

Muslims and climate change: How Islam, Muslim organizations, and religious leaders influence climate change perceptions and mitigation activities

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Abstract

A growing body of research stresses the importance of religion in understanding and addressing climate change. However, so far, little is known about the relationship between Muslim communities and climate change. Globally, Muslims constitute the second largest faith group, and there is a strong concentration of Muslims in regions that are particularly affected by global warming. This review synthesizes existing research about climate change and Muslim communities. It addresses (a) Islamic environmentalism, (b) Muslim perceptions of climate change, and (c) mitigation strategies of Muslim communities. The analysis shows that there is no uniform interpretation of climate change among Muslims. Based on their interpretations of Islam, Muslims have generated different approaches to climate change. A small section of Muslim environmentalists engages in public campaigning to raise greater concern about climate change, seeks to reduce carbon emissions through sociotechnological transition efforts, and disseminates proenvironmental interpretations of Islam. However, it remains unclear to what extent these activities generate broader changes in the daily activities of Muslim communities and organizations. Contributions to this research field are often theoretical and stress theological and normative aspects of Islam. Empirical studies have particularly addressed Indonesia and the United Kingdom, whereas knowledge about Muslim climate activism in other world regions is fragmented. Against this backdrop, there is a need for comparative studies that consider regional and religious differences among Muslims and address the role of Muslim environmentalism in climate change mitigation and adaptation at the international, national, and local scales.

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KEY WORDS

climate change, Islam, Islamic environmentalism, Muslims, religion, sustainability

1 | INTRODUCTION

In recent years, there has been a rising consideration of religion in the field of climate change research (e.g., Allison, 2015; Clingerman & O'Brien, 2017; Edenhofer et al., 2015; Haluza-DeLay, 2014; Hulme, 2017; Jenkins et al., 2018; Kilburn, 2014; Murphy et al., 2016; Smith & Leiserowitz, 2013). The increasing focus on culture, values, and worldviews in research on climate change appears to have encouraged directing attention to religion (Abson et al., 2017; Adger et al., 2013; Christie et al., 2019; Ives et al., 2020; Ives & Kidwell, 2019; O'Brien, 2018; Otto et al., 2020). Scholars have therefore argued that there is a fundamental need to understand the role of religion in order to fully grasp the cultural dynamics of climate change (Hulme, 2016; Jenkins et al., 2018).

At the same time, by stressing the specific capacities of religions, scholars from the field of religious studies have made strong claims about the potentials of religion in addressing human-induced environmental degradation (Bergmann, 2009; Gardner, 2003, 2006; R. Gottlieb, 2008; Hitzhusen & Tucker, 2013; Holmes, 2006; Posas, 2007; Rolston III, 2006; Tucker, 2006). Religions shape the worldviews and moral attitudes of their adherents and how they approach nature (Jenkins, 2009; Watson & Kochore, 2012). Moreover, religious leaders and organizations often enjoy high credibility. They have an important voice in public debates and can influence political decision-making through their different networks (Casanova, 1994; Reder, 2012; Schaefer, 2016; Wardekker et al., 2009). In addition, some religious institutions have massive financial and organizational resources (e.g., media networks, local schools) that they can mobilize to promote transformations toward more environmentally sustainable societies (Gardner, 2002; Mangunjaya et al., 2015; Palmer, 2013). Finally, several scholars have discussed – some with more scepticism than others as, e.g., in the case of Taylor et al. (2016) – an ongoing “greening” process of religions, meaning that religious traditions over time become more environmentally aware and engaged (Bergmann, 2009; Chaplin, 2016; Kanagy & Willits, 1993; Koehrsen, 2018; Koehrsen, Becci, et al., 2020; Reuter, 2015; Shibley & Wiggins, 1997) [Correction added on 21 April 2021 after first online publication: This statement was updated to clarify the positions of the articles that were cited.]. Apart from “green” reinterpretations of the given faith traditions, religious communities have started to undertake environmental activities, such as public statements, consultations with national and regional governments, recycling or tree-planting projects, and environmental education (Amri, 2014; DeHanas, 2009; Mohamad et al., 2012; Shibley & Wiggins, 1997). For these reasons, scholars have stressed the transformational potentials of religions to facilitate transitions toward more environmentally sustainable societies and to address climate change (Bergmann, 2009; R. Gottlieb, 2008; Holmes, 2006; Palmer, 2013).

The extent to which religions are becoming “greener” and contribute to climate change mitigation still remains an open question. Up to now, most research about religious environmentalism has focused on Christianity in the Global North (Haluza-DeLay, 2014, p. 269; Hulme, 2016, pp. 245–246; Jenkins et al., 2018, pp. 93–94). However, less is known about the world’s second largest religion, Islam. Despite the fact that many of the regions where most Muslims live are highly vulnerable to climate change and that Islam often assumes a great societal relevancy in these regions, only few social science studies have addressed the relationship between Islam and climate change (Hancock, 2018, p. 3). This review aims to bring the existing but scattered knowledge together. Thus, it provides insights into the potentials of Muslim communities to facilitate (or block) climate change mitigation in different world regions. The review distinguishes between “Islam” as an abstract religious knowledge system and “Muslims” as individual and collective actors (e.g., organizations) who identify with Islam. These actors may interpret the religious knowledge system in different ways. As this review shows, there is no uniform interpretation of climate change among Muslims. Based on their interpretations of Islam, Muslims have generated different approaches to climate change.

The review starts with a brief introduction to Islam and the rising field of Islamic environmentalism. Drawing on surveys and qualitative case studies, the second section addresses how Muslims in different world regions perceive and interpret climate change. The third section outlines the potentials of Muslim organizations and leaders to contribute to climate change mitigation, naming different fields of activity and examples of existing initiatives. While there is surprisingly little research on the Middle East, existing studies have mostly addressed initiatives in Indonesia and the United Kingdom. Therefore, the fourth section undertakes case studies of Muslim mitigation activities in these two countries. A comparison of the activities in the two countries shows the potentials and limitations of Muslim mitigation efforts and illustrates how these relate to the broader country context. The final section summarizes the main results, stresses the need for further research, and outlines potential directions of future studies.

2 | ISLAM, THE ENVIRONMENT, AND CLIMATE CHANGE

Together with Christianity and Judaism, Islam belongs to the three monotheistic Abrahamic religions. Emerging in the seventh century, Islam is the youngest among the three religions. While the historical core territory of Islam was the

Middle East, North Africa, and parts of Central Asia, today, it is distributed around the globe. Only 20% of the global Muslim population currently lives in the Middle East and North Africa compared to around 60% in Asia (Pew Research Center, 2009). Currently, 48 countries are Muslim-majority countries, representing almost 20% of the world's nations. At the same time, Muslims constitute growing minorities in many countries of the Global North. In terms of followers, Muslims form the second largest global religious group after Christians: 1.8 billion Muslims, constituting almost a quarter of the worldwide population (Pew Research Center, 2017). Given the high birth rates of Muslims, Islam is the fastest growing religion and, according to prognostics, will make up 31% of the world population in 2060, reaching eye level with Christianity (Pew Research Center, 2017).

Religiously observant Muslims share a belief in God as revealed through the Prophet Muhammad and draw on two main scriptural sources: (1) the Qur'an, understood as God's revelation to the Prophet Muhammad, and (2) the Sunna, representing a collection of Hadiths: accounts about the practices of the Prophet. Observant Muslims regard the Prophet as a role model. As such, not only do they seek to orient their actions along the lines of the Qur'an but also the Sunna, distilling from the two scriptural sources norms for the worshipping of God and the organization of daily life. The five main obligations of Islam—also known as the five pillars of Islam—are the profession of faith (*schahada*), prayer (*salat*), charity for the poor (*zakat*), fasting during Ramadan (*sawm*), and pilgrimage to Mecca (*hajj*).

Islam does not have a unified leadership or centralized organizational structure. Muslims come from a variety of ethnic and religious subgroups that live and understand Islam in different ways (Pew Research Center, 2016; Saniotis, 2012). The two most prevalent branches of Islam are Sunni and Shia. The Pew Research Center (2009) has suggested that approximately 87–90% of Muslims are Sunni and 10–13% are Shia. Beyond Sunni and Shia Islam, there are smaller branches (e.g., Ahmadiyya, Mahdavia) that do not fall under these two major branches and whose belonging to Islam is sometimes contested. Although the sectarian boundaries in Islam are often regarded as crucial, at least three considerations question their importance: First, some strands cross the main branches of Islam, such as Sufism. Sufism—known as Islamic mysticism—is predominantly Sunni but has also developed in Shia Islam. Second, each branch involves Muslims who have different relationships with their religion, with levels of religious commitment and belief varying among them, including nonreligious Muslims. Third, more recent survey data from the Pew Research Center (2012) shows that many Muslims outside the Middle East and North Africa do not clearly identify with a specific branch of Islam but describe themselves as “just a Muslim.” Thereby, they reject any direct association with Sunni or Shia Islam and may, in many cases, even ignore the differences between both branches, as the Pew report suggests.

Paralleling “greening” tendencies in other world religions (e.g., Blanc, 2017; Boff, 2011; Densi, 2013; Harris, 1995), Islamic environmentalism has evolved from the 1960s onward. An original point of reference is a series of lectures by the Iranian-born Muslim philosopher Seyyed Hossein Nasr published in 1968. Drawing on Sufism and the concept of the unity of universe, he stresses the connections between environmental degradation and the spiritual and moral crisis of the modern world (Nasr, 1968). The field of Islamic environmentalism has expanded further from the 1980s on with the works of contemporary figures in Islamic environmentalism such as Mawil Izzi Dien (Dien, 1997, 2000, 2013) and Fazlun Khalid (Khalid, 2002, 2005, 2010). Interestingly, the literature on Islamic environmentalism does not refer to the aforementioned sectarian boundaries but rather tends to highlight the unifying function of environmentalism (Hancock, 2018, p. 147): Engaged Muslims from different branches of Islam can identify with environmentalism, thereby creating an imagined community that struggles for a joint environmental cause. The diasporic background of many Muslim environmentalists and their focus on current societal challenges rather than historical sectarian struggles appears to facilitate such a unification.

Muslim environmentalists draw upon the Qur'an and Sunna to generate environmental principles from them, thereby creating ecological interpretations of Islam and a set of Islamic environmental ethics (D. Abdelzaher et al., 2019, p. 626; Binay & Khorchide, 2019). Although different authors tend to name different principles, the main ones that scholars usually refer to are *Tawhid* and *Khalifa* (D. Abdelzaher et al., 2019). Their role within Islamic environmentalism is interrelated with other important principles: *Mizan* and *Maslahah*. Table 1 summarizes these principles.

Tawhid refers to the oneness of God, as expressed in the first words in the profession of faith: “There is no God but God.” Everything comes from this one source of life and is connected to it, including nature (Arnez, 2014; Dien, 1997; Gada, 2014, pp. 133–134). Muslim environmentalists interpret this principle as clarifying the unity of all creation to which humans belong (Foltz, 2000, p. 65; Khalid, 2010, p. 710). As such, Khalid perceives it as the “bedrock of the holistic approach in Islam as this affirms the interconnectedness of the natural order” (Khalid, 2002, p. 338). Moreover, Muslim environmentalists frequently connect this principle to *Mizan*, meaning balance and describing the universe as harmonious (Haq, 2001, p. 147; Khalid, 2010, p. 711): Every detail of creation has been created to stand in perfect

TABLE 1 Important principles for Islamic environmentalism

Principle	Meaning	Interpretation by Muslim environmentalists
Tawhid	Oneness of God	Unity of creation, including humans and nature
Mizan	Balance	Harmony of all parts of creation
Khalifa	Humans as God's vicegerents	Humans as stewards of God's creation
Maslahah	Public interest	Care for future generations

relationship to the other parts of creation. This principle indicates the interconnectedness of ecosystems. Applied to climate change, it helps to explain global warming as greenhouse gases impacting the balance of the interconnected creation (Hussain, 2007).

According to some authors, *Khalifa* is the single most important theme regarding Islam and ecology (Bagir & Martiam, 2016, p. 81; Hancock, 2018, p. 56). It refers to the role of humans as vicegerents of God on earth. Muslim environmentalists interpret this role as stewards of God's creation (Dien, 2013, pp. 44–46; Khalid, 2002, 2005, 2010, p. 711): God afforded humans with trusteeship over creation. It is their responsibility to take care of nature. Therefore, caring for nature means serving God. Being stewards of God's creation, humans have to carefully manage natural resources (e.g., water) as different verses in the Qur'an warn against their overexploitation and wastage (D. Abdelzaher et al., 2019; Al-Damkhi, 2008; Dien, 1997; Haron, 2017). From this viewpoint, climate change appears to be a failure of the assigned trusteeship (Hussain, 2007, p. 16): "Yet, with the changes that are occurring as a consequence of humankind's (sic!) impact on the climatic system, it appears that our species may well be very close to breaking that trust entirely." Another frequent principle is *Maslahah*: the concept of public interest. It pursues a "sustainable achievement of good, welfare, advantages, and benefits of creatures" (D. Abdelzaher et al., 2019, p. 628) and prioritizes the public welfare over individual, private interests. Relating it to the threat of climate change, this principle implies to think and act globally and care for future generations (Hussain, 2007). As such, Muslim thinkers discuss the obligation to preserve resources and care for future humans (Furber, 2012).

Public statements on climate change reflect the aforementioned interpretations by Muslim environmentalists. An example is the "Islamic Declaration on Global Climate Change" (International Islamic Climate Change Symposium, 2015). This declaration seeks to create greater awareness for climate change and calls on decision-makers in the Muslim world and beyond (e.g., Conference of the Parties at the United Nations Framework Convention on Climate Change) to take sound actions. To this end, it draws on the aforementioned Islamic principles (e.g., *Khalifa*, *Mizan*) and combines them with scientific insights on global warming. The declaration illustrates that Islamic environmentalism provides interpretations applicable to climate change. Nevertheless, Muslims may also draw on other interpretations and, thereby, come to other conclusions about climate change, as the following section will show.

Efforts to combine Islam and environmentalism and apply it to climate change have also provoked critical comments. The criticism points to the selective reading and reinterpretation of traditional scriptures (Gade, 2019; Hancock, 2018), suggesting that Muslim (and non-Muslim) environmentalists have taken specific verses from the Qur'an and related them to Western concepts of environmentalism, often without considering their broader context and other, more relevant interpretations. Critics fear that such selective interpretations are unlikely to resonate with broader sections of the global Muslim community as these interpretations do not relate to the prevalent understandings of Islam. In consequence, there are different opinions regarding the broader impact of Islamic environmentalism. Some have suggested a rising ecological concern among Muslims since the new millennium (Ali, 2016, p. 173; Arnez, 2014). Moreover, Brockopp states that the green movements in Islam are "not simply faddish responses to the issue of the day but fundamental shifts in the way that Islam is taught and understood" (Brockopp, 2012, p. 217). A few studies also suggest an increasing environmentalism among political Islamists, partly describing their use of an environmentalist language as a calculated strategy (Erdur, 1997; Karagiannis, 2015). In contrast, Bagir and Martiam assert that the natural environment does not occupy an important place in Islamic thought due to a stronger focus on other issues such as radicalism, terrorism, democracy, and human rights (Bagir & Martiam, 2016). From this perspective, Muslim environmentalists remain a rather small minority within the global Muslim community. While a growing number of theoretical contributions unfold the normative potentials of Islam to address environmental problems, little is known about the extent to which these "green" readings affect the perceptions and behavior of broader Muslim populations with regard to climate change.

3 | MUSLIM PERCEPTIONS OF CLIMATE CHANGE

Muslim-majority countries vary enormously with regard to their natural resources, geography, biosphere, and economic development. Nevertheless, many of the regions where Muslims live are highly vulnerable to climate change. For instance, in the Middle East and North Africa, the climate is arid or semiarid, making the region vulnerable to rising heat stress and shrinking fresh water availability (Metz, 2016; Vaghefi et al., 2015). Parts of Sub-Saharan Africa with a strong presence of Muslims, such as Northeast Nigeria and Mali, are also affected by these phenomena (Abegunde, 2017; Bell, 2014; Haron, 2017; Shehu & Molyneux-Hodgson, 2014), while Muslim-majority countries in Asia, such as Pakistan, Bangladesh, or Indonesia, have faced extreme weather events and flooding (Brockopp, 2012; Kumar, 2013; Vaghefi et al., 2015).

Survey data indicate that the majority of Muslims regard climate change as an important societal challenge. A study conducted by Skirbekk and Pędziwiatr (Skirbekk & Pędziwiatr, 2018) provides an overview of these surveys. Moreover, it includes the Muslim Leaders Survey undertaken by these two scholars. This survey was carried out in 2018 with 150 Muslim leaders from North Africa, the Middle East, the European Union, the United States, Asia, and the post-Soviet region. Of the interviewed Muslim leaders, 48% state that climate change is already substantially harming people, while 32% of the respondents believe that harm will begin in the coming 10–25 years (Skirbekk & Pędziwiatr, 2018, p. 37). Considering the most worrying consequences of climate change, 44% of the interviewed leaders attribute high importance to severe droughts, floods, and more frequent hurricanes; 43% to a rise of temperatures; and 35% to growing poverty in developing countries (Skirbekk & Pędziwiatr, 2018, p. 38). Skirbekk's and Pędziwiatr's calculations based on the Global Attitudes Survey undertaken by Pew Research in 2015 (Pew Research Center, 2015) arrived at similar results, showing that 51% of its Muslim respondents perceive climate change as a very serious problem.

However, some scholars have suggested that ongoing economic challenges in Muslim-majority countries lead local populations to prioritize economic development and poverty reduction over climate change mitigation (Arnez, 2014; Yıldırım, 2016). Calculations by Skirbekk and Pędziwiatr based on data from the World Value Survey partly reflect this prioritization of economic development (Skirbekk & Pędziwiatr, 2018, pp. 10–13). Considering five global problems suggested in the World Value Survey, only 8% of Muslim respondents selected “environmental pollution” as the most important problem, while the majority opted for “people living in poverty and need.” At the same time, the percentage of Muslims opting for the environment varies in different countries. While less than 1% of the Muslim interviewees living in Nigeria and Pakistan regarded environmental pollution as the most pressing problem, this number rises to 22% for Muslim respondents in Uzbekistan, 17% in Russia, and 16% in India. Moreover, comparing different types of environmental pollution, Muslim interviewees tend to attribute higher importance to the pollution of rivers, lakes, and oceans than to global warming. Only in Burkina Faso, Ethiopia, and Jordan did Muslims prioritize global warming over other environmental challenges.

Apart from regional differences regarding the concern about climate change, differences also become apparent in the ways in which Muslims interpret climate change. Research drawing on case studies and smaller interview samples shows that interpretations can be broadly summarized into three types (Table 2): (1) climate change as caused by humans, (2) spiritual causes, and (3) skepticism in terms of its existence. These categories are not necessarily mutually exclusive given that Muslims may also regard human and spiritual causes as jointly producing climate change.

The first interpretation shares predominant scientific views by perceiving *human activity* as the main cause of ongoing climate change. As such, some Muslim environmentalists identify the modern economic system as the core source of the problem (Hussain, 2007; Khalid, 2010). This view resonates with that of the majority of respondents in the aforementioned Muslim Leaders Survey, attributing the responsibility for climate change mainly or partially to humans

TABLE 2 Interpretations of climate change among muslims

Interpretation type	Interpretation of climate change	For example, visible among...
Human causes	Outcome of economic system and western lifestyles	Muslim leaders and scholars
Spiritual causes	God's punishment for immoral behavior or fulfilment of end-of-times prophecy	Local populations in Sub-Saharan Africa
Skepticism	Western invention to weaken development of Muslim world	Political Islamists, farmers in Bangladesh

(Skirbekk & Pędziwiatr, 2018, p. ix). Moreover, the survey specifies that Muslim leaders regard industrial production, deforestation, burning waste, and fossil fuel-based transportation as the main causes (Skirbekk & Pędziwiatr, 2018, p. 38). In addition, the economic system of the West and its excessive lifestyles are frequently seen as the root cause of environmental problems (Arnez, 2014; Bagir & Martiam, 2016, p. 80; Golo & Awetori Yaro, 2013). According to this perspective, diffusing this destructive economic system into Muslim-majority countries has led to a loss of Islamic values and principles in these countries: Deviating from the “right” way (e.g., moderation in consumption) generates environmentally harmful behavior (Ali, 2016; Hussain, 2007). Therefore, Abdelzaher and Abdelzaher (D. M. Abdelzaher & Abdelzaher, 2017) suggest that there is a need to implement Islamic environmental ethics among businesses in the Middle East.

Other interpretations identify *spiritual causes* for climate change. There are two substantially different approaches, both referring to spiritual causes regarding climate change as (1) God's punishment for human sins or (2) humans' destiny and the looming end of times. In the latter interpretation, humans are not responsible for climate change because it is simply the fulfilment of an end-time prophecy. Shehu and Molyneux-Hodgson have reported this view among sections of Muslims living in Northeast Nigeria (Shehu & Molyneux-Hodgson, 2014, p. 33). In contrast, perceptions of climate change as God's punishment attribute the cause of environmental degradation to the immoral behavior of humans. In this perspective, the sinful behavior of political leaders (e.g., corruption, war) or local populations (e.g., stealing, lying, greed, injustice) leads God to respond with different forms of environmental degradation or disasters. Research has observed this view in Muslim communities in different regions of Sub-Saharan Africa (Abegunde, 2017; Bell, 2014; Haron, 2017; Shehu & Molyneux-Hodgson, 2014; Watson & Kochore, 2012), as well as Thailand (Merli, 2010).

Finally, a few studies also mention *climate change skepticism* among Muslim communities (Khan, 2014; O'Reilly, 2018; Yildirim, 2016) and governments of Muslim-majority countries (i.e., Saudi Arabia, see Depledge, 2008). For example, Khan reports that Muslim farmers in the Jamuna River region (Bangladesh), where the soil is eroding and shifting, perceive the concept of climate change as “poisonous knowledge from the West” (Khan, 2014). Similarly, Yildirim suggests that Muslims who approve an Islamist political ideology tend to regard environmentalism as a Western conspiracy to weaken Muslim-majority countries in terms of their economic development and population size (Yildirim, 2016). Due to the importance of political Islamism, global warming has not received strong prioritization on the political agenda of Muslim-majority countries, according to Yildirim. Contrasting this view, Karagiannis (2015) shows how political Islamist groups, including al-Qaeda, address climate change. For instance, Osama Bin Laden criticized the U.S. government in different statements for dismissing the Kyoto agreement in order “to placate giant corporations” (Karagiannis, 2015, p. 192). Apart from a sincere interest in environmental protection, Karagiannis suggests that Islamists draw on environmentalism to improve their international legitimacy and potentially “bridge the ideological gap between political Islam and the international environmental movement by encouraging action against Western capitalism” (Karagiannis, 2015, p. 194).

The aforementioned interpretations show no general differences from those of Christians, which also cover (a) narratives of human activity causing climate change (Pope Francis, 2015; World Council of Churches, 2014), (b) spiritual views attributing climate change to God (Artur & Hilhorst, 2012) (Barker & Bearce, 2013; Leahy, 2013), and (c) climate change skepticism (Carr et al., 2012; Ecklund et al., 2017; Zaleha & Szasz, 2015). Particular interpretations of climate change appear to be prevalent in specific regions among Christians and Muslims, such as its interpretation as a divinely orchestrated phenomenon in Sub-Saharan Africa (Abegunde, 2017; Chérif & Greenberg, 2014; Cuni-Sánchez et al., 2019; Golo & Awetori Yaro, 2013; Makame & Shackleton, 2019; Nche, 2020; Sanganyado et al., 2018).

Overall, the different interpretations illustrate that there is no unified perception of climate change among Muslims. The given practice and understanding of Islam is embedded in a regional sociohistorical context. Regional Islamic traditions have developed in the course of history and provide frames through which Muslims can interpret environmental challenges. Yet, traditions may also change over time. As such, the presence of “greening” tendencies among Islamic scholars and clergy may influence Muslims' concern about climate change in a given region, as will be shown below in the case study on Indonesia.

Despite predominant tendencies in specific regions, individual Muslims in a given region may still perceive climate change in different ways. This is likely to depend on the interaction of different variables, including their level of knowledge about climate change and their political views. Research on Christian climate change perceptions has determined political ideologies interacting with religious orientations (e.g., biblical literalism) as an important variable for explaining the environmental attitudes of believers (Arbuckle, 2017; Arbuckle & Konisky, 2015; Carr et al., 2012; Guth et al., 1995; Kilburn, 2014; Landrum et al., 2017; Peifer et al., 2016; Pepper & Leonard, 2016; Sherkat & Ellison, 2007). Among different variables influencing Muslims' climate change views, one important factor will be their interpretation

of Islam. However, quantitative research explaining how different variables interact with the religious worldviews of individual Muslims and influence their views on climate change is still missing.

4 | MITIGATION STRATEGIES OF MUSLIM ORGANIZATIONS

Massive oil production in the Middle East and deforestation in Indonesia, Mali, and Nigeria, as well as carbon-intensive consumption habits (e.g., car use, air conditioning), indicate strong mitigation potentials in Muslim-majority countries (Ali, 2016; Kaminski, 2019; Fachruddin Majeri Mangunjaya et al., 2015; Vaghefi et al., 2015). In response to these challenges, governments of Muslim-majority countries have signed international agreements, and some have started to implement green economy strategies (Vaghefi et al., 2015). For instance, after a long history of climate change skepticism and obstructionism at the United Nations climate negotiations (Depledge, 2008), Saudi Arabia has begun to diversify its oil-dependent economy and has sought to promote low-carbon transportation technologies. The United Arab Emirates is implementing, in Masdar City in Abu Dhabi, a pioneering urban development project, striving to develop a carbon-neutral city (Ali, 2016; Kaminski, 2019). At the same time, some commentators have lamented an indifference to environmental issues in Muslim-majority countries related to a stronger prioritization of other societal issues (e.g., poverty, corruption) (Saniotis, 2012), a slow pace of change (Ali, 2016), insufficient mitigation strategies (Kaminski, 2019), and a weak enforcement of environmental regulations (D. M. Abdelzaher & Abdelzaher, 2017). However, government policies are not necessarily representative of Muslim populations living in these countries nor of the Muslim organizations acting in these countries.

Against this backdrop, scholars have stressed the potentials of Muslim organizations and leaders to promote environmental concern. This includes their ability to reach broad populations in Muslim-majority countries through public messages, Friday prayers, and ethical teachings (Amri, 2014; Mangunjaya & McKay, 2012; Mohamed, 2014; Rice, 2006). The presence of religious leaders and organizations on the grassroots level converts them into valuable multipliers for reaching out to local communities. Given their high legitimacy, local religious leaders may even become gatekeepers who influence what information the given local community regards as credible (Sheikh, 2006). In addition, Muslim organizations can use their infrastructures and financial resources to undertake practical environmental projects (e.g., recycling) that become experimentation sites for local communities, thus helping them to learn new, more environmentally friendly practices (Mohamad et al., 2012).

In general, the activities that religious organizations can undertake to further climate change mitigation can be summarized into three categories (Koehrsen, 2018, p. 6):

1. *campaigning publicly* to raise greater concern about climate change and lobbying among political decision-makers (e.g., through public statements, media campaigns, and advocacy work),
2. *materializing change* by undertaking sociotechnological measures to reduce carbon emissions (e.g., switching energy consumption of religious buildings to renewables), and
3. *disseminating proenvironmental values* and worldviews to their religious constituencies and thereby potentially influencing their lifestyles (e.g., through religious school teachings and messages during religious services).

While proenvironmental value dissemination is undertaken within the own religious community and frequently involves religious concepts (e.g., ecotheology), public campaigning goes beyond the own community and is often staged within the public sphere, becoming visible for noncommunity members as well.

Muslim organizations and leaders have undertaken *public campaigning* activities, launching public statements and advocating for climate policy among governments. An early example of such a public statement is “Islamic Principles for the Conservation of the Natural Environment” compiled by scholars from Jeddah University in Saudi Arabia (Ba Kader et al., 1983). This document pronounces environmental policy centered on Islamic principles and became an influential basis for the development of policies in several Muslim states (e.g., Saudi Arabia, Iran) (Kaminski, 2019; Yildirim, 2016). This statement is as follows:

“Protection, conservation and development of the environment and natural resources is a mandatory religious duty to which every Muslim should be committed. This commitment emanates from the individual's responsibility before God to protect himself and his community. It is also a common social duty which rulers, administrative and municipal agencies and organizations undertake in accordance with the responsibilities assigned to them. (...) The primary duty of the ruler and his assistants, whether they are administrative, municipal or judicial authorities, is to do their best to realize the interests of individuals for the betterment of life and society as a whole. This also includes protection, conservation and development of the environment and natural resources.” (Ba Kader et al., 1983, pp. 20–21).

Another, more recent example is the “Islamic Declaration on Global Climate Change” (International Islamic Climate Change Symposium, 2015). Shortly following Pope Francis’ “Laudato Si,” Islamic Relief Worldwide, the Islamic Foundation for Ecology & Environmental Sciences (IFEES), and GreenFaith launched this declaration at an international symposium in Istanbul that preceded the United Nations Climate Change Conference in August 2015 (COP21) (Ali, 2016; Haron, 2017; Kaminski, 2019; Schaefer, 2016). Institutional partners such as The Islamic Scientific Educational and Cultural Organization and The Organization of the Islamic Conference (largest intergovernmental organization of Muslim States) supported the declaration. As discussed above, the declaration integrates scientific and religious knowledge (e.g., Qur’anic verses and principles such as *Tawhid*, *Mizan*, and *Khalifa*) and makes different “calls” to political leaders at the United Nations Climate Change Conference, faith leaders, businesses, organizations, and believers. These “calls” also include the “oil-producing states,” requesting them to “(l)ead the way in phasing out their greenhouse gas emissions as early as possible and no later than the middle of the century” (International Islamic Climate Change Symposium, 2015, p. 6). Some scholars have suggested that this declaration may create substantial pressure on countries in the Middle East (Ali, 2016, p. 174), as well as an impact on Muslim mitigation efforts “if the imams in mosques are committed to reminding the (...) rapidly increasing number of Muslims of their moral responsibilities as taught in the Qur'an and by their revered prophet” (Schaefer, 2016, p. 14). However, this declaration received far less media attention than “Laudato Si,” and its impact remains, so far, unclear (Hancock, 2018, p. 20).

In terms of *materialization*, Muslim organizations have, for instance, undertaken reforestation initiatives (Shehu & Molyneux-Hodgson, 2014), recycling (Mohamad et al., 2012), and energy efficiency measures (Feder, 2009; Schaefer, 2016); implemented solar panels (Hancock, 2018, p. 65); and constructed low-carbon eco-mosques (Ahmed, 2019; Azmi & Kandar, 2019). One example are “Leftar” events organized by the initiative Green Muslims DC, located in Washington D.C. (Hancock, 2018, p. 296). The goal of these events is to reduce food waste during Ramadan. To this end, participants at the Leftars are required to prepare their *iftar* meals (evening meals during the fasting at Ramadan) based on leftovers. Activities like these illustrate how Muslim activists reframe traditional Islamic practices by combining them with environmental goals to foster low carbon transitions. The “Muslim Seven Year Action Plan on Climate Change” has promoted several materialization activities such as green mosques and green *hajj*, as well as environmental training. This action plan was developed from 2008 onward and launched in 2010 to mobilize the Islamic world to mitigate climate change with the support of various organizations (e.g., Islamic nongovernmental organizations [NGOs], Muslim environmental activist groups, Earth-Mates Dialogue Centre, and Alliance of Religions and Conservation) (M7YAP, 2010). Although frequently mentioned in the literature, the outcomes of this program remain unclear.

With regard to *value dissemination*, Muslim initiatives have sought to diffuse greater concern about climate change and environmental degradation and encourage lifestyle changes among their community members by drawing on educational programs, workshops, information guides, and newsletters (Hancock, 2019, p. 297). One example is the “Green Hajj Guide,” aiming to create greater environmental concern among pilgrims (Fachruddin Majeri Mangunjaya et al., 2015). An example for an educational program is an Islamic ecoschool in California (Hancock, 2019). The school teaches children ecological values and attachment through active practices (e.g., gardening, tending animals), as well as the learning of Islamic scriptures through storytelling in a natural environment at its urban farm. Interestingly, the above-mentioned Muslim Leaders Survey shows strong support for dissemination activities: More than four-fifths of the respondents argued that “they should promote that individuals should consume less and switch to environmentally friendly consumption patterns” (Skirbekk & Pędziwiatr, 2018, p. ix). Another way of addressing concern for climate change is religious rituals. Several studies from Sub-Saharan Africa stress that Muslim communities use prayers to address desertification and droughts (Abegunde, 2017; Bell, 2014; Shehu & Molyneux-Hodgson, 2014).

The aforementioned examples illustrate Muslim climate change activism, indicating activities in different areas. However, it is not clear (a) how widespread such climate activities are among Muslim communities and (b) what impact they have. Therefore, the following case studies on Muslim climate change activism in Indonesia and the United Kingdom address the potentials and barriers of such activities in more detail.

5 | MUSLIMS ADDRESSING CLIMATE CHANGE IN INDONESIA AND THE UNITED KINGDOM

Several studies address Muslim environmental and climate change activism in the United Kingdom and Indonesia (Koehrsen, 2020). Drawing on insights from these studies, this section therefore addresses Muslim mitigation activities in these two different contexts: (a) a Muslim-majority country located in the Global South and (b) a Global North

country in which Muslims form a minority. After describing the activities in each of the countries, both cases are compared to explore how these contexts stimulate specific Muslim mitigation activities.

5.1 | Global South: Indonesia

With approximately 207 million Muslims living in Indonesia, the country has the world's largest Muslim population (Brockopp, 2012; Gade, 2012; Fachruddin Majeri Mangunjaya et al., 2015). Interestingly, most Indonesian Muslims do not identify with a specific branch of Islam. In a survey by the Pew Research Center (2012), 56% of Muslim respondents stated that they are "just a Muslim," while 13% gave no definite response in terms of their affiliation, and 26% described themselves as Sunni.

Indonesia's geographic location makes it vulnerable to different consequences of climate change, including droughts, heavy rainfall, flooding, soil erosion, and sea level rise (Frömming & Reichel, 2012; Mangunjaya et al., 2010). At the same time, Indonesia is a developing country with strong activity in logging and agriculture. The extensive deforestation related to these activities is of specific concern as it decreases the potential of using the forests as carbon sinks (Amri, 2014; Mangunjaya & McKay, 2012, p. 292). Consequently, forest loss has become a crucial issue in Indonesia with the government, local authorities, and NGOs seeking to reduce logging. The Indonesian government has used its legislative power to declare conservation areas. However, local communities often perceive these measures as unjust and putting their economic welfare at risk given that their income depends on logging. Involving local communities in environmental protection can be achieved through Muslim organizations as these have the necessary grassroots reach (Fachruddin Majeri Mangunjaya & McKay, 2012, pp. 287–288). Therefore, the Indonesian government attributes a strategic role to Muslim organizations to reach local communities, leading to close collaborations between state authorities and these organizations (Mangunjaya et al., 2010). Similarly, secular organizations, such as the World Bank, and environmental NGOs, such as World Wildlife Fund, have recognized the importance of Indonesian Muslim faith institutions and have initiated collaborations (Gade, 2012; Mangunjaya et al., 2015). In particular, three Muslim organizations are important in these undertakings: Majelis Ulama Indonesia, Nahdlatul Ulama, and Muhammadiyah.

Majelis Ulama Indonesia (MUI) is the central umbrella organization of Islamic scholars and clerics in Indonesia. Bringing together clerics from different Islamic schools of thought, its main goal is to standardize Islamic legal opinions. To this end, MUI's councils issue fatwas—nonbinding legal opinions (Jamil, 2021). Some of the fatwas issued by the MUI and its local councils relate to climate change mitigation, as will be discussed below. Moreover, in 2011, MUI established a specialized branch that focuses on environmental challenges, the Institute for Awareness on Environment and Natural Resources (Lembaga Pemuliaan Lingkungan Hidup dan Sumber Daya Alam).

Nahdlatul Ulama and Muhammadiyah are the biggest and oldest Muslim mass movements in Indonesia and constitute highly influential Muslim civil society organizations (Amri, 2014, pp. 78–79; Arnez, 2014): Muhammadiyah includes around 6118 mosques, 5519 schools, 172 universities, and 457 hospitals, while Nahdlatul Ulama places emphasis on education and covers around 17,000 boarding schools (*pesantrens*). Muhammadiyah is associated with Islamic modernism, whereas Nahdlatul Ulama represents a more traditionalist branch, leading to rivalry between the two organizations (Jamil, 2021).

The original focus of these organizations is on promoting Islam, socioeconomic development, and education (Jamil, 2021). Their engagement with environmental protection is more recent and has been encouraged by two developments: (a) Indonesian environmentalists seeking to engage these organizations for environmental protection and (b) the government's agenda to address climate change, placing a specific focus on the reduction of emissions from deforestation and forest degradation. As the three organizations offer specific network channels (e.g., local schools, mosques) to reach local communities, they have become strategic partners in the government's carbon emission reduction plans, engaging in the three fields mentioned above: public campaigning, value dissemination, and materialization.

The aforementioned organizations have undertaken *public campaigning* activities, publishing statements that ask the government to act against environmental degradation and to stick to international climate goals (Amri, 2014, pp. 81–84). Moreover, to increase environmental awareness among the population, Muslim religious leaders have circulated eco-dakhwas: public messages connecting environmental protection with traditional ideas in mainstream Indonesian Islam and culture (Gade, 2012).

To disseminate *environmental knowledge* and promote environmental protection among local communities, the MUI and regional councils have used their interpretative power and engaged in Islamic jurisprudence, *fiqh*

(Gade, 2015, 2019). *Fiqh* refers to Islamic laws: These rulings are ethical orientations for Muslim behavior and often become manifest in the form of fatwas. For instance, MUI and regional councils have issued fatwas declaring environmentally harmful logging and mining as *haram* (forbidden according to Islamic laws) (Fachruddin Majeri Mangunjaya & McKay, 2012, pp. 302–303). Mangunjaya and Praharawati (2019) regard the use of fatwas as a crucial lever to generate a better environmental understanding among local Muslim communities and to influence their lifestyles. Moreover, to strengthen environmental awareness, Nahdlatul Ulama and Muhammadiyah use teaching in mosques, Islamic forums, and local boarding schools (Amri, 2014, pp. 82–84). A prominent example of these dissemination activities is the environmental education in *pesantrens* (Amri, 2014; Arnez, 2014; Gade, 2012; Fachruddin M. Mangunjaya et al., 2010; Mangunjaya et al., 2015). *Pesantrens* are Muslim boarding schools, often located in rural areas. Their main purpose is to teach Islam, foster social cohesion, and make children familiar with Islamic values. Religious teachers and leaders of Islamic boarding schools (*kiais*) usually enjoy a strong authority among local communities. Considering their local influence, the former environmental minister and other actors have undertaken efforts to convert *pesantrens* into places of environmental training, defined as “eco-*pesantrens*.” The teaching in these schools combines practical knowledge (e.g., agricultural training) with Islam (e.g., Islamic scriptures about trees), discouraging local populations to undertake environmentally harmful practices such as burning garbage and cutting trees (Gade, 2012). Several of these eco-*pesantrens* have won national environmental prizes and are perceived as pioneering role models for the transformation toward a more environmentally sustainable society (Arnez, 2014).

Finally, eco-*pesantrens* have also undertaken *materialization measures* to mitigate climate change. These include reforestation activities that generate an emotional attachment to nature (Gade, 2012; Mangunjaya et al., 2010; Mangunjaya & McKay, 2012). As such, eco-*pesantrens* have implemented the programmatic ideas of *hima* (environmental management zones) and *harim* (inviolable sanctuaries) and established zones where each student has to take care of his or her own tree. An example that dates back to the 1970s before the introduction of eco-*pesantrens* is the *pesantren* An-Nuqayah in Madura (Jamil, 2021). This *pesantren* managed to significantly raise groundwater levels in arid land through tree planting. Interestingly, the driving force behind this was the need for spiritual cleaning before prayer. In order to procure sufficient water for cleaning before each of the five daily prayers, the local *kiai* together with his students continuously planted trees to better absorb rainfall, leading finally to the creation of a creek and small river. This example illustrates that the main rationale behind “religious environmentalism” may be spiritual needs instead of environmental considerations.

Apart from reforestation, Nahdlatul Ulama seeks to provide alternatives to logging in order to generate income for local communities. To this end, it has promoted stock farming and fruit/vegetable planting and offered agricultural training (Amri, 2014, p. 86). Moreover, Muhammadiyah has initiated internal mitigation programs to manage resources within its organization in a more environmentally sustainable manner. To this end, it has urged its hospitals, schools, and universities to reduce their consumption of energy and water.

The aforementioned examples illustrate the potential of powerful Muslim organizations in promoting awareness about climate change. Drawing upon these examples, Indonesia is sometimes portrayed as the pioneering country and role model for Muslim environmentalism (Jamil, 2021; Mangunjaya & Praharawati, 2019). As such, Reuter (Reuter, 2015, pp. 1221, 1224, 1227) describes an “enthusiastic” reception of environmentalism by Muslim organizations and diagnoses a “mainstreaming of eco-religious thinking in Indonesia” that was facilitated by the ongoing close relationship with indigenous nature-friendly traditions (for this relationship and its implications for climate change mitigation, see also Frömming & Reichel, 2012). Results from Pew’s Global Attitudes Survey 2018 show that 57% of the Muslim respondents in Indonesia regard climate change as a major threat, whereas 32% perceive it as a minor or no threat (Pew Research Center, 2018). However, these results draw only on a small sample of 554 Muslims in Indonesia.

The extent to which the undertakings of the Muslim organizations have, indeed, been effective remains unclear as comprehensive empirical studies are missing. At the same time, existing research also points to different challenges that the aforementioned activities experience. Arnez (2014, p. 77) reports that environmentalism is not always well received in Indonesia. As such, some Muslim organizations—including MUI—have accused Greenpeace Indonesia and sought to dissolve it in 2011 in order to protect business sectors involved in environmentally harmful practices (e.g., palm oil production). Amri (2014) indicates that clerics often lack sufficient knowledge about climate change to effectively inform local communities about it. Moreover, concern about climate change mostly remains limited to small groups of Muslim leaders and barely reached the grassroots level as many Muslim leaders in rural areas remain uninformed about the environmental campaigns of their head organizations. Not all suborganizations of Nahdlatul Ulama and Muhammadiyah have implemented the mitigation efforts pursued by their head organizations and passed the campaigns to the next local level. This may be because these organizations primarily focus on the promotion of religion,

education, and socioeconomic development. Diverting from these traditional fields of activity and following the government's climate change agenda stress their credibility among their local constituencies. In addition, the rivalry among some of these organizations adds to their struggle for legitimacy. These dynamics can produce solutions that miss the goal of environmental protection as Jamil (2021) illustrates for the case of wastewater recycling in Indonesia.

Nevertheless, other forms of Muslim climate activism are evolving. Apart from these powerful organizations and their top-down activities, bottom-up grassroots initiatives have emerged among Muslim students in Indonesia. As Nilan (2020) reports, these young activists firmly draw upon their faith, regarding themselves as *Khalifa* and offering a seductive message to fellow Muslims by proclaiming the rewards for environmentally friendly behavior in the hereafter. Contrasting the powerful Indonesian head organizations, these grassroots initiatives struggle with organizational problems such as generating sufficient funding and a lack of institutional legitimacy, being perceived with suspicion by their university lecturers. The engagement of these young Muslim environmentalists might be a long-term outcome of the dissemination and campaigning activities of the aforementioned head organizations. As such, one interviewee in Nilan's study (2020) refers to a proenvironmental statement made by a leader of Nahdlatul Ulama.

5.2 | Global North: United Kingdom

Contrasting Indonesia, Muslims form a minority in the United Kingdom, representing approximately 6% of the population (Hackett, 2017). The United Kingdom is historically shaped by Christianity, while Islam arrived through immigration, leading to an extensive diversity of Muslim groups coming from different countries and branches of Islam (Gilliat-Ray, 2010). Although Islam has become a part of the British religious landscape, it is not always well received and still suffers rejection. These experiences partly drive religious environmentalism as a way of renegotiating the value of Islam within the broader society and improving its public image (DeHanas, 2009, pp. 150–151; Hancock, 2018, pp. 44, 139, 142).

This context has facilitated the evolution of environmental initiatives within existing Muslim organizations, as well as the emergence of Muslim organizations focusing on environmental protection (e.g., Bahu Trust, Midlands Islamic Network for the Environment, Reading Islamic Trustees for the Environment, Sheffield Islamic Network for the Environment). While some of the Muslim environmental organizations have experienced organizational decay after some time (Gilliat-Ray & Bryant, 2011; Hancock, 2018), two organizations became reference points of Muslim environmentalism in the United Kingdom: IFEES and Wisdom in Nature (WiN, formerly London Islamic Network for the Environment). IFEES was founded in 1996 by Fazlun Khalid and is currently the most renowned environmental organization in the United Kingdom. IFEES operates globally and collaborates with other important Muslim NGOs such as Islamic Relief. Given its fundraising activities and collaborations, the organization is comparatively well resourced. In contrast, WiN is a smaller organization with fewer resources and focuses its activities on the London area. This environmental group was founded 2003 by environmental activist and ex-member of IFEES Muzammal. The two institutions differ in their religious orientation: While IFEES is exclusively Muslim and religiously orthodox, WiN is more progressive and recruits participants from non-Muslim circles as well (Hancock, 2018, pp. 146–156).

Both organizations share a critical perspective of the current capitalistic system and its consumerism. They refer to Islam to solve the environmental crisis, arguing that the necessary solutions can be found in Islamic scriptures and the development of lifestyles based on Islamic principles. IFEES promotes a revival of traditional Muslim lifestyles and a return to local farming systems, regarding these as more sustainable and connected to nature. WiN raises a ‘whole system’ critique that does not only consider environmental degradation but also the interrelatedness of political, economic, and environmental issues. It demands an end of fossil fuel dependency and regards lived Islam as a vehicle of “culturing a reverence towards nature and strengthening one’s connection to the Creator” (Hancock, 2015, p. 115).

WiN is mostly engaged in *campaigning*, undertaking public events and discussion forums that also attract non-Muslims, and aims to encourage critical reflections and lifestyle changes (Hancock, 2018). Moreover, it diffuses information through its online newsletter, has undertaken some materialization activity through food sharing and gardening projects (Nita, 2014, pp. 230–232), and collaborates with other (non-Muslim) grassroots initiatives (Hancock, 2018, p. 113). It has participated in joint protest activities (e.g., climate changes marches, occupy events) and has organized an event at Brick Lane where protesters dressed up in scuba dive gear to draw public attention to the consequences of climate change in Bangladesh (Hancock, 2018, p. 156).

Although IFEES has participated in protests against climate change, as well as in statements such as the abovementioned “*Islamic Declaration on Global Climate Change*,” it contrasts WiN’s emphasis on campaigning by placing

a clearer focus on *materialization* and *dissemination* activities within the Muslim community. Together with the Muslim Agency for Development and Environment (MADE) and London Sustainability Exchange, IFEES has participated in the Green Mosques project that worked with 12 mosques in London to provide energy efficiency trainings to its adherents (London Sustainability Exchange, 2015). Apart from the United Kingdom, IFEES has implemented projects in a range of Global South countries, including Indonesia, Nigeria, Mozambique, Pakistan, and Zanzibar (Hancock, 2018, pp. 89–90; Saniotis, 2012, p. 164). One project frequently quoted concerns regarding fishing in Zanzibar: By presenting environmental readings of Islamic scriptures, IFEES convinced local fishermen to stop using dynamite for fishing in endangered reefs. Instrumental to its dissemination activities is the newsletter “EcoIslam,” as well as its educational guides (e.g., “An Islamic Guide to Simple Living”, “Seven Tips to Good Eating”) that draw upon Islamic scriptures. Paralleling the activities of WiN, these educational efforts seek to persuade its readers to rethink their lifestyles.

Apart from IFEES, other Muslim groups have undertaken dissemination activities. One example is the “Green UP My Community” campaign of the aforementioned organization MADE, promoting recycling, waste reductions, and renewable energy (Hancock, 2018, pp. 64–65). Another example is the radio program “Women’s Hour,” a broadcast of the Muslim Community Radio in London’s East End. During Ramadan 2007, the program placed emphasis on environmental topics (e.g., recycling, water conservation, global warming). Analyzing the program, DeHanas (2009, pp. 148–150) finds that the presenters seek to translate environmental concern into the language of Islam.

Hancock (2018, p. 137) argues that Muslim environmental activism in the United Kingdom mostly focuses on contentious politics directed toward individual lifestyle changes. Accordingly, the aforementioned activities have the potential of incentivizing behavioral changes among British Muslims as Gilliat-Ray and Bryant optimistically highlight: “These projects signal the potential for faith-based initiatives that go beyond merely informing or educating, and might lead to the possibility of real changes in behaviour” (Gilliat-Ray & Bryant, 2011, p. 303). They regard rising Muslim environmentalism as an outcome of the increased institutionalization of Islam in the United Kingdom, leading to an engagement with the concerns of the broader British society. This engagement, including prestigious showcase projects (e.g., the Cambridge Central Mosque claiming to be Europe’s first eco-mosque with a near-zero carbon footprint, see Ahmed, 2019), may in turn help to improve the public image of Islam in the United Kingdom, as some activists hope (DeHanas, 2009, pp. 150–151; Hancock, 2018, pp. 139, 142).

However, the initiatives in the United Kingdom still involve only small numbers of environmentally concerned Muslims and often face difficulties in maintaining their activities (Gilliat-Ray & Bryant, 2011, p. 299). Muslim activists sometimes face rejection and hostility within their own Muslim communities, which view their environmental engagement with skepticism and perceive it as alien to Islam (Hancock, 2018, p. 137; Nita, 2014, pp. 233–235). Therefore, IFEES closely draws upon Islamic scriptures to make the case for a “green” Islam. Other strategies consist of using existing Muslim practices and filling these with environmental concerns. For instance, Nita (2014) reports that Muslim climate activists use “green prayers” that combine the traditional form and rhythm of prayers (e.g., lament–celebration structure) with protest against climate change.

From the perspectives of these studies, environmental concern still appears as something alien to Muslim communities, leading activists to generate creative integration techniques. Although the strategies point to the flexibility of religion and its abilities to respond to societal challenges, it remains unclear whether integrating Islamic concepts and environmental concern finally allows these activists to successfully “brand” environmental concern as Islamic and to encourage broader awareness about climate change within their own communities. Finally, despite being unified by the above-mentioned environmental principles, Muslim environmental groups have experienced competition and sectarian splits, with members moving out and forming their own initiatives (Hancock, 2018, p. 105). This creates a market-like competition that may incite action and creativity but, at the same time, limits the potentials to join forces for broader change processes within the Muslim community.

5.3 | Comparing Muslim climate change activism in Indonesia and the United Kingdom

In both countries, Muslim environmentalists draw on similar guiding principles, as discussed in the first section of this article. However, their activities vary strongly given their embeddedness in different sociogeographical contexts. Table 3 summarizes the main features of the two country cases.

Indonesia is a Muslim-majority country with powerful Muslim organizations that have vast resources at their disposal and can reach broad sections of the population. The existence of these organizations combined with a government

TABLE 3 Comparison of muslim climate change activism in Indonesia and the United Kingdom

Country context	Main type of actors	Transition activities	Potentials	Challenges
Indonesia Muslim majority	Muslim head organizations	Centralized top-down diffusion, for example, public statements, fatwas, eco- <i>pesantrens</i> , reforestation, energy efficiency.	Broad transformation at different organizational levels	Lack of knowledge Ineffective translation to lower organizational levels Legitimacy struggles
UK Muslim minority	Grassroots initiatives	Grassroots-level dissemination, for example, educational workshops and newsletters, political protest.	Individual-level awareness creation and lifestyle changes	Difficulties in maintaining activities Lack of broad support and rejection in own community Competition

agenda to reduce carbon emission facilitates a top-down approach: The organizations issue ecological fatwas and public statements, implement eco-*pesantrens*, engage in reforestation, and strive to improve their resource management. The existence of powerful Muslim head organizations appears to facilitate the coordination and implementation of these activities, bearing the potential of undertaking a comprehensive low-carbon transformation at different organizational levels. Nevertheless, struggles about institutional legitimacy between these organizations, as well as a lack of knowledge among clergy, limit the effectiveness of their engagement. Moreover, the environmental agenda of their leaderships does not translate to the local organizational levels, thereby constraining the diffusion of Muslim environmentalism.

Contrasting the case of Indonesia, Muslims constitute a highly diverse minority in the United Kingdom, coming from different ethnic and national backgrounds. The minority status and lack of organizational centralization appears to incentivize the evolution of small grassroots initiatives. Unlike the powerful Indonesian organizations, these initiatives lack resources and institutional legitimacy within their own communities. Acting at the grassroots level, their activities have the potential of engaging rising numbers of fellow Muslims and changing their lifestyles. Nevertheless, the initiatives face difficulties maintaining their activities and lack broad support in their own communities. Finally, paralleling the Indonesian organizations, competition between the initiatives may inhibit potential collaborations.

The two cases illustrate that regional context conditions influence Muslim activities to mitigate climate change. These context conditions include the standing of Muslims in the given society: Muslims constitute a minority that often faces marginalization in the United Kingdom, whereas in Indonesia, they represent the majority and have formed organizations that are powerful societal actors. Depending on these conditions, Muslim environmentalists can draw on different resources and use specific levers for low-carbon transformations. In Indonesia, they can engage the powerful Muslim organizations and their extensive networks to undertake mitigation activities. However, this does not imply that the activities are predetermined by the context conditions: Although the context facilitates a top-down approach in Indonesia, local student grassroots initiatives emerge. Moreover, even in the rather centralized system, institutional hurdles within the organizational structures appear to block a broad diffusion of Muslim environmentalism. Paralleling environmentalism in other religions (Huber & Koehrsen, 2020; Torabi & Noori, 2019; Vaidyanathan et al., 2018; Veldman et al., 2014, p. 7), the commitment of national umbrella organizations and leaders does not necessarily translate to local communities. This appears to be related to specific institutional dynamics at the local level that lead to prioritization of members' daily problems (Koehrsen, Huber, et al., 2020). In contrast, national umbrella organizations and leaders show a stronger interest in general societal challenges and political issues (e.g., climate change, poverty, migration) as addressing these issues can improve the societal standing of the given religious community.

6 | CONCLUSION

Most literature on Islam, the environment, and climate change is theoretical and focuses on Islamic environmental ethics. While it indicates a growing ecological thought, it is unclear to what extent this “greening” affects broader sections of the global Muslim community. Research suggests that Islamic environmentalism is still a minority phenomenon among Muslims. Future studies may explore different channels through which the “greening” of Islam is expanding in various world regions. In particular, Muslim leadership on national and local scales may have an

important impact on the presence of environmentalism among local communities. In addition, pioneering benchmark projects (e.g., “green” Mosques) may also help to create greater awareness.

This review has shown that there is no univocal perspective on climate change among Muslims. Muslims interpret climate change in different ways, regarding it as caused by (a) humans, (b) God, or (c) neglecting its existence. Moreover, research indicates that specific perceptions of climate change are prominent in particular regions. Regional traditions of Islam are likely to inform the interpretations of phenomena related to global warming. Therefore, there is a need for more empirical research on regional differences that considers the Islamic interpretations of Muslims living in the given areas. For instance, future quantitative research could study how specific understandings of Islam interact with other variables (e.g., regional climate change vulnerability) to inform Muslims’ perceptions of climate change.

Scholars have pointed toward different potentials of Muslim organizations and leaders to facilitate climate change mitigation. Accordingly, these actors can campaign in the public sphere and toward political decision-makers for mitigation measures, disseminate proenvironmental Islamic ethics among their followers, or materialize low-carbon transformations within their organizations. In general, there is little social science research on such activities. Nevertheless, some studies have addressed Indonesia and the United Kingdom. While Muslim grassroots initiatives in the United Kingdom mostly focus on “converting” other Muslims to Islamic environmentalism at the grassroots level, in Indonesia, powerful Muslim organizations are undertaking transformation activities at different levels. The two cases show that the institutional context influences the form and the potentials of Muslim mitigation activities. Future research may study whether the activities in these two countries have led to a broadening of climate change concern and to lifestyle changes among Muslims. In addition, there is a need for research on Muslim mitigation activities in other regions. Such research could address, for instance, how powerful religious organizations and leaders approach climate change in the Middle East and North Africa.

Interestingly, so far, research on Muslim environmentalism has not addressed climate change adaptation. However, beyond raising concern about global warming among Muslims and encouraging mitigation efforts, Muslim environmentalism has strong potential to advance ethical questions about climate change adaptation (e.g., climate justice).

In particular, in Muslim-majority countries, Muslim environmentalism can play an imminent role. Apart from the already mentioned directions of research, future studies might address the political dimensions of Muslim climate change activism at different levels. For instance, how are Muslim initiatives interacting with actors from other faith backgrounds to campaign for climate justice in international settings such as the United Nations Framework Convention on Climate Change (Glaab, 2017)? In addition, research could explore their linkages with national and local political administrations and what strategies they use to influence the agendas of these actors. The political dimensions also include political Islamism and its relationship to Islamic environmentalism: Are political Islamists increasingly addressing climate change, or are they rather assuming a similar role to that of some evangelical actors in the United States by challenging religious environmentalism and mitigation policies (Chaplin, 2016)? In what way are they influencing the climate policies of countries such as Pakistan, Saudi Arabia, or Turkey?

Finally, studies could also empirically explore the role of Islamic environmental ethics and their impacts on the business sector, as Abdelzaher and Abdelzaher (2017) suggest. Are Islamic environmental ethics living up to their expectations and being brought to use in small- and medium-size businesses in the Middle East and North Africa? Apart from Muslim-majority countries, Islamic environmentalism has proven to also evolve in the diaspora as the case of the United Kingdom illustrates. However, it is, so far, unclear how it is evolving in other Global North countries with important Muslim communities, such as in France and Germany, and in what way it creates a broader dialog between different religious communities to jointly campaign for climate change mitigation and adaptation (Dohe, 2021).

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CONFLICT OF INTEREST

The author has declared no conflicts of interest for this article.

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REFERENCES

- Abdelzaher, D., Kotb, A., & Helfaya, A. (2019). Eco-Islam: Beyond the principles of why and what, and into the principles of how. *Journal of Business Ethics*, 155, 623–643. <https://doi.org/10.1007/s10551-017-3518-2>
- Abdelzaher, D. M., & Abdelzaher, A. (2017). Beyond environmental regulations: Exploring the potential of "Eco-Islam" in boosting environmental ethics within SMEs in arab markets. *Journal of Business Ethics*, 145(2), 357–371. <https://doi.org/10.1007/s10551-015-2833-8>
- Abegunde, A. A. (2017). Local communities' belief in climate change in a rural region of Sub-Saharan Africa. *Environment, Development and Sustainability*, 19(4), 1489–1522. <https://doi.org/10.1007/s10668-016-9816-5>
- Abson, D. J., Fischer, J., Leventon, J., Newig, J., Schomerus, T., Vilsmaier, U., von Wehrden, H., Abernethy, P., Ives, C. D., Jager, N. W., & Lang, D. J. (2017). Leverage points for sustainability transformation. *Ambio*, 46(1), 30–39. <https://doi.org/10.1007/s13280-016-0800-y>
- Adger, W. N., Barnett, J., Brown, K., Marshall, N., & O'Brien, K. (2013). Cultural dimensions of climate change impacts and adaptation. *Nature Climate Change*, 3(2), 112–117. <https://doi.org/10.1038/nclimate1666>
- Ahmed, A.-A. (2019). Conceptualising mosque diversity. *Journal of Muslims in Europe*, 8(2), 138–158. <https://doi.org/10.1163/22117954-12341390>
- Al-Damkhi, A. M. (2008). Environmental ethics in islam: Principles, violations, and future perspectives. *International Journal of Environmental Studies*, 65(1), 11–31. <https://doi.org/10.1080/00207230701859724>
- Ali, S. H. (2016). Reconciling islamic ethics, fossil fuel dependence, and climate change in the middle east. *Review of Middle East Studies*, 50 (2), 172–178. <https://doi.org/10.1017/rms.2016.135>
- Allison, E. A. (2015). The spiritual significance of glaciers in an age of climate change. *Wiley Interdisciplinary Reviews: Climate Change*, 6(5), 493–508. <https://doi.org/10.1002/wcc.354>
- Amri, U. (2014). From theology to a praxis of "eco-jihad": The role of religious civil society organizations in combating climate change in Indonesia. In R. G. Veldman, A. Szasz, & R. Haluza-DeLay (Eds.), *How the world's religions are responding to climate change: Social scientific investigations* (1st ed., pp. 75–93). Routledge.
- Arbuckle, M. B. (2017). The interaction of religion, political ideology, and concern about climate change in the United States. *Society & Natural Resources*, 30(2), 177–194. <https://doi.org/10.1080/08941920.2016.1209267>
- Arbuckle, M. B., & Konisky, D. M. (2015). The Role of Religion in Environmental Attitudes. *Social Science Quarterly*, 96(5), 1244–1263. <https://doi.org/10.1111/ssqu.12213>
- Arnez, M. (2014). Shifting notions of nature and environmentalism in Indonesian Islam. In B. Schuler (Ed.), *Environmental and climate change in South and Southeast Asia: How are local cultures coping?* (Vol. 2). Leiden: Brill. https://doi.org/10.1163/9789004273221_005
- Artur, L., & Hilhorst, D. (2012). Everyday realities of climate change adaptation in Mozambique. *Global Environmental Change*, 22(2), 529–536. <https://doi.org/10.1016/j.gloenvcha.2011.11.013>
- Azmi, N. A., & Kandar, M. Z. (2019). Factors contributing in the design of environmentally sustainable mosques. *Journal of Building Engineering*, 23, 27–37. <https://doi.org/10.1016/j.jobr.2019.01.024>
- Ba Kader, A.B.A., Al Sabbagh, A.L.T.E.S., Al Glenid, M.A.S., & Izzidien, M. Y. S. (1983). Islamic principles for the conservation of the natural environment (2nd rev. ed.). IUCN environmental policy and law paper: no. 20 rev. IUCN. Retrieved from <https://www.iucn.org/fr/content/basic-paper-islamic-principles-conservation-natural-environment>
- Bagir, Z. A., & Martiam, N. (2016). Islam: Norms and practices. In W. Jenkins, M. E. Tucker, & J. Grim (Eds.), *Routledge Handbook of Religion and Ecology* (pp. 79–87). Routledge.
- Barker, D. C., & Pearce, D. H. (2013). End-Times Theology, the Shadow of the Future, and Public Resistance to Addressing Global Climate Change. *Political Research Quarterly*, 66(2), 267–279. <https://doi.org/10.1177/1065912912442243>
- Bell, D. (2014). Understanding a 'Broken World': Islam, Ritual, and Climate Change in Mali, West Africa. *Journal for the Study of Religion, Nature & Culture*, 8(3), 287–306. <https://doi.org/10.1558/jsrnc.v8i3.287>
- Bergmann, S. (2009). Climate Change Changes Religion. *Studia Theologica—Nordic Journal of Theology*, 63(2), 98–118. <https://doi.org/10.1080/00393380903345057>
- Binay, S., & Khorchide, M. (Eds.). (2019). *Die islamische Theologie im Aufbruch: Band 1. Islamische Umwelttheologie: Ethik, Norm und Praxis*. Herder.
- Blanc, J. (2017). Ökokatholizismus: Sozialethische Untersuchungen zu ausgewählten Ländern und Institutionen in Europa. Metropolis-Verl.
- Boff, L. (2011). *Ecología: Grito de la tierra, grito de los pobres* (5^a ed.). Colección Estructuras y procesos. Serie Religión. Trotta.
- Brockopp, J. (2012). Islam and ecology: Theology, law and practice of muslim environmentalism. *Worldviews*, 16(3), 213–217. <https://doi.org/10.1163/15685357-01603002>
- Carr, W. A., Patterson, M., Yung, L., & Spencer, D. (2012). The Faithful Skeptics: Evangelical Religious Beliefs and Perceptions of Climate Change. *Journal for the Study of Religion, Nature and Culture*, 6(3), 276–299. <https://doi.org/10.1558/jsrnc.v6i3.276>
- Casanova, J. (1994). *Public religions in the modern world*. University of Chicago Press.
- Chaplin, J. (2016). The global greening of religion. *Palgrave Communications*, 2, 1–5. <https://doi.org/10.1057/palcomms.2016.47>

- Chérif, S., & Greenberg, J. H. (2014). Religious perspectives on climate change in the west ivoirian mountainous region. In R. G. Veldman, A. Szasz, & R. Haluza-DeLay (Eds.), *How the world's religions are responding to climate change: Social scientific investigations* (1st ed., pp. 126–138). Routledge.
- Christie, I., Gunton, R. M., & Hejnowicz, A. P. (2019). Sustainability and the common good: Catholic Social Teaching and 'Integral Ecology' as contributions to a framework of social values for sustainability transitions. *Sustainability Science*, 14, 1343–1354. <https://doi.org/10.1007/s11625-019-00691-y>
- Clingerman, F., & O'Brien, K. J. (2017). Is climate change a new kind of problem? The role of theology and imagination in climate ethics. *Wiley Interdisciplinary Reviews: Climate Change*, 8(5), e480. <https://doi.org/10.1002/wcc.480>
- Cuni-Sanchez, A., Omeny, P., Pfeifer, M., Olaka, L., Mamo, M. B., Marchant, R., & Burgess, N. D. (2019). Climate change and pastoralists: perceptions and adaptation in montane Kenya. *Climate and Development*, 11(6), 513–524. <https://doi.org/10.1080/17565529.2018.1454880>
- DeHanas, D. N. (2009). Broadcasting Green: Grassroots Environmentalism on Muslim Women's Radio. *The Sociological Review*, 57(2_suppl), 141–155. <https://doi.org/10.1111/j.1467-954X.2010.01890.x>
- Depledge, J. (2008). Striving for No: Saudi Arabia in the Climate Change Regime. *Global Environmental Politics*, 8(4), 9–35. <https://doi.org/10.1162/glep.2008.8.4.9>
- Dessi, U. (2013). Greening Dharma': Contemporary Japanese Buddhism and Ecology. *Journal for the Study of Religion, Nature and Culture*, 7 (3), 334–355. <https://doi.org/10.1558/jsrnc.v7i3.334>
- Dien, M. I. (1997). Islam and the Environment: Theory and Practice. *Journal of Beliefs & Values*, 18(1), 47–57. <https://doi.org/10.1080/1361767970180106>
- Dien, M. I. (2000). *The environmental dimensions of Islam*. Redwood Books.
- Dien, M. I. (2013). Islam and the environment: Towards an "Islamic" ecumenical view. *QURANICA - International Journal of Quranic Research*, 2, 33–52 <https://ejournal.um.edu.my/index.php/quranica/article/view/5187>
- Dohe, C. (2021). What does religion have to do with nature conservation? Investigating the Tensions in an Interreligious Nature Conservation Project in Germany. In J. Koehrsen, J. Blanc, & F. Huber (Eds.), *Global Religious Environmental Activism: Emerging Conflicts and Tensions in Earth Stewardship*. Routledge forthcoming.
- Ecklund, E. H., Scheitle, C. P., Peifer, J., & Bolger, D. (2017). Examining links between religion, evolution views, and climate change skepticism. *Environment and Behavior*, 49(9), 0013916516674246. <https://doi.org/10.1177/0013916516674246>
- Edenhofer, O., Flachsland, C., & Knopf, B. (2015). Science and religion in dialogue over the global commons. *Nature Climate Change*, 5(10), 907–909. <https://doi.org/10.1038/nclimate2798>
- Erdur, O. (1997). Reappropriating the "Green": Islamist Environmentalism. *New Perspectives on Turkey*, 17, 151–166. <https://doi.org/10.1017/S089663460000279X>
- Feder, L. (2009). *DC Muslims embrace the environment*. Retrieved from <https://www.americanprogress.org/issues/green/news/2009/01/13/5382/dc-muslims-embrace-the-environment/>
- Foltz, R. (2000). Is there an Islamic environmentalism? *Environmental Ethics*, 22(1), 63–72. <https://doi.org/10.5840/enviroethics200022149>
- Frömming, U. U., & Reichel, C. (2012). Vulnerable coastal regions: Indigenous people under climate change in Indonesia. In D. Gerten & S. Bergmann (Eds.), *Religion in environmental and climate change: Suffering, values, lifestyles* (pp. 215–235). Continuum.
- Furber, M. (2012). Obligations to future generations: A Shari'ah perspective (Tabah papers series). Tabah Foundation, no. 6.
- Gada, M. Y. (2014). Environmental ethics in Islam: Principles and perspectives. *World Journal of Islamic History and Civilization*, 4(4), 130–138.
- Gade, A. M. (2012). Tradition and Sentiment in Indonesian Environmental Islam. *Worldviews*, 16(3), 263–285. <https://doi.org/10.1163/15685357-01603005>
- Gade, A. M. (2015). Islamic Law and the Environment in Indonesia. *Worldviews: Global Religions, Culture, and Ecology*, 19(2), 161–183. <https://doi.org/10.1163/15685357-01902006>
- Gade, A. M. (2019). *Muslim environmentalisms: Religious and social foundations*. Columbia University Press.
- Gardner, G. T. (2002). *Invoking the Spirit: Religion and Spirituality in the Quest for a Sustainable World*. Worldwatch Paper. Retrieved from www.worldwatch.org/system/files/EWP164.pdf
- Gardner, G. T. (2003). Engaging religion in the quest for a sustainable world. In Worldwatch Institute (Ed.), *State of the world, 2003: A Worldwatch Institute report on progress toward a sustainable society* (pp. 152–175). New York, NY: W. W. Norton & Company.
- Gardner, G. T. (2006). *Inspiring progress: religions' contributions to sustainable development*. New York, NY: W. W. Norton.
- Gilliat-Ray, S. (2010). *Muslims in Britain: An introduction*. Cambridge University Press.
- Gilliat-Ray, S., & Bryant, M. (2011). Are British Muslims 'Green'? An Overview of environmental activism among Muslims in Britain. *Journal for the Study of Religion, Nature & Culture*, 5(3), 284–306. <https://doi.org/10.1558/jsrnc.v5i3.284>
- Glaab, K. (2017). A Climate for Justice? Faith-based Advocacy on Climate Change at the United Nations. *Globalizations*, 14(7), 1110–1124. <https://doi.org/10.1080/14747731.2017.1308060>
- Golo, B.-W. K., & Awetori Yaro, J. (2013). Reclaiming Stewardship in Ghana: Religion and Climate Change. *Nature and Culture*, 8(3), 282–300. <https://doi.org/10.3167/nc.2013.080304>
- Gottlieb, R. (2008). You gonna be here long? Religion and sustainability. *Worldviews: Global Religions, Culture, and Ecology*, 12(2), 163–178. <https://doi.org/10.1163/156853508X359967>

- Guth, J. L., Green, J. C., Kellstedt, L. A., & Smidt, C. E. (1995). Faith and the environment: Religious beliefs and attitudes on environmental policy. *American Journal of Political Science*, 39(2), 364–382. <https://doi.org/10.2307/2111617>
- Hackett, C. (2017). *5 facts about the Muslim population in Europe*. Retrieved from <https://www.pewresearch.org/fact-tank/2017/11/29/5-facts-about-the-muslim-population-in-europe/>
- Haluza-DeLay, R. (2014). Religion and climate change: Varieties in viewpoints and practices. *Wiley Interdisciplinary Reviews: Climate Change*, 5(2), 261–279. <https://doi.org/10.1002/wcc.268>
- Hancock, R. (2015). 'Islamic' environmentalism in Great Britain. In T. Peace (Ed.), *Muslims and political participation in Britain* (pp. 119–139). Routledge.
- Hancock, R. (2018). *Islamic Environmentalism: Activism in the United States and Great Britain*. Routledge Advances in Sociology: Routledge.
- Hancock, R. (2019). Environmental conversions and muslim activists: constructing knowledge at the intersection of religion and politics. *Social Movement Studies*, 26(3), 287–302. <https://doi.org/10.1080/14742837.2019.1665505>
- Haq, S. N. (2001). Islam and ecology: Toward retrieval and reconstruction. *Daedalus*, 130(4), 141–177. www.jstor.org/stable/20027722
- Haron, M. (2017). Drawing on African Muslims' intangible assets: Doing Jihad against climate change. *The Ecumenical Review*, 69(3), 348–361. <https://doi.org/10.1111/erev.12298>
- Harris, I. (1995). Buddhist environmental ethics and detraditionalization: The case of ecoBuddhism. *Religion*, 25(3), 199–211.
- Hitzhusen, G. E., & Tucker, M. E. (2013). The potential of religion for Earth Stewardship. *Frontiers in Ecology and the Environment*, 11(7), 368–376. <https://doi.org/10.1890/120322>
- Holmes, R. (2006). Caring for nature: What science and economics can't teach us but religion can. *Environmental Values*, 15(3), 307–313.
- Huber, F., & Koehrsen, J. (2020). Das Ergrünen von Religionen: Ökologische Nachhaltigkeit in religiösen Gemeinschaften. In A. Henkel & T. Barth (Eds.), *10 Minuten Soziologie: Nachhaltigkeit*. transcript.
- Hulme, M. (2016). Climate change: Varieties of religious engagement. In W. Jenkins, M. E. Tucker, & J. Grim (Eds.), *Routledge Handbook of Religion and Ecology* (pp. 239–248). Routledge.
- Hulme, M. (2017). Climate change and the significance of religion. *Economic & Political Weekly*, 52(28), 15.
- Hussain, M. (2007). *Islam and climate change: Perspectives and engagement*. Retrieved from <https://static1.squarespace.com/static/5e4a9ad833aa1603123cf876/5e4a9ff8413c0748c325065e/5e4a9ff0413c0748c3250341/1581948912109/Islam-Climate-Change-Perspectives-Engagement-Oct-2019.pdf?format=original>
- International Islamic Climate Change Symposium. (2015). *Islamic declaration on global climate change*. Retrieved from http://ifees.org.uk/wp-content/uploads/2020/01/climate_declarationmmwb.pdf
- Ives, C. D., Freeth, R., & Fischer, J. (2020). Inside-out sustainability: The neglect of inner worlds. *Ambio*, 49(1), 208–217. <https://doi.org/10.1007/s13280-019-01187-w>
- Ives, C. D., & Kidwell, J. (2019). Religion and social values for sustainability. *Sustainability Science. Advance online publication*, 14, 1355–1362. <https://doi.org/10.1007/s11625-019-00657-0>
- Jamil, S. (2021). Halal Wastewater Recycling: Environmental solution or religious complication? In J. Koehrsen, J. Blanc, & F. Huber (Eds.), *Global religious environmental activism: Emerging conflicts and tensions in earth stewardship*. Routledge forthcoming.
- Jenkins, W. (2009). After Lynn White: Religious ethics and environmental problems. *Journal of Religious Ethics*, 37(2), 283–309. <https://doi.org/10.1111/j.1467-9795.2009.00387.x>
- Jenkins, W., Berry, E., & Kreider, L. B. (2018). Religion and climate change. *Annual Review of Environment and Resources*, 43, 85–108.
- Kaminski, J. J. (2019). The OIC and the Paris 2015 Climate Change Agreement: Islam and the Environment. In L. A. Pal & M. E. Tok (Eds.), *Global governance and muslim organizations* (pp. 171–195). Springer.
- Kanagy, C. L., & Willits, F. K. (1993). A "greening" of religion? Some evidence from a Pennsylvania sample. *Social Science Quarterly*, 74(3), 674–683.
- Karagiannis, E. (2015). When the green gets greener: political Islam's newly-found environmentalism. *Small Wars & Insurgencies*, 26(1), 181–201. <https://doi.org/10.1080/09592318.2014.959768>
- Khalid, F. (2002). Islam and the environment. In P. Timmerman (Ed.), *Encyclopedia of global environmental change: v. 5. Social and economic dimensions of global environmental change* (pp. 332–339). Wiley.
- Khalid, F. (2005). Applying Islamic environmental ethics. In R. Foltz (Ed.), *Environmentalism in the Muslim world* (pp. 87–111). Nova Science Publishers.
- Khalid, F. (2010). Islam and the environment—Ethics and practice an assessment. *Religion Compass*, 4(11), 707–716. <https://doi.org/10.1111/j.1749-8171.2010.00249.x>
- Khan, N. (2014). Dogs and Humans and What Earth Can Be. *HAU: Journal of Ethnographic Theory*, 4(3), 245–264. <https://doi.org/10.14318/hau4.3.015>
- Kilburn, H. W. (2014). Religion and foundations of American public opinion towards global climate change. *Environmental Politics*, 23(3), 473–489. <https://doi.org/10.1080/09644016.2013.859777>
- Koehrsen, J. (2018). Religious agency in sustainability transitions: Between experimentation, upscaling, and regime support. *Environmental Innovation and Societal Transitions*, 27, 4–15. <https://doi.org/10.1016/j.eist.2017.09.003>
- Koehrsen, J. (2020). Muslim NGOs and the quest for environmental sustainability. In A. Heuser & J. Koehrsen (Eds.), *Does religion make a difference? Religious NGOs in international development work* (pp. 327–348). Nomos.
- Koehrsen, J., Becci, I., Huber, F., & Blanc, J. (2020). How is religion involved in transformations towards more sustainable societies? A systematization. *Historia Religionum* forthcoming, 11, 99–116.

- Koehrsen, J., Huber, F., & Blanc, J. (2020). Religious organisations in Germany's and Switzerland's sustainability transitions: diverging logics on national and local fields. In *European Group of Organizational Studies (Chair), 36th egos Colloquium 2020*.
- Kumar, C. B. (2013). Climate change and asian cities: So near yet so far. *Urban Studies*, 50(7), 1456–1468. <https://doi.org/10.1177/0042098013481687>
- Landrum, A. R., Lull, R. B., Akin, H., Hasell, A., & Jamieson, K. H. (2017). Processing the papal encyclical through perceptual filters: Pope Francis, identity-protective cognition, and climate change concern. *Cognition*, 166, 1–12.
- Leahy, T. (2013). Facing the apocalypse: environmental crisis and religion. *Religion and Society: Advances in Research*, 4(1), 182–187. <https://doi.org/10.3167/arrs.2013.040110>
- London Sustainability Exchange. (2015). *Green Mosques*. Retrieved from <http://www.lsx.org.uk/projects/green-mosques/>
- M7YAP. (2010). *The Muslim 7-Year Action Plan (M7YAP) to deal with global climate change*. Retrieved from <http://www.arcworld.org/downloads/Muslim-7YP.pdf>
- Makame, M. O., & Shackleton, S. (2019). Perceptions of climate variability and change in relation to observed data among two east coast communities in Zanzibar, East Africa. *Climate and Development*, 3(7), 1–13. <https://doi.org/10.1080/17565529.2019.1697633>
- Mangunjaya, F. M., & McKay, J. E. (2012). Reviving an Islamic approach for environmental conservation in Indonesia. *Worldviews: Global Religions Culture, and Ecology*, 16(3), 286–305. <https://doi.org/10.1163/15685357-01603006>
- Mangunjaya, F. M., & Praharawati, G. (2019). Fatwas on boosting environmental conservation in Indonesia. *Religions*, 10(10), 570. <https://doi.org/10.3390/rel10100570>
- Mangunjaya, F. M., Tobing, I. S., Binawan, A., Pua, E., & Nurbawa, M. (2015). Faiths from the Archipelago: Action on the environment and climate change. *Worldviews*, 19(2), 103–122. <https://doi.org/10.1163/15685357-01902003>
- Mangunjaya, F. M., Wijayanto, I., Supriatna, J., Haleem, H., & Khalid, F. (2010). Muslim Projects to Halt Climate Change in Indonesia. *IPCSS*, 117–130.
- Merli, C. (2010). Context-bound Islamic theodicies: The Tsunami as supernatural retribution vs Natural Catastrophe in Southern Thailand. *Religion*, 40(2), 104–111. <https://doi.org/10.1016/j.religion.2009.12.003>
- Metz, T. (2016). Climate change in Africa and the Middle East in light of health, Ubuntu and Islam. *South African Journal of Bioethics and Law*, 9(2), 88. <https://doi.org/10.7196/SAJBL.2016.v9i2.489>
- Mohamad, Z. F., Idris, N., & Mamat, Z. (2012). Role of religious communities in enhancing transition experiments: A localised strategy for sustainable solid waste management in Malaysia. *Sustainability Science*, 7(2), 237–251. <https://doi.org/10.1007/s11625-012-0169-1>
- Mohamed, N. (2014). Islamic education, eco-ethics and community. *Studies in Philosophy and Education*, 33(3), 315–328.
- Murphy, C., Tembo, M., Phiri, A., Yerokun, O., & Grummell, B. (2016). Adapting to climate change in shifting landscapes of belief. *Climatic Change*, 134(1–2), 101–114. <https://doi.org/10.1007/s10584-015-1498-8>
- Nasr, S. H. (1968). Man and nature: The spiritual crisis of modern man. Unwin Paperback.
- Nche, G. C. (2020). Beyond spiritual focus: Climate change awareness, role perception, and action among church leaders in Nigeria. *Weather, Climate, and Society*, 12(1), 149–169. <https://doi.org/10.1175/WCAS-D-19-0001.1>
- Nilan, P. (2020). Muslim youth environmentalists in Indonesia. *Journal of Youth Studies*, 1–16. <https://doi.org/10.1080/13676261.2020.1782864>
- Nita, M. (2014). Christian and Muslim climate activists fasting and praying for the planet: Emotional translation of "dark green" activism and green-faith identities. In R. G. Veldman, A. Szasz, & R. Haluza-DeLay (Eds.), *How the world's religions are responding to climate change: Social scientific investigations* (1st ed., pp. 229–243). Routledge.
- O'Brien, K. (2018). Is the 1.5°C target possible? Exploring the three spheres of transformation. *Current Opinion in Environmental Sustainability*, 31, 153–160. <https://doi.org/10.1016/j.cosust.2018.04.010>
- O'Reilly, J. (2018). The substance of climate change: Material approaches to nature under environmental change. *Wiley Interdisciplinary Reviews: Climate Change*, 9(6), 1–10. <https://doi.org/10.1002/wcc.550>
- Otto, I. M., Donges, J. F., Cremades, R., Bhowmik, A., Hewitt, R. J., Lucht, W., Rockström, J., Allerberger, F., McCaffrey, M., & Doe, S. S. P. (2020). Social tipping dynamics for stabilizing Earth's climate by 2050. *Proceedings of the National Academy of Sciences*, 117(5), 2354–2365.
- Palmer, M. (2013). The quiet revolutionaries: why the faith-based environmental movement has become the largest civil society movement in the conservation world. *Biodiversity*, 14(3), 180–182. <https://doi.org/10.1080/14888386.2013.826459>
- Peifer, J. L., Khalsa, S., & Howard Ecklund, E. (2016). Political conservatism, religion, and environmental consumption in the United States. *Environmental Politics*, 25(4), 661–689. <https://doi.org/10.1080/09644016.2016.1159604>
- Pepper, M., & Leonard, R. (2016). Climate change, politics and religion: Australian Churchgoers' beliefs about climate change. *Religions*, 7(5) Article 47, 1–18. <https://doi.org/10.3390/rel7050047>
- Pew Research Center. (2009). *Mapping the global Muslim population*. Retrieved from <https://www.pewforum.org/2009/10/07/mapping-the-global-muslim-population/>
- Pew Research Center. (2012). *The World's Muslims: unity and diversity*. Retrieved from <https://www.pewresearch.org/wp-content/uploads/sites/7/2012/08/the-worlds-muslims-full-report.pdf>
- Pew Research Center. (2015). *Global attitudes spring 2015 survey*. Retrieved from <https://www.pewresearch.org/global/2015/06/23/spring-2015-survey/>
- Pew Research Center. (2016). *The divide over Islam and national laws in the Muslim world: Varied views on whether Quran should influence laws in countries*. Retrieved from <https://www.pewresearch.org/global/2016/04/27/the-divide-over-islam-and-national-laws-in-the-muslim-world/>
- Pew Research Center. (2017). *The changing global religious landscape*. Retrieved from <https://www.pewforum.org/2017/04/05/the-changing-global-religious-landscape/>

- Pew Research Center. (2018). *Global attitudes & trends spring 2018*. Retrieved from <https://www.pewresearch.org/global/dataset/spring-2018-survey-data/>
- Pope Francis. (2015). Laudato Si: On Care for Our Common Home.
- Posas, P. J. (2007). Roles of religion and ethics in addressing climate change. *Ethics in Science and Environmental Politics*, 31–49. <https://doi.org/10.3354/esep00080>
- Reder, M. (2012). Religion in the public sphere: The social function of religion in the context of climate and development policy. In D. Gerten & S. Bergmann (Eds.), *Religion in environmental and climate change: Suffering, values, lifestyles* (pp. 32–45). Continuum.
- Reuter, T. (2015). The green revolution in the world's religions: Indonesian examples in international comparison. *Religions*, 6(4), 1217–1231. <https://doi.org/10.3390/rel6041217>
- Rice, G. (2006). Pro-environmental behavior in Egypt: Is there a role for Islamic environmental ethics? *Journal of Business Ethics*, 65(4), 373–390.
- Rolston, H., III (2006). Science and religion in the face of the environmental crisis. In R. S. Gottlieb (Ed.), *The Oxford handbook of religion and ecology* (pp. 376–397). Oxford University Press.
- Sanganyado, E., Teta, C., & Masiri, B. (2018). Impact of African traditional worldviews on climate change adaptation. *Integrated Environmental Assessment and Management*, 14(2), 189–193. <https://doi.org/10.1002/ieam.2010>
- Saniotis, A. (2012). Muslims and ecology: Fostering Islamic environmental ethics. *Contemporary Islam*, 6(2), 155–171. <https://doi.org/10.1007/s11562-011-0173-8>
- Schaefer, J. (2016). Motivated for action and Collaboration: The Abrahamic religions and climate change. *Geosciences*, 6(3), 31. <https://doi.org/10.3390/geosciences6030031>
- Shehu, M., & Molyneux-Hodgson, S. (2014). Faith communities and environmental degradation in Northeast Nigeria. *International Journal of Environmental Sustainability*, 10(1), 27–40.
- Sheikh, K. M. (2006). Involving Religious Leaders in Conservation Education in the Western Karakorum Pakistan. *Mountain Research and Development*, 26(4), 319–322. [https://doi.org/10.1659/0276-4741\(2006\)26\[319:IRLICE\]2.0.CO;2](https://doi.org/10.1659/0276-4741(2006)26[319:IRLICE]2.0.CO;2)
- Sherkat, D. E., & Ellison, C. G. (2007). Structuring the Religion-Environment Connection: Identifying Religious Influences on Environmental Concern and Activism. *Journal for the Scientific Study of Religion*, 46(1), 71–85.
- Shibley, M. A., & Wiggins, J. L. (1997). The greening of Mainline American Religion: A sociological analysis of the environmental ethics of the national religious partnership for the environment. *Social Compass*, 44(3), 333–348. <https://doi.org/10.1177/003776897044003003>
- Skirbekk, V., & Pędziwiatr, K. (2018). *Sustainability and Climate Change in Major Religions with a Focus on Islam*. Humanitarian Academy for World Development Research Paper. Retrieved from <https://www.researchgate.net/publication/329656310>
- Smith, N., & Leiserowitz, A. (2013). American evangelicals and global warming. *Global Environmental Change*, 23(5), 1009–1017. <https://doi.org/10.1016/j.gloenvcha.2013.04.001>
- Taylor, B., van Wieren, G., & Zaleha, B. D. (2016). Lynn White Jr. And the greening-of-religion hypothesis. *Conservation Biology*, 30(5), 1000–1009. <https://doi.org/10.1111/cobi.12735>
- Torabi, M., & Noori, S. M. (2019). Religious leaders and the environmental crisis. *The Ecumenical Review*, 71(3), 344–355. <https://doi.org/10.1111/erev.12434>
- Tucker, M. E. (2006). Religion and Ecology: Survey of the field. In R. S. Gottlieb (Ed.), *The Oxford handbook of religion and ecology* (pp. 398–418). Oxford University Press.
- Vaghefi, N., Siwar, C., & Aziz, S. A. A. G. (2015). Green economy: Issues, approach and challenges in Muslim Countries. *Theoretical Economics Letters*, 05(01), 28–35. <https://doi.org/10.4236/tel.2015.51006>
- Vaidyanathan, B., Khalsa, S., & Ecklund, E. H. (2018). Naturally Ambivalent: Religion's role in shaping environmental action. *Sociology of Religion*, 79(4), 472–494. <https://doi.org/10.1093/socrel/srx043>
- Veldman, R. G., Szasz, A., & Haluza-DeLay, R. (2014). How are the world's religions responding to climate change? In R. G. Veldman, A. Szasz, & R. Haluza-DeLay (Eds.), *How the world's religions are responding to climate change: Social scientific investigations* (1st ed., pp. 3–20). Routledge.
- Wardekker, A., Petersen, A. C., & van der Sluijs, J. P. (2009). Ethics and public perception of climate change: Exploring the Christian voices in the US public debate. *Global Environmental Change*, 19(4), 512–521. <https://doi.org/10.1016/j.gloenvcha.2009.07.008>
- Watson, E. E., & Kochore, H. H. (2012). Religion and climate change in Northern Kenya: New moral frameworks for new environmental challenges? *Journal for the Study of Religion, Nature and Culture*, 6(3), 319–343. <https://doi.org/10.1558/jsrnc.v6i3.319>
- World Council of Churches. (2014). *Climate, faith and hope: faith traditions together for a common future*. Retrieved from <https://www.oikoumene.org/en/resources/documents/general-secretary/joint-declarations/interfaith-statement-on-climate-change>
- Yildirim, A. K. (2016). Between anti-Westernism and development: Political Islam and environmentalism. *Middle Eastern Studies*, 52(2), 215–232. <https://doi.org/10.1080/00263206.2015.1124414>
- Zaleha, B. D., & Szasz, A. (2015). Why conservative Christians don't believe in climate change. *Bulletin of the Atomic Scientists*, 71(5), 19–30. <https://doi.org/10.1177/0096340215599789>

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