Bulan Bintang, 1978).

<sup>17</sup> Maurice Bucaille, *Asal-Usul Manusia Menurut Bibel, Al-Quran, Sains* [The Origins of Man According to the Bible, the Qur'ān, Science], trans. Rahmani Astuti (Bandung: Mizan, 1986).

<sup>18</sup> Harun Yahya, *Ensiklopedia Mukjizat Ilmiah Al-Quran Dan Hadits Nabi* [Encyclopedia of Scientific Miracles of the Quran and Ḥadīth of the Prophet] (Jakarta: Sygma Daya Insani, n.d.).

<sup>19</sup> Harun Yahya, *Ensiklopedia Mukjizat Ilmiah Al-Qur'an* [Encyclopedia of Scientific Miracles of the Qur'ān] (Bandung: Sygma Creative Media, 2012).

<sup>20</sup> Zaghlūl al-Najjār and Abdul Daim Kahil, *Ensiklopedia Mukjizat Ilmiah Al-Qur'an Dan Hadis* [Encyclopedia of Scientific Miracles of the Qur'an and Ḥadīth] (Jakarta: Lentera Abadi, 2017).

<sup>21</sup> Ahsin Sakho Muhammad, *Ensiklopedi Kemukjizatan Ilmiah Dalam Al-Qur'an Dan Sunnah* [Encyclopedia of Scientific Miracles in the Qur'an and Sunnah] (Jakarta: Zamrud Khatulistiwa, 2009).

### *Scholarly Contributions*

Along with the works mentioned previously, we will discuss numerous works of scientific Qur'ānic exegesis in Indonesia that were authored individually to understand their epistemology and methodology deeply.

In the 1970s, Nazwar Syamsu published two books, *Al-Qur'an Dasar Tanya Jawab Ilmiah* [Basic Qur'ān: Scientific Questions and Answers] and *Tauhid dan Logika: Pelengkap Al-Qur'an Dasar Tanya Jawab Ilmiah* [Tawhid and Logic, Complementary to Basic Qur'ān: Scientific Questions and Answers], which explain Qur'ānic verses using various physical theories. Additionally, he, like Maurice Bucaille, compared scientific verses in the Qur'ān to biblical verses.<sup>22</sup> The book initially employs a question-and-answer format. Second, it organises the verses thematically then linguistically explains them. Third, it justifies and explains the verses using scientific facts and theories pertinent to the text. Fourth, it embraces multiple possible meanings for a word so it does not have an absolute meaning but is relative to the verse's context.<sup>23</sup>

Syamsu makes two primary arguments for the legitimacy of his understanding of the truth. First, information on the Qur'ān's text, which has been gathered as a scientific verse. Second, scientific data and facts are a basis for comparing and explaining interpreted verses in conjunction with rationality (reason/reasoning). He does not refer to the Prophet's *ḥadīth* in his interpretation of the *kawniyyah* verses (cosmic verses).<sup>24</sup>

Along with Syamsu, there is Achmad Baiquni, an Indonesian atomic and nuclear scientist who uses a scientific approach to understand the Qur'ān in his book *Al-Qur'an, Ilmu Pengetahuan dan Teknologi* [The Qur'ān, Science and Technology] (1996). Baiquni's book describes a physical reality via science and technology then discusses the divergent views of scientists on it. He states his position, bolstering it with Qur'ānic verses.<sup>25</sup> According to Ulya Fikriyati, Baiquni uses a neo-thematic technique, which is similar to thematic interpretation. It involves debating verses based on specific topics but without including all relevant verses to that theme in the debate.<sup>26</sup> In addition, Baiquni employs grammatical and semantic analysis and contextualisation of a verse's meaning in contemporary understanding. He does not attempt to justify the interpretation of scientific verses using scientific ideas; in fact, he appears to relate only two notions between the Qur'ān and scientific theories on a particular subject.<sup>27</sup>

<sup>22</sup> Supriadi, "Integrating Qur'an and Science," 182.

<sup>23</sup> Nazwar Syamsu, *Al-Qur'an Dasar Tanya Jawab Ilmiah* [Basic Qur'ān: Scientific Questions and Answers] (Jakarta: Ghalia Indonesia, 1980), 36.

<sup>24</sup> Supriadi, "Integrating Qur'an and Science," 159.

<sup>25</sup> Muchlisin and Nisa, "Geliat Tafsir 'Ilmi di Indonesia," 249.

<sup>26</sup> Ulya Fikriyati, "Tafsir Ilmi Nusantara; Antara Kepentingan Ideologis dan Kebutuhan Pragmatis (Menimbang Tafsir Karya Ahmad Baiquni)" [Nusantara Scientific Interpretation; Between Ideological Interests and Pragmatic Needs (Considering the Tafsir by Ahmad Baiquni)], *Jurnal Al-Burhan* 13, no. 1 (2013): 61.

<sup>27</sup> Achmad Baiquni, *Al-Quran, Ilmu Pengetahuan Dan Teknologi* [The Qur'ān, Science and Technology] (Yogyakarta: PT Dana Bhakti Prima Yasa, 1996), 11–40.

Agus Purwanto, a professor at Institut Teknologi Surabaya (ITS), presents the interpretation of Qur'ān verses using physics, biology and astronomy. This explanation is contained in two of his works: *Ayat-Ayat Semesta* [The Verses of the Universe] and *Nalar Ayat-Ayat Semesta* [The Reason of the Verses of the Universe]. For him, logic is a necessary component of comprehending and interpreting the *kawniyyah* verses. Additionally, the Qur'ān contains numerous terms and expressions that serve as a directive to use one's capacity for reason.<sup>28</sup> Before examining the verse in terms of scientific theories, he conducts a linguistic and semantic analysis.<sup>29</sup> He claims the Qur'ān, which was revealed in Arabic, has highly accurate diction (choice of words). Each letter, syllable or word in each sentence contains a special message and meaning. Possessing a command of the language and a comprehension of Arabic is necessary for correctly comprehending the Qur'ān.<sup>30</sup>

Syahminan Zaini scientifically analyses the Qur'ān verses in *Mengenal Manusia Lewat Al-Qur'an* [Knowing Humans Through the Qur'ān] (1984) and M. Ali Husain does the same in *Gizi dalam Al-Qur'an* [Nutrition in the Qur'ān] (1985). Numerous additional works of scientific Qur'ānic exegesis appear to focus on specific themes or sciences. Sirajuddin Zar and Nasaruddin Umar's work, *Konsep Penciptaan Alam dalam Pemikiran Islam, Sains, dan al-Qur'an* [The Concept of Creation of Nature in Islamic Thought, Science, and the Qur'an] (1994), is in the discipline of philosophy. In the discipline of psychology, Dadang Hawari's *Al-Qur'an, Ilmu Kedokteran Jiwa, and Kesehatan Jiwa* [The Qur'ān, Mental Medicine, and Mental Health] (1995) is a notable work. Muchtar Naim's *Kompendium Ayat-ayat berkaitan dengan Biologi dan Kedokteran* [Compendium of Verses related to Biology and Medicine] (1996) is applicable to the domains of biology and medicine.<sup>31</sup> The formation of diverse books in Indonesia with a scientific Qur'ānic exegesis style and thematic organisation is inspired by the exegetes' cultural and educational backgrounds and scientific discoveries in contemporary science and technology.<sup>32</sup> This phenomenon demonstrates that interpretation is a means of reflecting thought and the products of civilisation. It has continuously evolved and been impacted by the dynamics of human civilisation. During its development, science and the Qur'ān can be discussed, albeit with some preconditions of interpretation.<sup>33</sup>

### ***The Role of Institutions***

Yudian Wahyudi has raised the issue of education design in Indonesia on numerous occasions, arguing it is more directed toward the sphere of cultural metaphysics than the physics of civilisation that promotes the world of science. Indonesia, the world's largest

<sup>28</sup> Agus Purwanto, *Nalar Ayat-Ayat Semesta* [The Reason of the Verses of the Universe] (Bandung: Mizan, 2012), 58–76.

<sup>29</sup> Agus Purwanto, *Ayat-Ayat Semesta: Sisi-Sisi al-Qur'an Yang Terlupakan* [The Verses of the Universe: The Forgotten Sides of the Qur'ān] (Bandung: Mizan, 2013), 31.

<sup>30</sup> Purwanto, *Nalar Ayat-Ayat Semesta*, 128–29.

<sup>31</sup> Syarifuddin and Azizy, "Thematic Scientific Interpretation of the Qur'an in Indonesia," 46.

<sup>32</sup> *Ibid.*, 47.

<sup>33</sup> Sujiat Zubaidi Saleh, "Epistemologi Penafsiran Ilmiah Al-Qur'an" [Epistemology of Scientific Interpretation of the Qur'an], *TSAQAFAH* 7, no. 1 (2011): 109, <https://dx.doi.org/10.21111/tsaqafah.v7i1.112>.

Muslim country, is somewhat lacking in terms of a scientific atmosphere since its national worldview precludes the development of science–religion interactions.<sup>34</sup> In Indonesia, Islamic institutions have been founded everywhere, although few offer degrees in physics or science. As a result, religious teachings exist in a purely metaphysical discourse space, with the echoes of scientific Qur’ānic exegesis occurring in the form of theoretical discourses receiving only a tiny amount of attention.

This condition is also influenced by Indonesia’s geo-socio-political circumstances, which are still tinted by issues of diversity that are more pervasive than those of science. The ontology and epistemology of scientific Qur’ānic exegesis dominate famous commentary debates. Only recently have scientific Qur’ānic exegesis courses begun to develop in various PTKI (Islamic religious universities). They were founded much later than in *ahkam* (legal) interpretation, *tarbawi* (educational verse) interpretation or economic interpretation. Meanwhile, at PTUs (global universities) such as ITB, the desire for Islamic science is not sustained through Islamic studies, particularly interpretations. Additionally, there has been a push on Indonesian university campuses for the Islamisation of science, the integration of scientists and others.

According to Media Zainul Bahri, the context in which Islamisation of science was advocated is inextricably linked to the change of IAIN (Institut Agama Islam Negeri) into UIN (Universitas Islam Negeri), or from institute to university, which contains multiple colleges of non-Islamic sciences. Academics at the UIN must articulate the fundamental differences between the subjects of physics, medicine and economics taught at UIN and those taught at non-religious institutions. If it is the same, then there is no distinction between them. In this sense, Islamisation of science at UIN is defined as “strengthening the Islamic identity,” which refers to the endeavour to develop a specific Islamic identity for the institution.<sup>35</sup>

In an endeavour to integrate religion and science, PTKI coined the term “shifting paradigm” to ensure religious study was not eroded in the community. This paradigm originates from Ian G. Barbour’s typology of religious and scientific studies, including integration, conflict, debate and independence, encouraging a new paradigm for the scientific world of the 21<sup>st</sup> century.<sup>36</sup> One of the initiatives to integrate religion and science is the interpretation of the Qur’ān with a focus on science, which can be referred to as scientific Qur’ānic exegesis or *tafsir ilmi*.<sup>37</sup>

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<sup>34</sup> Muhammad Mustaqim, “Pengilmuan Islam Dan Dikotomi Pendidikan” [Islamic Science and Education Dichotomy], *Jurnal Penelitian* 9, no. 1 (2015): 256.

<sup>35</sup> Media Zainul Bahri, “Expressing Political and Religious Identity: Religion-Science Relations in Indonesian Muslim Thinkers 1970-2014,” *Al-Jami’ah: Journal of Islamic Studies* 56, no. 1 (2018): 179, <https://doi.org/10.14421/ajis.2018.561.155-186>.

<sup>36</sup> Yusuf Suyono, “Gap Antara Das Sollen dan Das Sein Ilmu-Ilmu Keagamaan Islam: Perspektif Filsafat Ilmu” [The Gap Between Das Sollen and Das Sein Islamic Religious Sciences: Philosophy of Science Perspective], *Jurnal Theologia* 27, no. 1 (2016): 103, <https://doi.org/10.21580/teo.2016.27.1.933>.

<sup>37</sup> Ach Maimun, “Integrasi Agama Dan Sains Melalui Tafsir ‘Ilmī (Mempertimbangkan Signifikansi Dan Kritikanya)” [Integration of Religion and Science Through Tafsir ‘Ilmī (Considering its Significance and Criticism)], *Anil Islam: Jurnal Kebudayaan Dan Ilmu Keislaman* 12, no. 1 (2019): 36.



According to a recent report, a scientific exegesis approach to research has gotten little attention in Indonesia's state Islamic universities. Over 2012-2014, Imam Taufiq discovered that only 7.95% of undergraduate theses at the Islamic universities of Jakarta, Yogyakarta, Semarang and Surabaya were interested in using a scientific Qur'ānic exegesis approach or were concerned with topics in the natural sciences.<sup>38</sup> One of the most plausible reasons for this is that the integration of religion and science in Indonesian institutions has not been fully adopted and remains confined to academic jargon.<sup>39</sup> In the case of UIN Raden Intan Lampung, Ali Murtadho discovered that the application of science and religion integration is less than optimal.<sup>40</sup> Rather than integrating religion and science, Irwandani and colleagues argue it is restricted to dialogue between the two disciplines instead.<sup>41</sup>

It can also be noticed in the dearth of studies on Qur'ān interpretation based on science undertaken by academics at UIN Sunan Kalijaga between 2017 and 2021. The studies on pluralism, gender, the hermeneutics of the Qur'ān and others at the period reflect this trend. Meanwhile, research on the scientific exegesis of the Qur'ān is minimal, particularly in the PTKI.<sup>42</sup>

Meanwhile, numerous higher education institutions in Indonesia, such as UNSIQ Wonosobo in Central Java, are implementing Qur'ān- and science-based learning. The purpose of establishing this university is to place a premium on the Qur'ān and science to implement the Tri Dharma of Higher Education, which refers to the national, regional and international quality standards of higher education through the implementation of a curriculum that integrates the Qur'ān and science.<sup>43</sup>

In addition, Universitas Darussalam (UNIDA) Gontor perceives itself as a centre for scientific advancement dedicated to the Islamisation of contemporary science. To accomplish

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<sup>38</sup> Imam Taufiq, "Qur'anic Interpretation Research in Indonesia (Case Study: Undergraduate Theses at Islamic Higher Education in Indonesia)," *International Journal of Education and Research* 3, no. 2 (2015): 552–53.

<sup>39</sup> Nur Kafid and Arina Rohmatika, "Academic Social Capital and Institutional Transformation of Islamic Higher Education in Indonesia," *AKADEMIKA: Jurnal Pemikiran Islam* 24, no. 2 (2020); Muslimah Susilayati, Mufiq Mufiq and Barid Syamsiyah, "Paradigma Fisika Qur'ani dalam Tridharma Perguruan Tinggi Keagamaan Islam" [The Qur'anic Physics Paradigm in the Tri Dharma of Islamic Religious Colleges], *Al-A'raf: Jurnal Pemikiran Islam dan Filsafat* 16, no. 2 (2019): 162–63, <https://doi.org/10.22515/ajpif.v16i2.1696>.

<sup>40</sup> Ali Murtadho, "Integrasi Keilmuan Program Studi Tadris (Umum) Fakultas Tarbiyah Dan Keguruan IAIN Raden Intan Lampung" [Scientific Integration of Tadris Study Program (General) Faculty of Tarbiyah and Teacher Training IAIN Raden Intan Lampung], *Al-Tadzkiyyah: Jurnal Pendidikan Islam* 7, no. 2 (2016), <https://doi.org/10.24042/atjpi.v7i2.1503>.

<sup>41</sup> Irwandani Irwandani et al., "Modul Digital Interaktif Berbasis Articulate Studio'13: Pengembangan pada Materi Gerak Melingkar Kelas X" [Articulate Studio'13-Based Interactive Digital Module: Development on Circular Motion Material Class X], *Jurnal Ilmiah Pendidikan Fisika Al-Biruni* 6, no. 2 (2017): 221, <https://doi.org/10.24042/jipfalbiruni.v6i2.1862>.

<sup>42</sup> "Penelitian Ilmu Al-Qur'an Dan Tafsir UIN Sunan Kalijaga Yogyakarta" [Research on Qur'anic Sciences and Tafsir UIN Sunan Kalijaga Yogyakarta], UIN Sunan Kalijaga, accessed September 5, 2021, <http://iat.uin-suka.ac.id/id/penelitian/index/>.

<sup>43</sup> "Visi, Misi, Dan Tujuan UNSIQ" [UNSIQ's Vision, Mission, and Goals], Universitas Sains Al-Quran (UNSIQ) Jawa Tengah, accessed September 5, 2021, <https://unsiq.ac.id/page/detail/visi-misi-dan-tujuan-unsiq>.

this goal, UNIDA Gontor has developed many colleges, including religious sciences, natural sciences and social sciences.<sup>44</sup> Among these is the College of Qur'ānic Sciences and Tafsir, which aspires to be a world-class study program in scientific Qur'ānic exegesis as part of the Islamisation of contemporary science.<sup>45</sup> Students at this college study various subjects relating to the scientific Qur'ānic exegesis and *i'jaz 'ilmi*, including scientific interpretation of Qur'ānic verses about clouds, stars, planets, sky and earth. The objective is to train qualified *mufasssir* in the science of Qur'ān interpretation. Despite this, just 10.2% of college students between 2015 and 2021 expressed an interest in applying the *Tafsir Ilmi* approach in their undergraduate thesis.

Meanwhile, students at all Muhammadiyah universities in Indonesia were instructed by the book *Al-Islam dan Iptek* [Al-Islam and Science and Technology] (1997), compiled by Muhammadiyah University's civitas academia. Pimpinan Pusat Muhammadiyah (Muhammadiyah Center's leadership) is actively involved in this teaching process.<sup>46</sup> This program exposes students to a range of scientific exegeses of the Qur'ān and encourages them to use this approach to gain more understanding of the Qur'ān.

Along with universities, numerous high schools in Indonesia have developed integrated Qur'ānic and scientific education. The experiments undertaken in schools or madrasas, such as SMA Trensain Sragen and SMA Tebu Ireng Jombang, have stressed lessons regarding the Qur'ān and science. In general, the curriculums of these two madrasas place a premium on Qur'ānic, scientific and religious subjects.<sup>47</sup> Additionally, several Islamic boarding schools follow a curriculum that integrates the Qur'ān with science, including Ma'had Sains al-Qur'an al-Amin Slangor (MASAA), Ma'had Integrasi Sains dan Teknologi Klang (MITS), al-Irsyad al-Islamiyah Purwokerto, Pesantren Sain Darul Ihsan (Trensain) Jawa Tengah and SMP Swasta sains Tahfidz Islamic Centre Kabupaten Siak.<sup>48</sup>

However, Abdurrohim Harahap asserts the actuality of the *Ma'had Sains* and *Tahfīz Sains* is not as anticipated. The planned science curriculum does not integrate science, does not include science curriculum learning in the learning schedule and differs in terms of learning time between the Qur'ān and scientific knowledge, precisely according to the hours contained

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<sup>44</sup> Hamid Fahmy Zarkasyi et al., *Pekan Perkenalan Khutbatu-L- 'Arsy Universitas Darussalam Gontor* [Khutbatu-L- 'Arsy Introduction Week at the University of Darussalam Gontor], 2nd ed. (Ponorogo: UNIDA Gontor Press, 2021), 52, 83.

<sup>45</sup> "Visi Misi dan Tujuan Program Studi Ilmu Al-Qur'an dan Tafsir" [Vision, Mission, and Objectives of the Department of Qur'ānic Sciences and Tafsir], Program Studi Ilmu Al-Qur'an dan Tafsir UNIDA Gontor, accessed September 7, 2021, <https://iqt.unida.gontor.ac.id/visi-misi-dan-tujuan-program-studi-ilmu-al-quran-dan-tafsir/>.

<sup>46</sup> Bahri, "Expressing Political and Religious Identity," 170.

<sup>47</sup> Muhammad Munadi, "Integrasi Islam dan Ilmu Dalam Praktek di Lembaga Pendidikan" [Integration of Islam and Science in Practice in Educational Institutions], IAIN Surakarta, January 7, 2016, <https://iain-surakarta.ac.id/integrasi-islam-dan-ilmu-dalam-praktek-di-lembaga-pendidikan/>.

<sup>48</sup> Abdurrohim Harahap, "Integrasi Alquran Dan Materi Pembelajaran Kurikulum Sains Pada Tingkat Sekolah Di Indonesia: Langkah Menuju Kurikulum Sains Berbasis Alquran" [Integration of the Qur'an and Science in Curriculum Learning Materials at the Indonesian Schools: Steps Towards a Qur'an-Based Science Curriculum], *Jurnal Penelitian Medan Agama* 9, no. 1 (2018): 36.

in the learning schedule. Additionally, the science textbooks used are not based on the Qur'ān.<sup>49</sup>

To address these issues, Lajnah Pentashihan Mushaf Al-Qur'an (LPMQ) will begin publishing textbooks based on scientific Qur'ānic exegesis at the senior high school level this year (2021). The first year's theme is biology. More precisely, it is developing a biology textbook based on the Qur'ān, i.e. integrating Qur'ānic texts with science. LPMQ worked with the Sekolah Tinggi Agama Islam (STAI) Al-Muhajirin, Purwakarta to develop this scientific exegesis of the Qur'ān textbook.<sup>50</sup> Additionally, on 30 September 2020, this institution hosted an international seminar on the Qur'ān's scientific miracles. This seminar demonstrated how a scientific Qur'ānic exegesis method could be used to decipher the Qur'ān's scientific miracles.<sup>51</sup>

### ***Government's Mission***

The Indonesian government compiled a series of scientific Qur'ānic exegeses through the LPMQ at the Indonesian Ministry of Religious Affairs and the Indonesian Institute of Sciences (LIPI). Each institution gathers a team to prepare scientific Qur'ānic exegesis; the LPMQ has a team that is proficient in *asbāb al-nuzūl*, *munāsabāt al-āyāt*, narrations in interpretation and other Islamic sciences. Meanwhile, LIPI appoints qualified individuals in scientific subjects such as physics, biology and astronomy. The two teams collaborated to clarify the *kawniyyah* verses in the Qur'ān. After examining the language and providing prior scholars' interpretations, it is compared to recent scientific findings.<sup>52</sup>

According to Faizin, the Ministry of Religious Affairs' scientific Qur'ānic exegesis manifests the integration of religion and science, particularly in interpretation. The integration paradigm in scientific Qur'ānic exegesis is not simply an attempt to demonstrate no dichotomy between religion and science; it is also an attempt to introduce God to contemporary culture through a synthesis of interpretation and science. As evidenced by the pattern of integrative application given, religion is always there to explain the multiple interpretations of the text, which is subsequently supported by scientific findings. Additionally, the pattern of integration founded on theology inspires belief and develops ethical standards that maintain human relationships with themselves, other humans and the Creator.<sup>53</sup>

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<sup>49</sup> Ibid., 38.

<sup>50</sup> Bagus Purnomo, "LPMQ Siapkan Buku Ajar Tafsir Ilmi Untuk Pelajar Setingkat Madrasah Aliyah" [LPMQ Prepares Scientific Interpretation Textbooks for Students at Madrasah Aliyah Level], Lajnah Pentashihan Mushaf Al-Qur'an, accessed September 7, 2021, <https://lajnah.kemenag.go.id/berita/754-lpmq-siapkan-buku-ajar-tafsir-ilmu-untuk-pelajar-setingkat-madrasah-aliyah>.

<sup>51</sup> "Menyingkap Mukjizat Ilmiah Al-Qur'an" [Uncovering the Scientific Miracles of the Qur'an], Kantor Kementerian Agama Kabupaten Jembrana, accessed September 7, 2021, <https://bali.kemenag.go.id/jembrana/berita/20066/menyingkap-mukjizat-ilmiah-al-quran>.

<sup>52</sup> Muchlisin and Nisa, "Geliat Tafsir 'Ilmi di Indonesia," 252.

<sup>53</sup> Faizin, "Integrasi Agama Dan Sains Dalam Tafsir Ilmi Kementerian Agama RI" [Integration of Religion and Science in Scientific Interpretation of the Indonesian Ministry of Religious Affairs], *Jurnal Ushuluddin* 25, no. 1 (2017): 31, <https://doi.org/10.24014/jush.v25i1.2560>.

However, the Ministry of Religious Affairs' scientific Qur'ānic exegesis cannot be divorced from the government's purpose in promoting its policies. For instance, in marine affairs, the government has an agenda for socialisation through scientific Qur'ānic exegesis of the sea to maintain and preserve marine wealth. The sea is a precious natural resource that must be protected and kept. The purpose of interpretation, in this case, is to attempt to improve the quality of everyday practice.<sup>54</sup> From a systematic perspective, this exegesis is in the deductive–confirmative compilation. The writing team incorporates scientific findings to provide context for Qur'ānic verses deemed significant.<sup>55</sup>

Additionally, through the Ministry of Religious Affairs and the Direktorat Jenderal Pendidikan Islam (PENDIS), the Republic of Indonesia government attempts to bridge the gap between the Qur'ān and modern scientific knowledge. PENDIS creates a more comprehensible, systematic and practical methodology for learning integrated scientific Qur'ānic exegesis. The integrated scientific Qur'ānic exegesis learning principle unites or combines material thematically connected with the thematic (*maudū'ī*) approach. The approach is unique in that it has a simple, structured syntax that is available via the website and is adaptable to problem-based learning. Thus, in addition to facilitating the study of integrated science interpretation for lecturers and students, they can also assist the general public in comprehending it via the website.<sup>56</sup>

## THE EPISTEMOLOGY OF SCIENTIFIC QUR'ĀNIC EXEGESIS IN INDONESIA

Discussions between Indonesian scholars about the relationship between religion and science played a role in forming scientific Qur'ānic exegesis in Indonesia. Hidajat Nataatmadja stated in the 1980s that the Qur'ān is the source of science, inspiring scientific discoveries. He was relatively well-known in Indonesia for his discussions on Islam and science and his opposition to Western secular science. However, he agreed that Western scholars had a better grasp of the Qur'ān's scientific dimension than Muslims did.<sup>57</sup>

Muslim scholars in Indonesia use numerous terms to describe the relationship between religion and science, including Islamisation of knowledge/science, *pengilmuan Islam*, objectification of Islam, compatibility, *ayatization* and knowledge/science integration, as well as teoantroposentric-integralist and others. However, according to Media Zainul Bahri, religion and science are always in a state of integration and dialogue, not conflict and

<sup>54</sup> Ahmad Muttaqin, "Konstruksi Tafsir Ilmi Kemenag RI-LIPI: Melacak Unsur Kepentingan Pemerintah Dalam Tafsir [Construction of Scientific Interpretation of the Ministry of Religion of the Republic of Indonesia-LIPI: Tracing Elements of Government Interest in Interpretation]" *Religia* 19, no. 2 (2016): 84.

<sup>55</sup> Faizin, "Integrasi Agama," 27.

<sup>56</sup> Direktorat Jenderal Pendidikan Islam Kementerian Agama Republik Indonesia, "Mengembangkan Model Pembelajaran Tafsir Sains Terpadu" [Developing an Integrated Science Interpretation Learning Model], accessed September 5, 2021, <http://pendis.kemenag.go.id/index.php?a=detilpenelitian&id=11462#.YTQhMo4zbDd>.

<sup>57</sup> Hidajat Nataatmadja, *Karsa Menegakkan Jiwa Agama Dalam Dunia Ilmiah: Versi Baru Ihya Ulumuddin* [Karsa Upholding the Spirit of Religion in the Scientific World: A New Version of Ihya Ulumuddin] (Bandung: IQRA, 1982), 23.

independence in Indonesia.<sup>58</sup> This result is based on Bahri's analysis of debates among Muslim scholars in Indonesia from the 1990s to the present via the perspective of Ian Barbour's four types of relationships between science and religion: conflict, independence, dialogue and integration.<sup>59</sup>

Various active and prolific figures in Indonesia contribute to the debate on science and Islam integration, including Kuntowijoyo, Mulyadhi Kartanegara, M. Amin Abdullah, Imaduddin Abdurrahim, Mochtar Naim, Jalaluddin Rahmat, Azyumardi Azra and Armahedi Mazhar.<sup>60</sup>

According to Kuntowijoyo, the integration of science and Islam is an attempt to reconcile human logic with God's revelation, which is accomplished through the development of science following the Qur'ān's inspiration. Integration, he asserts, is also an attempt to objectify knowledge as an interpretation of Islamic principles that can be internalised into meaningful objective categories.<sup>61</sup>

According to Kuntowijoyo, the Islamisation of science should not be interpreted as a rejection of the intellectual heritage of other cultures, especially the West. Science reconstruction in Islamic civilisation does not begin in a vacuum. Its existence is the outcome of an epistemological conflict. Western scientific treasures can be exploited to assist Muslims in this scenario, but only after an objective selection and adaption procedure.<sup>62</sup>

Kartanegara adheres to a "holistic integrative theory" of science and Islam integration. The basis for this holistic integration is found in the teachings of *wahdat al-wujūd* [the unity of being], which maintains that the forms that inspire the hierarchy of existence are inextricably linked. Thus, holistically, all objects, whether physical and metaphysical, have the same ontological validity.<sup>63</sup>

In the program, which he calls the integration–interconnection project, M. Amin Abdullah carries the teoanthropocentric–integrative paradigm. This concept wants to hold a dialogue between three scientific civilisations: *ḥadārah al-naṣṣ* (textual tradition), *ḥadārah al-'ilm* (scientific tradition) and *ḥadārah al-falsafah* (philosophical tradition).<sup>64</sup> In practice in

<sup>58</sup> Bahri, "Expressing Political and Religious Identity," 156–57.

<sup>59</sup> Ian G. Barbour, *When Science Meets Religion: Enemies, Strangers, or Partners?* (New York: Harper Collins, 1998), 7–26.

<sup>60</sup> Faizin, "Integrasi Agama," 22.

<sup>61</sup> Ibid.; Kusmana, "Paradigma Al-Qur'an: Model Analisis Tafsir Maqashidi Dalam Pemikiran Kuntowijoyo" [The Qur'an Paradigm: Analysis Model of Maqashidi's Interpretation in Kuntowijoyo's Thought], *Afkaruna: Indonesian Interdisciplinary Journal of Islamic Studies* 11, no. 2 (2015).

<sup>62</sup> A. E. Priyono, "Marginalisasi, Oposisi, Dan Integrasi Islam Indonesia: Menyimak Pemikiran Dr. Kuntowijoyo" [Marginalization, Opposition, and Integration of Indonesian Islam: Listening to the Thoughts of Dr. Kuntowijoyo], in *Paradigma Islam: Interpretasi Untuk Aksi* [Islamic Paradigm: Interpretation for Action], ed. A. E. Priyono (Bandung: Mizan, 2008), 62.

<sup>63</sup> Mulyadhi Kartanegara, *Integrasi Ilmu: Sebuah Rekonstruksi Holistik* [Knowledge Integration: A Holistic Reconstruction] (Jakarta: UIN Jakarta Press, 2005), 35.

<sup>64</sup> M. Amin Abdullah, *Islamic Studies Di Perguruan Tinggi: Pendekatan Integratif-Interkoneksi* [Islamic Studies in Higher Education: Integrative-Interconnection Approach] (Yogyakarta: Pustaka Pelajar, 2006); M. Amin Abdullah, "Religion, Science, and Culture: An Integrated, Interconnected Paradigm of Science," *Al-Jami'ah: Journal of Islamic Studies* 52, no. 1 (2014): 181, <https://doi.org/10.14421/ajis.2014.521.175-203>.

Indonesian Islamic universities, *ḥadārah al-naṣṣ* means faith in the Holy Scriptures, *ḥadārah al-'ilm* means exploring the sciences in the Holy Scriptures, and *ḥadārah al-falsafah* applies to ethics and reality.<sup>65</sup> Thus, Amin argues that when Islamic higher education seeks to develop religious studies and science concurrently, it must bear in mind three fundamental principles from three perspectives: textual perspective, scientific and knowledge perspective, and critical and transformative philosophical perspective.<sup>66</sup>

With the teoanthropocentric paradigm, it is intended that theological and humanist perspectives will be free of discriminatory and dichotomous attitudes. Meanwhile, it is projected that the integrated paradigm will enable *bayānī*, *burhānī* and *'irfānī*'s epistemology to be applied methodically in the fields of Islamic studies (*'ulūm al-dīn*) and general sciences (social sciences, natural sciences and humanities).<sup>67</sup> The goal is that religious knowledge can greet other general sciences and synergise in providing benefits for building contemporary Islamic civilisation.<sup>68</sup>

Following Ian G. Barbour's theory of religion and science, Amin Abdullah asserts the relationship between religion and science in Indonesia is independent (apart) to avoid "conflictual" situations. Between the two, there has been little communication or even real integration. Abdullah states this could be observed metaphorically in the ministry of research and technology division from religious affairs.<sup>69</sup>

According to Faizin, the pattern of religious–scientific integration seeks to demonstrate an attitude of openness to information and communication between religion and science. The result is positivism's failure to eradicate metaphysics and the abolition of science's duality. Additionally, it can discover the significance of Islamic scientific epistemology and the rebuilding of science for civilisational growth.<sup>70</sup>

*Ayatisasi*, or the attempt to present Qur'ānic verses on science, social and other information deemed in agreement with the Qur'ān, is the most widespread phenomenon in Indonesia's field of scientific Qur'ānic exegesis according to Bahri.<sup>71</sup> He classifies Indonesia's *ayatisasi* models into two categories: soft *ayatisasi* and hard *ayatisasi*. Soft *ayatisasi* scholars stress that the Qur'ān inspires and is consistent with the growth of science. The Qur'ān is positioned as a repository for scientific evidence. It is not used to endorse or

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<sup>65</sup> Waryani Fajar Riyanto, *Integrasi – Interkoneksi Keilmuan: Biografi Intelektual M. Amin Abdullah, Person, Knowledge and Institution* [Integration – Scientific Interconnection: Intellectual Biography of M. Amin Abdullah, Person, Knowledge and Institution] (Yogyakarta: Suka Press, 2013), 768.

<sup>66</sup> *Ibid.*, 771–72.

<sup>67</sup> Abdullah, "Religion, Science, and Culture," 181.

<sup>68</sup> Faizin, "Integrasi Agama," 23; Riyanto, *Integrasi – Interkoneksi Keilmuan*, 964–79.

<sup>69</sup> M. Amin Abdullah, *Multidisiplin, Interdisiplin, Dan Transdisiplin: Metode Studi Agama Dan Studi Islam Di Era Kontemporer* [Multidisciplinary, Interdisciplinary, and Transdisciplinary: Methods of Religious Studies and Islamic Studies in the Contemporary Era] (Yogyakarta: IB Pustaka, 2020), 124.

<sup>70</sup> Faizin, "Integrasi Agama," 23.

<sup>71</sup> Bahri, "Expressing Political and Religious Identity," 168.

criticise scientific theories; instead, it is used to demonstrate that certain verses of the Qur'ān correspond to scientific discoveries, as science is always relative.<sup>72</sup>

Hard *ayatisasi*, on the other hand, regards Qur'ānic verses about science and knowledge in general as more authentic than soft *ayatisasi*. The Qur'ān's verses are not only consistent with scientific discoveries but also nearly identical to them. The Qur'ān's miracles will always be consistent with scientific discoveries. This model of ayatisation can be found in Fahmi Basya's book *Matematika Islam: Sebuah Pendekatan Rasional untuk Yaqin* [Islamic Mathematics: A Rational Approach to Yaqin] and *Borobudur dan Peninggalan Nabi Sulaiman* [Borobudur and the Legacy of Prophet Solomon].<sup>73</sup> In his first work, Basya attempted to relate mathematical formulas to the verses of the Qur'ān to show a convincing correspondence between mathematics and the Qur'ān.<sup>74</sup> While in his second work, he stated that several pieces of information in the Qur'ān – based on mathematical calculations – indicate that Borobudur was a relic of the Queen of Sheba. He even stated that Indonesia is Sheba's country and the ancestors of Indonesians were neither Hindus nor Buddhists.<sup>75</sup> All of Basya's arguments are considered incorrect and even considered insulting to Indonesian ancestors by Seno Panyadewa in his book *Misteri Borobudur: Candi Borobudur bukan peninggalan Nabi Sulaiman* [Mystery of Borobudur: Borobudur Temple is not a Heritage of the Prophet Solomon].<sup>76</sup>

According to Agus Purwanto, a theoretical physicist at the Institut Teknologi Surabaya (ITS), when it comes to scientific Qur'ānic exegesis, he proposes a form of deconstruction: reading the *kawniyah* verses as if science had not yet been discovered.<sup>77</sup> Purwanto appears to be confident that the Qur'ān has good scientific messages that may be authentically expanded using this way. Taking Purwanto's advice to study science before addressing the Qur'ān as a starting point, then empiricism is the epistemological foundation on which Muslim scientists want to develop their theories. As a result, by initially studying science, a Muslim will gain thorough comprehension of many postulates and scientific facts that are experimentally relevant to interpreting the Qur'ān. This way appears to be contrary to Muslim scholars in the field of religion (the Qur'ān), who demand the *kawniyah* verses as scientific evidence. Their passion is to discuss the science of the Qur'ān, which is founded on rationalism's epistemology but is not ideological or even pragmatic. This perspective is not to say that no scientific Qur'ānic exegesis is based on critical rational epistemology. However, scientific Qur'ānic exegesis requires the mastery of the Qur'ānic lexical, syntagmatic and paradigmatic meanings.

<sup>72</sup> Ibid., 169–70; M. Quraish Shihab, *Membumikan Al-Quran* [Grounding the Qur'ān] (Bandung: Mizan, 2003), 49.

<sup>73</sup> Bahri, "Expressing Political and Religious Identity," 171.

<sup>74</sup> Fahmi Basya, *Matematika Islam: Sebuah Pendekatan Rasional Untuk Yaqin* [Islamic Mathematics: A Rational Approach to Yaqin] (Jakarta: Penerbit Republika, 2004).

<sup>75</sup> Fahmi Basya, *Borobudur Dan Peninggalan Nabi Sulaiman* [Borobudur and the Legacy of Prophet Solomon] (Jakarta: Zaytuna, 2012), vi.

<sup>76</sup> Seno Panyadewa, *Misteri Borobudur: Candi Borobudur Bukan Peninggalan Nabi Sulaiman* [Mystery of Borobudur: Borobudur Temple is not a heritage of the Prophet Solomon] (Jakarta: Dolphin, 2014).

<sup>77</sup> Purwanto, *Ayat-Ayat Semesta: Sisi-Sisi*, 29.

According to Quraish Shihab, some Muslims attempt to demonstrate the Qur'ān's miracles through an interpretation that is consistent with the advancement of science. However, it is not uncommon to experience pressure in the interpretation process as a result of the desire to establish the Qur'ān's scientific reality.<sup>78</sup> For him, the explanation of the verses of the Qur'ān with scientific discoveries or theories that have been established must be preceded by knowledge of the semantic, linguistic and *asbab nuzul* meanings. It is also important to know in advance the correlation of these verses in their respective surahs.<sup>79</sup> However, Gusmian argues that scientific understanding is therefore justified by the Qur'ān and is more dominant than the Qur'ān's understanding, which promotes knowledge enquiry and greater scientific understanding.<sup>80</sup>

According to Muchlis M. Hanafi, scientific Qur'ānic exegesis, on the other hand, can become a “new kalam science” because it serves as a theological conduit for introducing God through the Qur'ān in the modern day. In traditional Islamic periods, God was introduced through the logic of the science of kalam, which uses ratios to verify the reality of revelation. Thus, in modern civilisation, this approach to the Qur'ān can be replaced by a scientific one, owing to modern humans' proximity to the progress of science and technology.<sup>81</sup>

## THE METHODOLOGY OF SCIENTIFIC QUR'ĀNIC EXEGESIS IN INDONESIA

Indonesian scholars employ a wide variety of methodologies to interpret Qur'ānic texts scientifically. The early stages of scientific Qur'ānic exegesis' development in Indonesia were limited to referencing scientific theories in global verse explanations, which were complemented with verse explanations from non-scientific Qur'ānic exegesis. This can be found in Hasbi Ash-Tafsir Shiddieqy's *Tafsir al-Qur'anul Madjied An Nur* [Interpretation of the Glorious Qur'ān An-Nur] and Bisyrī Mustafa's *Tafsir al-Ibriz li Ma'rifati Tafsir al-Qur'an al-'Aziz* [Tafsir Al-Abriz to know the Interpretation of the Qur'ān] from the 1960s.<sup>82</sup>

In the 1970s, a thematic interpretation of the Qur'ān emerged. Several verses in a particular theme are explained by using scientific theories. However, in its presentation, there is a question-and-answer model as done by Nazwar Syamsu,<sup>83</sup> and some are in the form of

<sup>78</sup> M. Quraish Shihab, *Mukjizat Al-Qur'an Ditinjau Dari Aspek Kebahasaan, Isyarat Ilmiah Dan Pemberitaan Gaib* [Miracles of the Qur'an in Terms of Linguistic Aspects, Scientific Cues and Occult News] (Bandung: Mizan, 2014), 170.

<sup>79</sup> M. Quraish Shihab, *Kaidah Tafsir* [Rules of Qur'ānic Interpretation] (Jakarta: Lentera, 2013), 389.

<sup>80</sup> Ishaq Gusmian, *Khazanah Tafsir Indonesia Dari Hermeneutika Hingga Ideologi* [Treasures of Indonesian Tafsir: From Hermeneutics to Ideology] (Yogyakarta: LKiS, 2013), 248.

<sup>81</sup> Muchlis M. Hanafi, “Memahami Isyarat-Isyarat Ilmiah al-Qur'an: Sebuah Pengantar” [Understanding the Scientific Signs of the Qur'ān: An Introduction], in *Hewan Dalam Perspektif Al-Qur'an Dan Sains* [Animals in the Qur'ān and Science Perspective], ed. Lajnah Pentashihan Mushaf al-Qur'an (Jakarta: Lajnah Pentashihan Mushaf al-Qur'an, 2012), xxiii–xxiv.

<sup>82</sup> ash-Shiddieqy, *Tafsir Al Quranul Madjied An Nur*, 2:44–46; Mustafa, *Tafsir al-Ibriz li Ma'rifati Tafsir al-Qur'an al-'Aziz*, 2:1714.

<sup>83</sup> Supriadi, “Integrating Qur'an and Science,” 158.



essays such as Muhammad Munir Faurunnama's work.<sup>84</sup> The neo-thematic method is also found in Indonesian scholarly interpretation titled *Al-Qur'an, Ilmu Pengetahuan dan Teknologi* [The Qur'ān, Science and Technology] (1996) by Achmad Baiquni. Neo-thematic interpretation is a method of interpretation similar to thematic interpretation. It discusses verses based on a particular theme but does not include all verses based on that theme in the discussion.<sup>85</sup>

Throughout the 1980s and 1990s, numerous books were translated into Indonesian that critiqued Western science and emphasised the importance of developing science based on Islamic epistemology. This subject, widely popular in the United States and Europe, was also warmly accepted in Indonesia.<sup>86</sup> In 1978, H. M. Rasjidi translated Maurice Bucaille's book, *La Bible le Coran et la Science* (1976).<sup>87</sup> Rasjidi's involvement as a Muslim scholar who translated and disseminated Bucaille's book is inextricably linked to the fierce debate in Indonesian Muslim circles over the relationship between science and the Qur'ān due to Bucaille's book's impact.<sup>88</sup> Another of Bucaille's books, *What is the Origin of Man? The Answers of Science and the Holy Scriptures* (1984), was translated by Rahmani Astuti and titled *Asal-Usul Manusia Menurut Bibel, Al-Quran, Sains* [The Origins of Man According to the Bible, the Qur'ān, Science].<sup>89</sup>

Despite its widespread rejection, Bucaille's work found a home in Indonesia. Numerous ITB lecturers were motivated to compose an interpretation titled *Tafsir Salman: Tafsir Ilmiah atas Juz Amma* [Tafsir Salman: Scientific Interpretation of Juz 'Amma], written by 26 expert lecturers in natural science.<sup>90</sup> ITB lecturers and scientists went through four processes in preparing this book: linguistic analysis, unearthing some earlier interpretations, authentic interpretations based on research shared in scientific forums and concluding on each verse segmentation.<sup>91</sup> Additionally, there are translations of Harun Yahya's, Zaglul al-Najjar's and Abdul Daim Kahil's works that are assembled in the form of an encyclopedia. This phenomenon demonstrates that scientific Qur'ānic exegesis in Indonesia is influenced by the upheaval of European thought and the Middle East.

## CONCLUSION

Since its inception in the 1960s, scientific Qur'ānic exegesis in Indonesia has progressed from a small piece of the Qur'ānic exegesis landscape to an entire landscape on Qur'ānic interpretation with a specific theme related to the author's discipline. Global advancements in

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<sup>84</sup> Syarifuddin and Azizy, "Thematic Scientific Interpretation of the Qur'an in Indonesia," 46.

<sup>85</sup> Fikriyati, "Tafsir Ilmi Nusantara," 61.

<sup>86</sup> Bahri, "Expressing Political and Religious Identity," 158.

<sup>87</sup> Bucaille, *Bibel, Quran Dan Sains Modern*.

<sup>88</sup> Bahri, "Expressing Political and Religious Identity," 161.

<sup>89</sup> Bucaille, *Asal-Usul Manusia Menurut Bibel, Al-Quran, Sains*.

<sup>90</sup> Muchlisin and Nisa, "Geliat Tafsir 'Ilmi di Indonesia," 242; Tim Tafsir Ilmiah Salman ITB, *Tafsir Salman Tafsir Ilmiah Atas Juz 'Amma* [Tafsir Salman: Scientific Interpretation of Juz 'Amma] (Bandung: Mizan, 2014), 24–25.

<sup>91</sup> Tim Tafsir Ilmiah Salman ITB, *Tafsir Salman Tafsir Ilmiah Atas Juz 'Amma*, 59–68.

scientific Qur'ānic exegesis have improved Indonesian scientific Qur'ānic exegesis through the translation of publications on the relationship between religion and science, as well as on the scientific interpretation of the Qur'ān. Most of them were then compiled into an encyclopedia. Numerous Indonesian individuals have advocated for the combination of religion and science, but their application in higher education, particularly in the interpretation of the Qur'ān, remains a challenge. Numerous institutions, public and private, have attempted to develop scientific interpretations of the Qur'ān through curriculum and textbook development, as well as through the organisation of international seminars aimed at producing Indonesian scientists capable of scientifically interpreting the Qur'ān. The government's scientific interpretation of the Qur'ān includes a mission to spread government policies throughout diverse sectors, as well as to support efforts to advance science and technology in Indonesia. The epistemological basis for scientific Qur'ānic exegesis is based on the integration of the Qur'ān and science. However, *ayatisasi* (Qur'ānic justification by scientific theory) and Islamisation of knowledge are also present in Indonesian works of scientific Qur'ānic exegesis.

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