

Green Mosques: Catalysts for Environmental Stewardship and Sustainable Development in Muslim Communities

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ABSTRACT

This paper emphasizes the up-and-coming place of mosques in promoting environmental care and sustainable development among Muslim communities. In so doing, it places mosques at the forefront of one of the potentially transformative agents of change with respect to climate challenges by aligning Islamic teachings on stewardship with modern ecological practices. To relieve the environmental burden, it aims to show how mosques can be implicated in the greenest technologies, such as renewable energies, water conservation systems, solid waste management, and architectural design. Through desk research and case studies of mosques in Indonesia, Malaysia, and Morocco, the research underlines the initiatives that have reduced energy consumption, optimized water use, and fostered community involvement. In this regard, the Morocco Green Mosque Program has been able to reduce energy consumption by as much as solar panel installations do. At the same time, mosques in Indonesia have implemented rainwater harvesting and greywater recycling. Additionally, mosques serve as community centers for environmental education, wherein religious teachings have engaged more than 70% of congregants in sustainability programs. Funding and long-term maintenance remain significant challenges, which justifies strong policy support and alignment with the Environmental, social, and governance (ESG) framework. Moreover, mosques can be pivotal in educating the younger generation on climate awareness, shaping them to become future advocates for environmental protection. This study indicates the potential of mosques for fulfilling religious duties to enable meaningful contributions toward global climate action and the SDGs.

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Introduction

A mosque is always known as an Islamic study center in Muslim communities, and it is the first educational institute for every Muslim, not only a worship center. The mosque is also a cultural and missionary activity center for Muslims to advocate and spread environmental consciousness

(Yamin, 2021). The mosque has always been one of the major centers, if not the center, of worship, government, and social justice; the mosque of Prophet Muhammad SAW in Madinah showed all the features of a sustainable environment. As climate change accelerates and global temperatures are already rising by 1.1°C, mosques can and should play an important role in this regard. Besides being a manifestation of Islamic stewardship or Khalifah, mosques finally have the opportunity to connect it with other international efforts, such as the Paris Climate Agreement, which was adopted in 2015 in order to spur sustainability and environmental awareness among their constituencies through education and outreach.

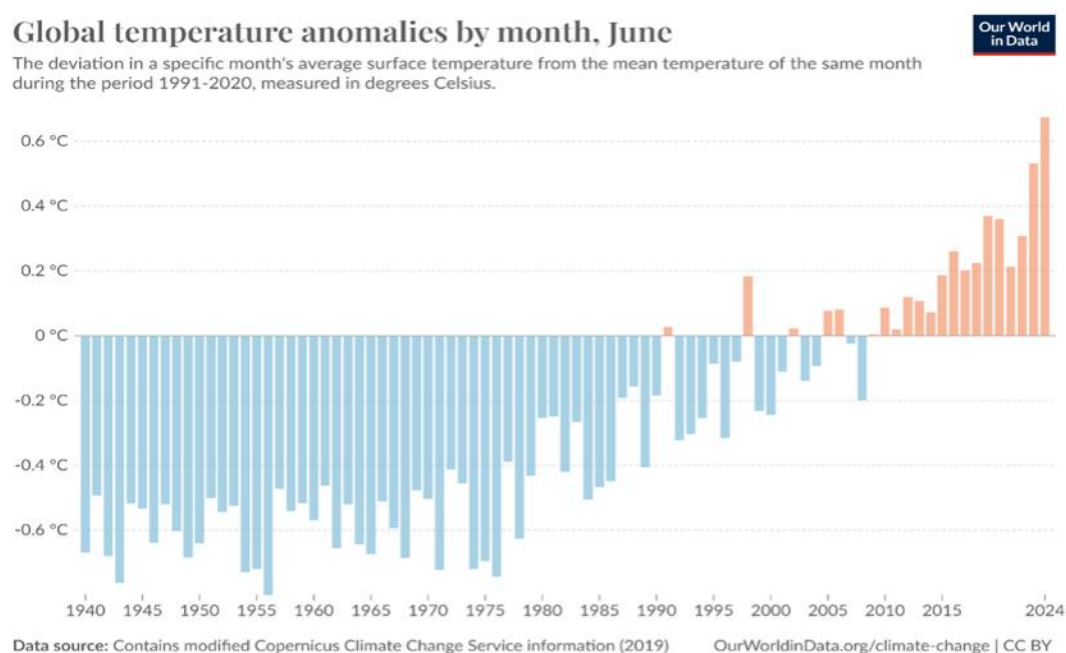


Figure 1. Global temperature anomalies by month

Green Mosques have recently gained momentum throughout Muslim communities globally due to the dire need to protect the environment. This increasing interest is analogous to a significant global movement observed across religious traditions, from Green Churches to Green Temples, which adopted eco-friendly modes to promote sustainability. For instance, Green Churches often install solar panels and energy-efficient systems that reduce carbon footprints, emphasizing that these practices form part of the moral duty of every human being in caring for God's creation, much as Islamic teachings on Khalifah or stewardship of the earth. Similarly, Green Temples advocates proper waste management and using environment-friendly rituals (Choudhary, 2021; Caldwell et al., 2022). In such cases, religious spaces have emerged as solid hubs for activity in espousing sustainability. This development in mosques emanates from the current global environmental crisis and also from theological imperatives within Islam to act as caretakers of the earth. Islamic teachings show that nature should be taken care of and preserved

by man himself, which also meets several Sustainable Development Goals (SDGs) notably the SDG 13 on Climate Action, SDG 6 on Clean Water and Sanitation, and SDG 7 on Affordable and Clean Energy. Because of this, Green Mosques stand a better chance of easily influencing their members about the best practices of sustainability and environmental concern, hence becoming significant contributors to the global effort toward environmental sustainability. A green mosque can be defined as one that plays a multi-functional role in the communities: it is centrally located, accessible, facilitates the environment's friendship, enables local enterprise and development of communities, social interaction, as well as knowledge sharing (Omar et al., 2018).

The paper draws upon Islamic teachings to synthesize religious principles from Islam with modern ecological strategies. It highlights integrating green concepts into mosque planning and operation, from tapping renewable energy sources to instituting water conservation measures and using sustainable building materials (Harsritanto et al., 2021). These will improve the environmental performance of mosques and act as visible examples of sustainability that will inspire broader community actions, i.e., Environment, Social, and Governance (ESG). The idea of "green mosques" has been highly pivotal in recent years since religious organizations have become conscious of their role and contribution to environmental concerns. Mosques are ideal places for encouraging environmental stewardship and achieving sustainable development, as they are used for worship and community gatherings (Efeoglu & Cetinkaya, 2024).

The paper "Green Mosques: Encouraging Environmental Stewardship and Sustainable Development in Muslim Communities" therefore sought to explain precisely how mosques can, as effective agents in the fight against climate issues, incorporate Islamic teachings on environmental stewardship with current sustainable practices. This study addresses the following questions: How do mosques sustain religiously appropriate facilitation of sustainable technologies like energy-efficient systems and water-saving gadgets? It also seeks to find out which sustainable practices mosques could adopt to reduce climate change, such as community-led greening of the mosque surroundings or environmental awareness programs. Another question would be the potential of mosques- also serving as very important centers within the community to use their influence and educational platforms in the interest of environmental responsibility in a way that could contribute to global efforts toward accomplishing the Sustainable Development Goals (SDGs). The study explores these issues, showing how mosques can take active roles in nurturing a sense of environmental stewardship among their members and, by extension, show their potential for creating positive change in the struggle against climate change.

Discussion

The findings of this study of this study reveals that mosques could play a very crucial role in

tackling climate change by effectively integrating Islamic teachings on stewardship with contemporary practices for sustainability. Further, the mosque would be in a position to function as a hub for sustainable communities through the use of renewable energy solutions and water-saving technologies in a manner befitting religious obligations and responding to the global fight against environmental crises. In Morocco, the Green Mosque Program remains among the nearest perfect examples of how communities can reduce energy consumption to a bare minimum by integrating solar panels and other related renewable technologies (Gray, 2021). Similarly, in Indonesia, mosques have successfully brought water conservation methods, such as rainwater harvesting, conforming to Islamic principles of water stewardship (Adi, 2016; Harsritanto et al., 2021).

One of the main insights drawn from this study is the role of mosques in community engagement. Indeed, as covered in the Morocco Green Mosque Program and Indonesian case studies, mosques could increasingly become focal points of environmental education rather than religious instruction. The institutions also have enormous potential to spread knowledge of sustainability among future generations, thus serving as the first educational spaces for many Muslims. The mosque can thereby play an active role in shaping the environmental consciousness of its congregation and the broader community through teaching environmental stewardship from an Islamic perspective. This dual role can be further expanded to support Sustainable Development Goals on clean water, affordable energy, and climate action (Harsritanto et al., 2021 (Gray, 2021)).

Simultaneously, several challenges are unveiled by the given studies. Green technologies, including solar energy and water-saving systems, are beneficial, but funding and maintenance remain crucial obstacles. In Morocco, for instance, financial sustainability regarding mosque-led green initiatives is closely linked with community-based crowdfunding and governmental support. Without adequate long-term funding, many of these initiatives risk being unsustainable (Gray, 2021). To address this, mosques could also position themselves within the Environmental, Social, and Governance (ESG) criteria framework, further attracting investments from ethical funds focused on sustainability. By aligning themselves with ESG principles, mosques could secure more diverse funding sources, contributing to environmental goals and broader social and governance objectives.

The Cambridge Central Mosque serves as a model for the integration of Islamic values with modern sustainability practices. Its architectural design not only reduces energy consumption but also reflects principles of cultural inclusivity and social sustainability in non-Muslim countries (Efeoglu & Cetinkaya, 2024). The Cambridge central mosque serves as a template for how sustainable practices can coexist with religious traditions, promoting environmental

consciousness within the community. Furthermore, mosques in Klang Valley, Malaysia, have implemented various sustainable practices, including solar panels, LED lighting, and recycling initiatives. These mosques also engage their communities through lectures, workshops, and active participation from younger members, encouraging a lifestyle that aligns with Islamic environmental ethics. However, managing costs and limited environmental awareness among congregants remain ongoing challenges (Rahman et al., 2024). At the level of best practice, mosques such as Masjid as-Siddiq in Malaysia are exemplary in how these institutions can incorporate solar power, rainwater harvesting, and spaces of assembly to uplift living standards within the communities in which they are situated. Historically, mosques have employed local materials and designs; today, they can continue this tradition by marrying modern technologies into sustainable architecture (Omar et al., 2018). However, it proves that most modern mosque designs cannot optimize energy use because of their mechanical cooling and energy-intensive material usage. Passive design strategies, including natural ventilation and shading and appropriate spatial layouts, can potentially lessen the ecological footprints of mosques considerably. Case studies in the Great Mosque of Djenné and Cyberjaya Mosque present how both traditional and modern techniques together give rise to thermal comfort and energy efficiency (Azmi & Kandar, 2019).

Average monthly surface temperature, Aug 15, 2024

The temperature of the air measured 2 meters above the ground, encompassing land, sea, and in-land water surfaces.

Our World
in Data

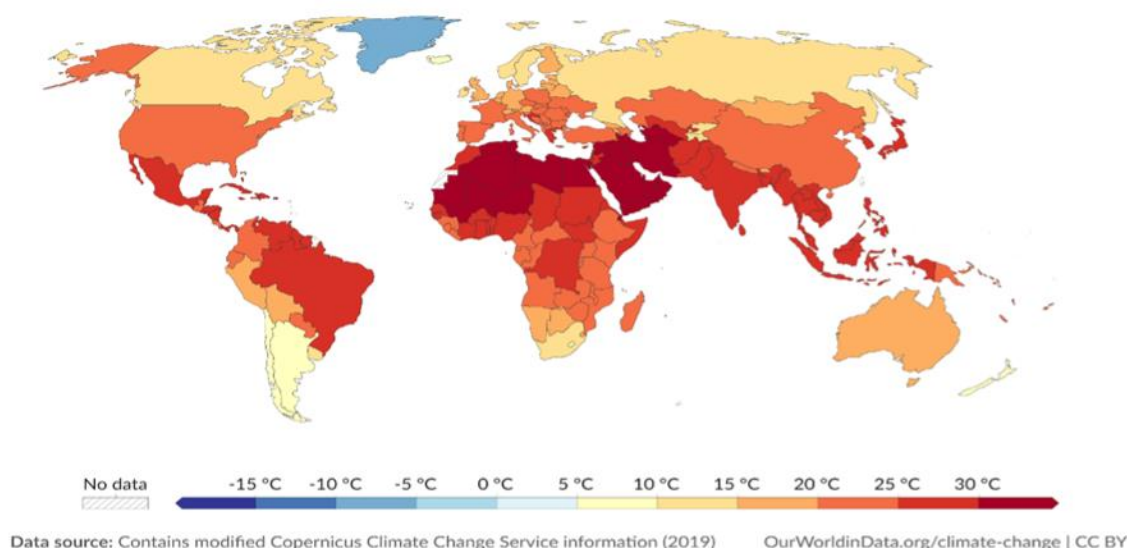


Figure 2. Average monthly surface temperature

As per above illustration, most of Muslim majority countries are facing the temperature rising issues i.e., Indonesia, Pakistan, Malaysia and Middle East for which Mosques have the potential to become “Ambassador of change” in bringing up environmental awareness and action within their

own communities. Mosques can help reduce environmental problems while carrying out religious duties by introducing renewable energy, water conservation systems, sustainable building practices, and especially Municipal solid waste management as various solutions provided by (Saboor, 2024) with low-carbon technologies. These case studies give examples from Indonesia, Morocco, and Malaysia that transform such institutions into spiritual and environmental stewardship centers. These subjects raise several issues, not the least of which are adequate funding and long-term sustainability.

This study suggests that mosques will be in a position to attract more investment and support within “Environmental, Social, and Governance (ESG)” frameworks so mosques can play a leading role in serving their religious communities and be an important force in the battle for global sustainability as well as we can adopt the mosques as an important tool as the awareness for a new generation on a very early stage and raise them with climate saving awareness because awareness could be the best weapon against climate issues. Therefore, these practices would let mosques act prominently in religious and environmental leadership when trying to shape the future of sustainable development within Muslim communities.

Conclusion

The paper underlined how mosques can provide commanding platforms to raise awareness of environmental stewardship and sustainable development among Muslim communities. The principles of Islamic stewardship, married with modern-day sustainability practices, can help green mosques contribute toward combating climate change and, in many other ways, contribute to attaining the SDGs. Through renewable energy systems, water-saving measures, waste management, and eco-friendly designs, mosques take part not only in reducing pollution but also in the involvement of communities in environmental education. Nevertheless, funding and long-term maintenance remain major challenges that need to be supported more by governments and their communities. Perhaps international Islamic organizations could support such an effort further by scaling the provision of finance and expertise and facilitating the collaboration of mosques globally. Future research might address how such green mosques impact more significant social and economic systems and how religious leadership promotes environmental stewardship, thus opening the door to further initiatives on every continent. Therefore, further explorations of green mosque practices might be done in future research by collecting primary data through interviews and field studies.

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