Religion and Sustainability: Lessons of Sustainable Computing from Islamic Religious Communities

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While persuasion has often been considered an important design tool for achieving sustainable behavior, a growing scholarship is criticizing it for its narrow focus on individuals and an overarching economic worldview. This criticism is often based on the limitations of economic-rationales that many persuasive design efforts hold and cannot fully capture the values of people who reside outside the modern scientific world - especially where values originate from and are shaped by religiosity and spirituality. We join this discourse and argue that such a narrow view of persuasion sidelines the theological roots. Based on our six-month long ethnography with the Islamic communities in a Bangladeshi city, Kushtia, we describe how 'motivation' and 'habit' are built there - two of the basic components of persuasion. Drawing from a rich body of literature on the sociology of religions and theology, we highlight how Islamic values are closely tied to the idea of persuasion and reflect a vision of sustainable living. We further discuss how such a deeper understanding of religious values can help design for sustainable living and broaden the scope of CSCW literature in the various domains.

CCS Concepts: • **Human-centered computing → HCI theory, concepts and models**; **Ethnographic studies**.

Additional Key Words and Phrases: sustainability; religion; faith; persuasion; habits; rhetoric; islam; environment; design

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1 INTRODUCTION

As of 2015, 84% of the world population is subscribed to religious groups [121], with the percentage of people who are religiously affiliated is expected to further increase in the next several decades [120, 122]. Despite the pervasiveness of religiosity [20, 55, 62, 123, 134, 145], it has not received much attention in CSCW, HCI, and related areas, save for a few exceptions. This lack of attention might be explained by the scholarships' predominant focus on modern science and euro-centrism [141], and a series of serious complaints against religions that include an ignorance of 'evidence-based' truth [119], creating stereotypes [31], stigma [153], inequality [77], and instigating people to do heinous crimes (islamophobia [130], for example). While all of these are serious concerns and warrant our close attention, a broad-brush negative portrayal of all religious practices may also

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produce serious social consequences by marginalizing many people around the world who subscribe to religious cultures to varying degrees. Scholars of theology, religions, and social sciences have long been arguing for a pragmatic discourse between faith and reasoning [87, 161], that is often missing in CSCW and HCI. To this end, in this paper, we concentrate on the sustainability works in CSCW and HCI and explore Islamic religious values and practices of sustainable living in Bangladesh with a vision to inform the sustainable design of a broader idea of persuasion.

Environmental sustainability has been receiving notable academic [48, 64, 65] and public attention [112, 150, 167] in recent years. CSCW and its related disciplines have responded to this call by giving rise to the emerging field of sustainable HCI [25, 29, 47, 49]. This field has thus far incorporated perspectives from a wide range of disciplines including interaction design [25], repair and recycle [10, 78, 85, 128], infrastructural politics [12, 15, 80], gamification [98], persuasive technologies [18], and sensing [17] with a goal of designing technologies for environmental awareness and behavioral changes towards sustainability (for a review of the literature, see DiSalvo et al. [47]). A dominant strand of research within this pool is comprised of persuasive technologies for positive behavioral changes towards protecting the environment [58, 104, 135]. The design principle in this thread of work is predominantly based on B. J. Fogg's celebrated model of behavioral persuasion that functions through a cost-benefit analysis between 'motivation' and 'affordability' [57]. A rich body of research has been produced using Fogg's model to design technologies that can motivate a person toward sustainable behaviors (see [146, 151, 168], for example). This literature often makes parallel assumptions of the market and nature [49]. As such, people are treated as rational actors that act in accordance with the market logic of "less consumption" and "resource preservation". Under this market idealism, sustainability is an individualistic, case-specific, and apolitical issue, and cases of unsustainable behavior could be manipulated using economic metaphors [49, 95]. These assumptions resemble a modern secular worldview, where humans have a uniform orientation towards natural elements, and they are equally empowered with cognitive resources, autonomy, and freedom to make their own rational choices [169].

However, these modernist economic assumptions about rational behavior towards the environment, and the associated models of persuasion, might not be able to explain people's habits and lifestyles where religious, spiritual, and occult practices play a dominant role. An economic understanding of rational choices prioritizes tangible, concrete, and immediate "rewards" over everything else that seems symbolic, unreal, and to be provided in the far future [156]. On the contrary, the primary source of habits and life choices are rooted in religious and spiritual motivations for many people worldwide [20, 55, 62, 123, 145], especially in non-Western regions where religion is still a dominant force in social life [24, 27, 91, 141, 144]. There are many examples worldwide where faith-based institutions are involved in pro-environmental activities and movements where other models of persuasion work [132, 159]. Such models demonstrate how faith-based motivations, habits, lifestyles, and activism could also produce effective persuasive techniques for promoting sustainability. The objective of this paper is to shed light on these practices and thus advance CSCW's work on sustainability.

In this paper, we present our findings from our study with Bangladeshi Islamic religious communities to re-imagine persuasion and sustainability going beyond the existing market-driven models. Drawing on our six-month-long ethnography in Bangladeshi mosques, *madrasahs*[1], orphanages,

[1]Please look at the Table 1 for meanings of religious/foreign words

and a Trust[2], we explicate habits and lifestyles that have implicit or explicit connections to sustainability. Guided by a broad inquiry around the relationship of sustainability and Islamic values, we particularly make the following contributions to the CSCW literature:

- Our study enriches CSCW scholarship around sustainability by documenting the sustainable living practices within the Islamic communities in Bangladesh. We present motivations and contextual cues for promoting certain behavioral actions, turning behaviors into habits through formal education and informal social practices, and sustaining habits through divine controls. These are all intrinsically or extrinsically tied to how sustainability is approached in the everyday lifestyle in these communities – a lesson that helps CSCW scholarship to better engage with sustainability practices.
- This paper also joins the growing movement within CSCW community against the "quantification [108]" and "economization [109]" of life. We demonstrate how a departure from the micro-economic narrative of sustainability, and an embracement of the alternative rationales grounded in religious values might deliver effective means of sustainable design. Additionally, we discuss how CSCW and HCI's existing conceptual techniques can support these alternative viewpoints to advance sustainability research further.

Thus, we believe that our contribution will help CSCW literature better engage with a wider range of religious and spiritual values and make a broader impact on sustainability research. In this paper, our contributions are informed by the Islamic religion. We carefully avoid making any kind of generalizations at the level of findings, but we do expect our findings to problematize the secular standpoint of computing literature that may eventually make a path for other religious perspectives [42, 52, 88].

2 RELIGION, SOCIAL ACTION, AND RATIONAL CHOICE

This paper attempts to make a connection between sustainability and the Islamic religious lifestyle. This question alludes to a discussion of the concept of religion to interpret the contribution of this paper. We draw on the ways scholars in the sociology of religion have often characterized the concept of religion. This theoretical alignment benefits us by providing a powerful lens through which we explore the functional aspects of behaviors and the habits of the people that live by religious values. Furthermore, the sociology of religion gives us the capability to participate in a strongly relevant debate involving rational choice theory and religious behaviours.

Sociology of religion heavily draws on Emile Durkheim, Max Weber, Karl Marx, among others' works on identifying religion as a unique socio-cultural element [40]. Emile Durkheim defines religion as a system of beliefs and practices relative to "sacred" things [51]. Durkheim's definition of religion presents "practice" as an equally essential component as "belief". Many proponents of his concept of religion present it as a socially healthy element that provides "function" to a society [40]. Max Weber did not provide a complete definition for religion and left it more open to possible alternative characterizations [157]. However, there have been many interpretations of Weber's characterization of religion. For example, Christiano et al. build on Weber and provide six components of social relationship dimensions of religion: *"a belief in one or several of a wide variety of supernatural powers that are evidenced in a variety of charismatic manifestations, articulated through symbolic expressions, responded to in a variety of forms, under the guidance of various types of leaders, in a variety of patterns of relationships significantly determined by the patterned behavior*

[2]In Bangladesh, the word 'Trust' commonly refers to an organization that combines several smaller units. In this paper, we use this term to refer as the umbrella institution that combines mosques, *madrasahs*, orphanages, community health centers, libraries, and business wings under an aggregated administrative and financial system. We studied one such Trust in our fieldwork at Kushtia.

of the lay people of the community" [40]. Durkheim's and Weber's definitions have led to two different traditions within the sociology of religion: 1) functional (from Durkheim), where religion performs certain functions in the society, and 2) substantive (from Weber), where there are certain contents around which religion surrounds [40]. Both definitions refer to a broad set of religions worldwide. There is an agreement across all perspectives of studying religion: what makes religion a sociological component is, as Christiano et al. put, *"it is something that people do" [40]*, which further emphasizes religion as an important factor that drives social actions. This broad understanding of religion helps us posit religious values as the roots of many social practices and conceptualize social actions as (re)producers of religious values.

2.0.1 Islamic Religion in Bangladesh. We give here a brief historical and cultural context of the Islamic religion in Bangladesh. Bangladesh is the third-largest Muslim majority nation in the world [160]. Muslims make up approximately 90% of the country's population. Many of Bangladeshi traditions and norms have a strong historical lineage with the religion of Islam. Political dominance of Islam started here with the arrival of Turkish soldiers in the 13^{th} century [53]. Since this historic moment, Islam politically dominated most parts of Bengal for five centuries. To this day, the cultural and social formation of five hundred years of Bengali sultanate and Mughal power and their rich heritage still resonate in the lives of millions of Bengali Muslims [53].

There are several interpretive traditions of Islamic religion in Bangladesh [3, p. 54–64]. The dominant tradition in Bangladesh is *Sunni*. The presence and influences of other traditions (e.g., *Shia*, *Ahmadiyya*) are negligible compared to the Sunni group. Although there are ideological disagreements in regard to some Islamic historical events and rituals among them, most of the basic practices do not radically depart from one another. Islam has left tell-tale marks in the majority of festivals, cuisines, dresses, norms, and other cultural elements. The impact is visible in public politics, where Islamic parties strongly exercise influence and invariably change political equations even in the age of modern secular politics and state formation [73]. *Madrasah* education is as prevalent as mainstream education in the country [4]. Banking, insurance, and small investment companies that follow Islamic principles are very popular in Bangladesh [133]. Overall, Islam has a strong influence in social, cultural, economical, and political spheres in Bangladesh.

2.1 Religion and Rational Choice Theory

In this paper, we demonstrate an Islamic value system that is aligned with sustainable behaviours, which we argue is distinct from an economically rooted cost-benefit analysis. One of the major theoretical approaches for studying social and behavioral aspects of religion explains religious behaviors as "rational", similar to one defined by the rational choice theory in economics (see, for example, [21, 81]). The core of such an approach is that people analyze the costs and benefits of an action (in terms of religion-defined currencies) and make a decision based on what *rewards* they get in return [81]. This theory has been used to explain many religious phenomena: such as why strict Churches are strict, why people stick to religion more when they are old, and so on [40]. To argue about the significance, one of the proponents of this theory, Iannaccone writes, *"the logic of economics and even its languages are powerful tools for the socio-scientific study of religion"* [81]. Hence, religion provides an alternative rationality for making choices, from this perspective.

However, this approach of studying religious behaviors in economic terms has been criticized as being a simplistic and reductionist approach within the sociology of religion. Wallis and Bruce flag the rational choice theory as being devoid of rich contextual and cultural contexts leading to an interpretative gap between the theory and the people whose behaviors are explained [156]. They argue that rational choice theory prioritizes tangible, concrete, and immediate *rewards* as opposed to everything else that seems symbolic, unreal, and promise to be provided in the far

future. In a similar vein, Spickard dissects Innacconne's postulation of rational choice theory and concludes that the assumptions of the rational choice theory are either false or vague [137]. He says, *"By reducing religion to behavior, the rational-choice approach rules a sociology of culture out of court"* [137]. Overall, the critiques suggest that rational choice theory forces religion into a rationalistic framework, which is both incomplete and incorrect. Religious people do not choose one of the available options based on their free will, but pick the 'right' one being guided by their faith and practices. Hence, they further argue that the rational choice theory should not be a generalized lens to explain how religious people behave across cultures, contexts, and other sociological particularities [40].

We acknowledge these difficulties of explaining behaviors coming from religious values and further present that religion can provide a different framing of the rationalism of HCI. Most sociological investigations can only comment on whether or not an individual coming from a social *group* has the *possibility* of performing an action [40]. This necessitates studying people in the specific social setting in a particular time and space. We argue that a more viable route would be in focusing on a particular group, and understanding their religiosity from their historical, social, cultural, and political context, instead of studying religion as a fixed text. Additionally, the minimum that critiques of the rational choice theory might contribute to our work is providing with some level of affirmation that economic cost-benefit analysis might not be enough to explain the lifestyle choices and actions associated with religious values.

3 CSCW, SUSTAINABILITY, AND RELIGION

3.1 Sustainability, Persuasion, and Habit

Development Studies [99], Economics [136], and Ecology [64] – all have slightly different definitions of sustainability. We borrow our concept from environmental sustainability literature and define the essential elements of sustainability as such: human life, conservation of ecological resources while improving the agricultural productivity, stable human growth, limited economic growth, self-reliability, and improved quality of the ecosystem [28]. Research in CSCW and HCI has adopted a similar framework for its definition. During the last decade, research on environment and sustainability has led to an emerging sub-field within HCI, namely environmental sustainability [47]. Sustainability research in HCI finds technological and policy solutions ranging from sensing and monitoring environmental conditions (e.g., [61, 93, 103]) and raising awareness regarding ecological issues to driving behavior towards sustainability (e.g., [18, 90, 94]). Mankoff et al. characterized sustainability scholarships in HCI as fitting into two broad kinds: 1) sustainability of material aspects of technology while designing them, and 2) promoting sustainable lifestyle through the design of technology [101].

A dominant genre within sustainable HCI is persuasive computing that aims to change human attitude and behavior [56]. BJ Fogg introduced a model of combining computing technologies and persuasion for behavioral changes [56, 57], which heavily contributed to this discipline. Fogg's model for persuasion (FBM) has three essential components: motivation, ability, and trigger [56]. Motivation inspires people to perform a behavior in the first place. Ability is the ease with which behavior could be performed. The trigger is a cue that initiates the behavior with the presence of sufficient motivation and ability. Works in persuasive design often analyze these three factors in a particular setting and manipulate them through technology to achieve a desired sustainable behavior in a person. Since the inception of FBM, many researchers within CSCW and HCI have extended this concept to technology design and interventions for resource management, changing users' behavior, and sensing and reporting information [29].

A notable challenge for sustainable HCI is having the changed behavior persist and turning it to a habit [114]. A habit is defined as an automatic behavior [154]. Research in CSCW and HCI for supporting habit formation and change is still nascent. Even in that small pool, there is a lack of further research that pays attention to the challenges associated with existing habitual behaviors and sustaining them [118]. Persuasive technologies' lower success rate and short-term impact might be related to its weighted focus on changing behavior rather than sustaining the changed behavior [96]. In this paper, we aim to address this weakness of persisting a behavior by identifying sustainable habits in religious communities and their relationship with divine and social reinforcements. In doing so, we draw on Charles Duhigg's thesis on the mechanisms of habit formation in his classical book *The Power of Habit*. Duhigg defines habit as a loop of *cue*, *routine*, and *reward* [50]. *Cue* is a trigger that initiates a *routine* for a particular behavior. *Reward* determines if this behavior is worth remembering for the future. This theory of forming, changing, and sustaining habits has been used widely in marketing [155] healthcare [102], among other areas. Duhigg describes habit as the root cause of individual and social behaviors. In light of this characterization of habits along with other research in CSCW and HCI, we discuss how sustainable habits could be formed through Islamic religious practices.

3.2 From Microeconomics to Ecological Economics

While a vein of HCI research builds on behavioral theories of persuasion and habit building, there has also been a criticism in HCI that the design of persuasive technologies is often grounded in the economic analysis of cost-benefits relating to individual decision-making behaviors [49]. Specifically, Dourish finds three problematic effects of existing persuasive designs [49]. First, the relegation of environmental concerns to personal moral choices sidelines issues such as indeterminacy of individual impacts, politics of material consumption in market economies, and uneven distribution of moral responsibilities in the consumer market. Second, modeling natural phenomena in economic terms evokes a neoliberal ideology that displaces the locus of issues of sustainability from social to *'homo economicus'* - an economized individual human. Third, such a framing of environmental sustainability erases much of state and corporate responsibilities. Similar research argues that persuasive design normalizes social problems into their simplified and selective versions and, consequently, narrows the vision of sustainability. [29]. Besides the aforementioned concerns, designing for sustainability involves other challenges including the failure of engaging with individual and social values originating from various sources, and thereby constraining scopes, scales, and longevity of sustainable projects [69]. Because of the influence of economic principles and other challenges, persuasive techniques frame environmental problems improperly, and thus, solutions provided for the problems do not serve intended purposes [29].

To incorporate broader insights on social and cultural aspects of sustainability, we draw on the emerging literature in ecological economics. This literature provides insight into extrinsic and intrinsic motivations for individual and group actions. For example, Williams studies water pollution and suggests that there is no generalized model for individual activities leading to sustainability; the model varies based on personal, social, and cultural statuses[162]. Similarly, Mock et al. find that personal growth, living with like-minded people, and purpose in life are some of the intrinsic motivations for engaging with causes for sustainability [106]. The role of religiously and spiritually motivated behaviors is also present in environmental ecologic literature. For example, *mindfulness*– a practice of controlling self-consciousness originated from the Buddhist culture– has been tested as a means for promoting sustainable behavior [44, 70, 76]. Similarly, Jenkins says that in Chinese traditions, ecological values are systematically embedded in religious and spiritual culture [86]. Overall, this literature in ecological economics suggests that environmental ethics is a socially constructed value, where extrinsic and intrinsic motivations for sustainability come from social

influences, religious ethics, a hope for immaterial rewards, and a sense of group-belongings. The literature in ecological economics places ecology in a broader social, cultural, and economic fabric, rather than simplifying problems of sustainability solely into economic terms. We build on the existing literature to extend its suggestions of including religion and spirituality to understand ecological problems, and bring this perspective to CSCW literature to deepen our understanding about sustainability.

3.3 Ecological Theology and Islam

The literature of ecological theology and sustainability reports on socio-cultural aspects of sustainability, leadership movements for environmental causes, the motivation of religious communities to take environmental actions, and the parallelism of religious movements and environmental movements, among others [89]. Ecological theology regards sustainability as deeply rooted in ethical and cultural values coming from religions [89]. Major religions, as well as numerous less followed ones, engage with the question of ecology and sustainability to touch issues of ethics, morality, social justice, and gender roles [89]. Though sustainability is a common feature with varying ideology in all religions (see, for example, [37, 84, 139]), we focus on scholarships related to Islamic religion to conform to the scope of our study.

Islam's promise to the environment has inspired research relating to education, awareness, values, ethics, and roles of individuals and social groups as they pertain to environmental causes. For instance, Rice studies pro-environmental behavior in Egypt and finds positive relationships between sustainable behavior and religiosity, among other values [126]. He characterizes pro-environmental behavior into three categories: a) private sphere, b) public sphere, and c) activism. He argues that sustainable public habits are primarily motivated by religion [126]. Furthermore, the study suggests that religiosity is one of the factors that helps build up societal tradition in a neighborhood that contributes to forming pro-environmental behavior. Dien asserts that Islamic environmental ethics are overtaken by the industrial culture of materialistic values and proposes Islamic rules as a ground for revising and reforming international law for the conservation of the environment [45]. Besides academia, environmental activism inspired by Islamic religious ethics is common not only in Muslim majority countries but also in the western world (see, for example [43, 132, 159]). This strand of literature demonstrates the moral and ethical dimensions of Islamic religious values in the service of sustainable causes. We extend this understanding and contribute to CSCW by exploring motivations and habits of Islamic religious communities to design persuasion for positive behavioral changes and persisting habits.

3.4 Religion, Technology, and CSCW

A strand of research in HCI, CSCW, and other related areas discusses how design can support religious practices, and conversely, how religion can inform design. For instance, in a recent CSCW work, Ibtasam et al. study Muslim women's technology use within the family in Pakistan, in which they suggest that design be inclusive of religious values when providing Muslim women access to technology [82]. Wyche et al. conduct a design-oriented study in the US and Kenya with a goal to understand the relation between faith-based worldviews, ICT design, and adoption [164]. They conclude that many secular and religious interests are often intertwined, where a straightforward extension of current technologies might support use of technologies for religious purposes. In several other studies, Wyche and her colleagues provide insight into the relation of design and religious values [165, 166]. Woodruff et al. study Jewish families' use of home automation technologies for religious purposes [163]. They assert that the religious communities surrender control to their God and aspire to have as small a footprint on the earth as they can. They extend this finding to suggest that such giving up of control could be a valuable design space to explore in domestic settings

as well as spiritual purposes. Outside of HCI, Campbell and her colleagues explore the relation of religion, internet, and technologies in a series of works [33–35]. In a study of "Kosher" phone use in Israel, she concludes that religious values related to technology are similar to the values they attach to other aspects of communal life [32]. This work reinforces that people's individual and community values rooted in religion are extended to their use of technologies. Overall, the works in HCI, CSCW, and media studies reveal that people reflect their religious values in using technologies. In doing so, they often "design" their own usability of technology aligning with their values, norms, and culture.

In summary, the works above along with others [110, 111] indicate that: (a) religion is a source of many core values and practices that shape the design and use of technologies, and (b) incorporating religious diversity in design contributes in assuring a more equitable technology. Such works relating to religion, design, and technology in CSCW and HCI fall broadly, as Buie and Blythe categorize, into three major classes: institutional, practical, and experiential[3] [30]. The works involve the adopting and adapting of technologies by religious communities, enabling people to help perform religious activities and rituals, and mediating religious experience through technology. The studies described above inspire and inform our work in exploring the lifestyle and socio-religious values of people in Bangladeshi Islamic religious communities. Our contributions in this paper partly intersects with HCI's scholarship of exploring entire systems of values, which Ames et al. call 'values in collective praxis' [16]. We additionally explore religion as a powerful apparatus to achieve one of the CSCW and HCI's central thematic goals, environmental sustainability.

4 METHODS AND FIELDSITES

The initial orientation of our field study was toward understanding how the Islamic religious communities in Bangladesh are adopting new digital technologies, and how the new computing technologies are changing their lives. However, we were also keen to understand these issues from a broad social, cultural, and political context of these communities, and hence, we were ready to explore different aspects of their lives and the historical development of various practices embedded in their community life. To this end, we conducted an ethnographic study from March to August of 2019 in six mosques, three *madrasahs*, two orphanages, and one Trust in Kushtia, Bangladesh, to understand attitude, motivations, habits, and lifestyles–all that are related to environmental ethics, resource consumption, and sustainability in Bangladeshi Islamic religious communities. Additionally, we attended two Islamic congregations, known as *jamat* in Bangladesh. The methods involved semi-structured and unstructured interviews, participatory observations, making biographies of *imams*, and contextual inquiries.

Recruitment and Procedure. All of the authors of this paper were born and raised in Bangladesh. All authors are Bangladeshi Muslim and have familiarity with Islamic culture in Bangladesh. One of the authors has been living in Kushtia for the last 16 years. He is a regular attendee in his community mosque. His connection to his local mosque helped him get introduced to the other mosques in the town.

At the beginning of the study, we took part in daily prayers and other rituals in mosques, were introduced to the mosques' clerics and the committee members of the mosque. The introduction with the clerics happened through general Islamic inquiries about religious regulations on contemporary issues. In traditional Muslim communities, mosques are treated as the center of religious rituals and many cultural activities, where the *imam* is respected not only for his daily prayer services but also for his religious literacy and wisdom. Although this is not a common practice in recent

[3]There have been only a handful amount of more works on religion have been done in HCI after this publication. However, this review of the literature has not changed significantly.

Meaning of Islamic/foreign words/terms	
Religious word	**Meaning**
Aamir	The administrative secretary of a Jamat
Amanah	Fulfilling responsibilities and Trusts
Imam	The person in charge of conducting spiritual and religious activities
Jamat	A religious group traveling to mosques for religious training and preaching
Khadem	The person helping mosque in logistic works such as cleaning up, buying necessary equipment, organizing the mosque for any event, etc
Muazzin	The Muslim official of a mosque who summons the faithful to prayer from a minaret five times a day
Madrasah	Islamic religious school
Talim	A women group meeting regularly for the purpose of religious education
Ulema	Islamic scholar
Ibadah	Islamic jurisprudence of Muslim religious rituals
Khutbah	Public preaching in Islamic tradition
Jummah	Friday or congregational prayer in Islam
Sadaqah jariyah	Continuous charity
Neki	Islamic immaterial (often expressed in quantified form) return of good deeds
Jihad	The spiritual struggle within oneself against sin
Sunnah	The way of the prophet
Maktab	Religious morning schools for children
Dua	Summon
Haram	Prohibited
Ulemas	A body of Muslim scholars recognized as having specialist knowledge of Islamic sacred law and theology
Shirk	The sin of idolatry or polytheism
Tawhid	Unification or oneness of God
Khilafah	Stewardship
Akhirah	Hereafter

Table 1. Meaning of Islamic/foreign words used in the paper.

times, *imams* appreciate and are encouraged when someone comes to them to discuss religious or non-religious topics and asks for their Islamic suggestions. This welcoming attitude of *imams* created a common interest between us and *imams*; we, as researchers were interested in ecological ethics within Islam and *imams* had the inspiration to offer their knowledge on that. Every time that we went for prayers in the mosque, we approached *imams*, asked fundamental questions about Islamic wisdom on environmental issues, and followed on with the discussion. By doing so, we established a relationship with the imams and other clerics in the mosque.

As we got familiar with the mosque community, we expressed and discussed our research agenda with the clerics. Upon their consent, we requested that the mosque leaders introduce us to nearby *madrasahs*, *jamats*, orphanages, and Trusts. Over the following two months, we conducted an initial exploration to understand the lifestyles of the religious communities. After the exploration, we

conducted 27 interviews with mosque leaders, *madrasah* teachers and students, mosque logistics, committee members, *jamat* attendees, and people in the mosque neighborhoods. The selection of participants followed a snowball sampling method [66]. Through interviews, biographies, and contextual inquiries, we tried to gain insight into the religious communities' general knowledge and awareness of environmental elements, conservation behavior, motivation for resource conservation, religious education on ecological issues, and activism for environmental issues. We conducted 22 semi-structured and five unstructured interviews. Each interview took 35 to 45 minutes to complete. Interview participants include *imams*, *muazzins*, *khadems*, committee members, and attendees from mosques; students and teachers from *madrasahs* and orphanages; and founders and donors of the Trust. Participants were aged between 15 to 60 years. We conducted the interviews in Bengali and then transcribed and translated into English for analysis. The study produced more than 17 hours of interviews, four biographies, more than two hundred pictures, and more than a thousand pages of field notes.

Data Analysis. We analyzed the data from interviews and contextual inquiries following the theoretical analysis approach [115]. The analysis started with some predetermined themes, including motivations, lifestyle, and habits as they relate to environmental ethics, sustainability, and persuasion. The themes were informed by our reading of four literature: sustainability in CSCW and HCI, ecological economics, ecological theology, and sociology of religion. The themes were all related to our research questions. We were open to other themes and sub-themes as the analysis advanced. Two researchers separately started analyzing data through several rounds of reading of the transcripts. We then intuitively highlighted the transcripts' relevant parts, which were meaningful in answering our research questions. In highlighting transcripts, we considered predetermined themes and remained open to any emerging themes as well. We then employed open and axial coding to explore patterns and cluster data based on the patterns [38]. We combined patterns into predetermined and emerging themes. The predetermined themes were connected to any emerging themes related to them. We also used non-highlighted data for contextual cross-checking and meaning-making with the themes. During the analysis, all the members of the research team met to discuss codes and themes weekly. The aggregation of data from two analyzers was based on the consensus of the research team following a thorough discussion of the codes and themes. The findings reported in this paper combine predetermined and emerged themes and sub-themes.

Our findings involved many foreign words, mostly Arabic, Urdu, and Persian. Participants of our study also used verses from the Quran or Hadith. A member of our team is proficient in the languages because of his *madrasah* educational background. He transcribed the sections in foreign languages for contextual correctness. In doing this, he discussed multiple contextual meanings of foreign words and sentences with the rest of the research team and used the most appropriate one that reflects contextual and normative meaning for Bangladeshi Muslims.

Research ethics, protocol, and data privacy. The study protocol was approved from the first author's research ethics board for human subject research. We followed the ethics board's guidelines in participant recruitment, consent process, compensation, and data storage and analysis. The risk communication and data privacy preservation followed guidelines from the research ethics board. Only researchers in this study had access to the data. As soon as data were transferred to the first author's locked computer, the recorded file was deleted from the recording device. Transcripts and other written data were stored in a locket cabinet owned by the first author. All authors of this paper are certified by the official training on conducting human subject research.

Gender Inclusion. A major methodological aspect of our study is that, being male researchers, we were not allowed to connect to the women in *madrasahs* and mosques due to the administrative and religious restrictions. As a result, our study is heavily biased toward male participation. This is a common constraint in many ethnographic fieldworks with Islamic religious communities.

We acknowledge that directly engaging with female participants might give us more insights into Islamic sustainable practices, which we have missed here because of the gender (male) of the ethnographer. However, the Islamic scholarship has developed research methods that respect this gender norms, and an outsider (not directly related person) male can only learn about the female members of a family through the male members of that family [1]. These methods allow an ethnographer to gather only the knowledge that the male members of that family or community are willing to share. Having said that, we also highlight that the *madrasah* education, social interactions, and family cultures that we report here are not entirely isolated from female views. Although two out of the three *madrasahs*, one orphanage, and the Trust have separate female wings, they are run by the same administration, and they have the same set of educators. Hence, we have not entirely missed the female perspectives. However, we acknowledge that this insight would be significantly stronger, and possibly different, if we had female participants. We also want to acknowledge that discrimination and violence over women are major problems in Bangladesh [6, 7, 9, 74, 107]. While we do not know the extent of that problem in the communities that we studied, that might still be a concern here [82]. Hence, their voice might reveal some problematic pictures to the study and impact the overall message. In our future work, we aim to overcome this challenge by having a female field researcher with us who will be able to study the Muslim women in these institutions. We also want to mention that, while there are very few exceptions, women usually do not have access to Bangladeshi mosques and *jamats*. So, the scope may still remain limited. Nonetheless, we acknowledge this methodological constraint in this study, and we want to situate our findings within this methodological scope.

4.1 Fieldsites

Kushtia is a countryside city in Bangladesh. While many people move to Kushtia for jobs, education, or business, the majority of the population is native. There are two dominant religious affiliations in Kushtia: Islam and Hinduism, although some people with other religious affiliations are also found in the city. People in Kushtia regularly participate in religious and spiritual festivals and activities. Religious and cultural homogeneity has created a strong communal bond among the local people.

Our studied mosques are situated in the Kushtia municipality, which is divided into various "wards". Most mosques are located in quiet neighborhoods, while the rests are roadside mosques adjacent to busy markets and shopping areas. We studied two types of *madrasahs*: *Alia madrasah* and *qawmi madrasah*. *Alia madrasahs* combine religious education with mainstream education in Bangladesh. Unlike the *alia madrasah*, *qawmi madrasahs* run autonomously without any influence from the government. Some *alia madrasahs* and most *qawmi madrasahs* offer accommodation, food, and other necessities to the students who require them.

Besides *imams* and other logistic supports, all mosques have a local functional administrative committee. People in the neighborhood voluntarily serve in these committees. *Madrasahs* and orphanages are often co-located and operate jointly in Kushtia. They have both residential and non-residential teachers. The *madrasahs* and mosques are usually run by community funding; however, sometimes they receive government and non-government funds, too.

5 FINDINGS

We start our findings by informing the kinds of motivation that exist in Islamic religious communities for their behaviors that eventually turn into habits. Along with the motivations, we provide examples of cues and triggers that drive people in the community to perform their behaviors and maintain their habits over time through religious control and restrictions.

5.1 Motivation and Triggers

Motivations and cues for sustainable behaviors in Islamic communities root back to the love of the God and His messengers. Islamic religious motivations emerge from the Quran, Hadith, prophet and his companions' lifestyle, and *ulemas* suggestions based on Islamic holy books.

5.1.1 Education with Spirituality. Islamic leaders and educators emphasize effective education for environmental awareness and positive behavior towards the environment. They do not see the environment as a discrete item of attention, rather as embedded in the other aspects of life. As with other religious activities, the motivation for doing something for the environment starts with the awareness about it. A 30-year-old *imam* was explaining this:

> People are busy with their life; they don't have much time to study [holy books]. Now, if one does not know what happens to the environment when they cut a tree, they will simply do that whenever necessary. Doing something positive starts from knowing what is positive, right?

The *imam* then extends that this awareness of the environment is ultimately to please Allah. The care for the environment comes from caring Allah,

> As a Muslim, everything you do in this life is an *ibadah*. *Ibadah* is not merely saying prayers or fasting during Ramadan, etc. Rather observing Allah's order in every aspect of your life. This is true that Allah has created everything in this world for your need. That does not mean that He has given you the permission to misuse natural resources. If you do that, you are actually engaged in sinful activities. People should know this distinction of use and misuse of natural elements.

We have observed programs for educating people both in formal and informal settings, such as mosque *khutbah*, morning schools, orphanages, *madrasahs*, and *jamat*. One common aspect of Islamic education is mixing spirituality with information. Rather than just delivering information, Islamic educators are motivated to fit the information into Islamic rhetoric and everyday practices with a goal for broader gains in this life and afterlife. During *jummah* prayer, we have seen *imams* often picking up Islamic poets, songs, or even stand up jokes to highlight spiritual aspects of a particular topic. A 43-year-old *madrasah* teacher was explaining this:

> Think about the mainstream education. All forms of education are good. Students know and become aware of the society and the surrounding. But what is missing from the other kinds of education is the teaching about purifying the soul. You know, planting a tree is good for the environment, but what matters more to me as a Muslim is planting a tree is also a *sadaqah jariyah* (continuous charity)[4], when people will be eating fruits from that tree. We do this [plant tree] in the *madrasah*. We give special attention to how people should live with moral and ethical regulations with the purity of their soul.

The teacher continues:

> When you die, there will be nothing that will follow you except for a few things. *Sadaqah jariyah* is one of them. How much does it cost for you to plant a tree? Whenever someone gets fruits or even shade from the tree, you will continuously get blessing from the tree until the day of resurrection. Now, you do the math.

Combining scientific and social knowledge with divine interests helps people put the information into the perspective of their lived experiences. As a result, our participants can make more sense of the information and act accordingly with greater motivation.

[4] *sadaqah jariyah* is continuous or running charity. When a charity is made repeatedly, that is called *sadaqah jariyah*. [5]

Our findings demonstrate that Islamic educators are not confining themselves to religious scholarships, rather extending their knowledge to include modern science. This has been made possible due to their easy access to the Internet. It was common in our study that mosque clerics informed us about their social media usage in seeking good sources of both religious and scientific information. Some of them listened to YouTube videos to keep up with contemporary issues. While preaching, *imams* make references to scientific sources as they think their arguments become more convincing to the youth. One young *imam* (23-year-old) was explaining their interest for scientific sources to us:

> You have to understand people in the community. They won't believe anything and everything I say. I have to understand the [scientific] way they perceive and believe things. I don't see it [scientific] as unnecessary and irrelevant at all. Science says that the tree gives us oxygen. Can you present evidence [from the Quran or Hadith] that it is false? If not false, what's wrong referring to this. Maybe there are *imams* that hate science just because they don't know enough. Or there are people [with scientific values] out there, who mock religion comparing to science that might make many of us [*imams*] hostile to science in turn.

Although people in religious institutions show their interests in using technologies to keep them up to date, they sometimes struggle with use of the Internet and other applications of their mobile phones. The difficulty arises from the limited knowledge of the English language. People in Islamic institutions are more proficient in Arabic and Bengali than English. Although three participants were proficient in English language, the rest of them were not. The Arabic language is a "holy" language to them as the Quran is written in Arabic. So, when our participants search something, they usually attempt to search in Arabic because of their bias for the language. When they fail, they try Bengali. As most of the resources in the Internet are in English, our participants often report their experience of searching as frustrating. Below is an excerpt from our ethnographic notebook that shows the frustration of a 32-year-old participant who is a *madrasah* teacher:

> He is trying to explain to me the environmental activism of a British Islamic organization, but he does not remember the name now. He tried to remember the same institution while preparing for one of his classes, but failed to find anything on the Internet. He takes his phone [a smartphone with updated features] and opens an app. "*What app is this?*" I asked. "This is an app where you can search in Arabic. You can also search [contents] from the Quran and Hadith here." He said. I asked, "Can you not search on [a popular search engine]?" "Yes, but I seldom find useful things there. They are probably not for me, they are for modern people. But the good thing is, there are some other apps, where you can search in Arabic."

In summary, religious educators and leaders stress on combining information with divine spirits. The information becomes valuable to the Islamic communities when it is expressed through a tone of divine spirit. To Islamic communities, love of this universe emerges from the love of Allah. When a piece of information holds this spiritual element of love for Allah, the motivation among people to remember the information is strong enough to potentially drive them towards positive behavior.

5.1.2 Sadaqah Jariyah. *Sadaqah jariyah* is an Islamic concept where someone makes continuous charity. The traditional concept of charity is either related to material givings or voluntary help for others. In Islamic principles, *sadaqah jariyah* is not limited to material givings or volunteerism, but also extend to deeds in various forms. Our participants reminded us that this form of charity is not motivated by an immediate pleasant feeling; rather it is to benefit them after their death. Twelve participants referred us to the following Hadith,

The Messenger of Allah (PBUH) said, "When a man dies, his deeds come to an end except for three things: Sadaqah Jariyah (ceaseless charity); a knowledge which is beneficial, and a virtuous descendant who prays for him (for the deceased)."(Muslim)

Our findings show that *sadaqah jariayah* is a concept that is strongly related to the goal of sustainability. This notion motivates our participants to be involved in ceaseless sustainable practices. Participants do not only make this kind of charity for their own religious gain, but also for their close family and friends. In each orphanage, we found that funding came from outside sources, mostly from the offspring of deceased persons; who believed their parents would be rewarded for caring for the sustenance of orphans. One whole floor for the accommodation of orphans was made by a singular mosque member (47-year-old), who believed that this donation would be worthwhile for his departed wife. The person was describing his motivation for this:

> I am an old man now. My wife is no more on this earth. I miss her so much. What can I do for her other than praying and making arrangements so that other people pray for her! As long as the orphans study the Quran here, my wife will be blessed. It's like, you opened an unlimited account for prayers.

During our fieldwork, we have seen examples of people building community facilities, such as public toilets, garbage, water facilities, etc. They tend to believe that as long as people will be benefited from their constructions, they will be rewarded in the hereafter. Two *madrasahs* informed that they had donors this year to plant fruit trees on the premises. Their hope is that when orphans and other *madrasah* students will eat food from the trees, they will obtain reward in the form of *sadaqah jariyah*. One mosque in a neighborhood set up a drinking water dispenser right outside of the mosque premise. The *imam* of the mosque explained that as long as people drink clean water from the dispenser, Allah will continue giving *neki* to the donor that will help him go to heaven after his death. The above and other forms of charity often come in secret from donors. As described by an *imam*, people often do such charitable works to help poor and underprivileged people in secret as rewards are multiplied in Islam when a good deed is performed in confidence.

5.1.3 Social Acceptance. People with a simple lifestyle are respected in our studied communities. Despite being wealthy and prosperous, many people choose to adopt simple living out of their divine motivations. They maintain a close ties with mosques and other social organizations. We have seen them offering their services to the local mosque committees. Other people in the mosque community follow people with simple lifestyles as role models in their own life. People seek out advice on their social, political, professional, and even personal issues from the people with a simple lifestyle. Social image works both as a source of motivation and trigger to initiate behaviors in society. A 42-year-old community member was talking about such a person with a simple lifestyle:

> Look at him [pointing to a person who is familiar as a wealthy person, despite have a simple lifestyle], any egotism or narcissism? He is all settled in his life; educated sons and daughters are all doing great jobs. He himself has a lot of wealth. Did you understand this when you saw him first? You will see him helping everyone in this neighborhood. We all love him.

To emphasize the simple lifestyle and its social significance, an *imam* was giving us the example of the life of prophet Muhammad (pbuh):

> Do you know what kind of life our prophet lived? Despite being the ruler in the Arab, he used to live in a house made from palm tree leaves, would you do this? We, as His followers, are supposed to live a simple life as he did. But we don't do it; we spend as much as we can. The people who really live a simple life despite having everything are the real example of the greatest *jihad*.

Because of the simple lifestyle followed from Rasul (pbuh), it is a *sunnah* in the Islamic community. This *sunnah* was closely observed by *sahabis* of Rasul (pbuh), many of whom were even rulers of states. To observe this *sunnah*, participants suggested avoiding luxuries in eating habits, clothing, housing, transportation, and other needs in their life.

5.1.4 Care, Cooperation, Collaboration, and Affordability. Even though Islamic institutions intend to engage in social services, they often cannot do this alone because of their financial and infrastructural limitations. When NGOs and local governments take the initiative to partner with religious communities on issues related to public health, disaster management, and environmental causes, Islamic institutions welcome such collaboration to serve their communities. Because of the easy access, quick response, and contextual actions, Islamic institutions are often the quickest parties that the government reaches out to seek out help. Below is an excerpt from the field that shows how mosques and *madrasahs* helped the government combat the Dengue epidemic in Bangladesh [125]:

> The city is going through one of the most tense moments in recent times as the outbreak of Dengue fever in Bangladesh hits a record number of patients. This week, the government requested the Islamic Foundation, an autonomous body under the ministry of religion, to issue a letter to appointed *imams* of mosques asking for help. The letter requests *imams* to guide people in the community to clean up the mosques' premises as well as the neighborhoods, and to address Dengue in the weekly Friday sermon. The government also instructed to use the mic in the mosque to broadcast precautionary and preventive measures in the community. Abdur Razzaque, a man of nearly forty-five who oversees mosque affairs in Islamic Foundation, talked to us about this, *"imams will discuss this issue at length as well as help carry out clean-up activities. This will not only be limited to this initial initiative; there will also be back and forth follow-ups with the government. Allah gives us difficult times to test us. If we give our efforts and belief in Him, He will help us."*

Imams of the mosques showed a very positive attitude towards this letter. Five *imams* reminded us that *imams* are supposed to be the leaders of a neighborhood who will guide people on a good path [to Allah] and help the community when necessary. An *imam* informed us that he studied about Dengue fever and its prevention online. He included what he had learned in his weekly sermon. His lecture consisted of a few verses from the Quran that emphasize all the predicaments that are taking place because of the mischievous deeds of human beings, an incident regarding how the prophet's companions grappled with plague epidemic, and some generic suggestions to both prevent and recover from Dengue fever. The people in the community appreciated this effort.

During our study, we have seen several examples of religious institutions collaborating with local and national organizations in tree plantation programs, cleanup activities after Eid-ul-Adha, vaccination programs, pest control campaigns, and other social activities. The organizations work as triggers for their motivation for engaging themselves with environmental causes. In addition, mosques and other institutions provide the government and NGOs with complimentary resources, such as community contacts, volunteers, facilities, and other logistic support.

The partnership with external institutions enables religious communities to perform social activities with ease, ones that they are not capable of doing alone. On the other hand, despite the strong motivation, people cannot organize all environmental projects. One mosque gave us an example of their inability to launch a communal waste cleaning program. In Kushtia, there are communal spaces that are shared by people. People show individual interests in cleaning the spaces, but they also mention that cleaning up shared spaces is not one's sole responsibility. A mosque member was explaining this, *"See, I cannot afford to clean it alone. If everyone involved in this space comes, I am happy to work with them."* The mosque committee demonstrated their interests

in organizing the communal waste cleaning program, however, they did not find an easy way to bring together all individuals that share a common place and want to clean that space. They also did not find a stable way of financing the program. We have often seen such examples where the Islamic organizations fail to coordinate community-based environmental projects due to financial limitations and lack of collaboration at the right moment ([129] reports similar causes).

5.2 Habits

When people are motivated to perform a behavior multiple times, the behavior becomes a *habit* [50]. Many religious motivations lead to behaviors performed enough times to eventually turn into *habits* [67]. When a habit is formed, the external forces or motivations to do the particular task fade away [67]. For example, saying *salam* (Islamic greetings) is a very common *habit* in Muslim societies. Before becoming a *habit* or norm, people perform it as a form of religious practice imposed by Islamic regulation. For example, children are often instructed to say *salam* to people when meeting them. As this behaviour is performed many times by many adult Muslims, it becomes an habitual expression of greetings and norms.

Our findings show that people with religious values demonstrate many kinds of habits. The habits are formed during childhood from and through family education, religious schools of various forms, everyday interactions within their community, and Islamic texts. Our ethnography explores different kinds of habits that have both direct and indirect implications for sustainability.

5.2.1 Building Habits During Childhood. Religious lifestyle is motivated by the spiritual belief that good deeds will be rewarded and bad ones will be punished in this world and hereafter. Such hope for rewards and fear of punishments encourage a sustainable lifestyle from childhood on. *Madrasahs*, Trusts, and other forms of religious schools train people to build sustainable living habits from childhood. Mosques and local *madrasahs* offer morning schools for neighborhood children, which they call *maktab*. The schools offer a class from one to two hours. Children from the mosque neighborhoods attend the schools. The morning schools are free; however, students are encouraged to donate a small amount of money for operational purposes. The morning schools play a vital role in introducing Islamic values and creating values on the environment among children. A 40-year-old *madrasah* teacher was talking about the morning school:

> Look at the children, they are less than six years old. The *madrasah* [he meant a temporary morning school in a mosque] starts from 6 am. The children wake up at that time, sometimes pray with their parents, and then they come to the mosque. We have an assembly for physical activities. Here, they understand the importance of a healthy and routine lifestyle. In school, besides Quran and Hadith, we teach them *duas* for activities along with the meaning and significance of the *duas*, say *dua* for ablution, bath, etc. The significance of *duas* are what they appeal you to understand, the praise of Allah and his all creatures. When we teach them [the children] the activities, we also stress the aspects of resource consumption, wastage, say, they cannot use more than one liter of water for the ablution, this is *sunnah*. Children need to learn them from their childhood. Whatever they learn now, will persist forever. If we perform the same activity, we will eventually carry that throughout our life.

As described, religious educators and trainers build these habits through performing the same task everyday at the same time. This is similar to the process that Duhigg describes in forming a habit [50]. Whenever the habit is formed, it takes less effort to perform it in the future. Religious educators do not only restrict their training to the school, they often consult with the parents of their students to reinforce the training of forming habits.

5.2.2 Habits Through Rituals and Lifestyle. Religious communities emphasize building habits through performing rituals and daily routine. Almost all of our participants referred to the idea of performing five daily prayers to emphasize the importance of and way for building habits in Islam. One *imam* was explaining this and its connection to environmental sensitivity:

> Think about daily praying five times? Do you think it's easy? No! It is never easy. However, if you pray five times a day everyday, at some point it will be easy. Have you seen people praying at running buses, and in other extreme situations? How do they do that? Because, it has been their habit. This is similar for the consciousness of the environment. Satan will always invoke you to spend more [money or resources]. You cannot control yourself easily, humanity is made in this way. But you have to learn to control your body and mind. It is a constant *jihad* with your mind. You have to build your habits to do that.

Imams do not only suggest that people pray, but also that they come to the mosque and pray with others in a congregation. *Imams* see this as a good way to make a very concrete routine every day and allow people to plan other important tasks around this routine. They also see it as a habit of building a healthy life.

The training of building habits happens through other rituals and practices among Muslims. We followed a *jamat*, an Islamic preaching program where a group of people travel to a mosque other than the one in their neighborhood. The group spends three or more days together and conducts activities such as preaching, inviting people to Islam, conducting Islamic educational sessions, etc. During this time, they cook their own meals. Below is an excerpt from our field-note from a *jamat* that shows how Islamic assemblies reinforce habits of low consumption and low wastage:

> It is two hours prior to the midday prayer. Aamir, Mr. Amin, the captain of the *jamat* calls the person assigned to cooking today's lunch. Two junior members that are helping Mr. Amin are about to clean up and throw away the skin from a peeled squash. Amir intervenes and asks for suggestions from other members to find ways to cook them; one comes up with the idea of mashing it. Mr. Amin finishes the cooking and joins others in the midday prayer. After that, they gather together, bring out some large plates; four people can eat together from the same plate at a time. They eat together in groups of four people from each plate. In the end, there was some leftover food on a plate. Amir asks a member to finish that up; the member abides by the request and finishes the food. Amir talks about it later to the group, *"All praises go to Allah, He has given us the ability to eat together. Food is very precious; you cannot afford to waste any food; Allah says in the Quran that he does not like those who waste food...you will be held accountable to Him in the judgment day if you do so. Not only you, talk to your family members about this. Sit with your kids for meals, teach them not to waste anything. You and your wife have the responsibility to teach this to your kids. If you don't tell them the right things to do, you are not playing proper roles as good parents."*

The above examples and many others in Islamic communities show the building of habits through prayers, meditation, social engagement, preaching, donations, volunteering, and fasting. Such habits have direct connections to sustainable behavior such as building habits of less food waste, less consumption of natural resources, resource sharing through *sadaqah* or *zakat*, and so on. The intrinsic benefit of Islamic habits is that it is a form of continuous training to achieve a greater control of the body and mind.

5.3 Sustaining Habits through Control and Limit

The findings above show the formation of habits through motivations grounded in religious values. The habits are further sustained through religious restrictions and control. The restrictions come from Islamic guidance and are adapted in the course of the lived life in individual, social, and institutional settings. Religious people show adherence to Islamic restrictions primarily for their love of Allah. This control is further reinforced simultaneously through the fear of punishment and in the hope of reward in this world and the hereafter.

5.3.1 Self-control. Our participants repeatedly invoked the idea of *jihad* to show the significance of self-control in every aspect of life, including material consumption. A 27-year-old young Islamic educator was explaining this:

> Look, people misunderstand many things in Islam. Think about the word *jihad*; a meaning of this is control, you have to control yourself from committing sins, control your mind from Satan, control from enjoying this-worldly luxury so that you go the *jannah* to achieve your ultimate luxurious life. Think about your prayer time. *Satan* will try to distract your mind from Allah; you have to keep trying to focus your mind towards Allah. It is a lifelong process. Similarly, your mind will always wish to consume more. If you get more, you will want even more. To save yourself, you have to declare *jihad* with your own mind. This [self-controlling] is hard, but when you learn to do it, Allah becomes happy to make your goal [of self-controlling] easier.

Participants described the Islamic obligation of fasting as a symbol of self control. During the month of Ramadan, Muslims restrict themselves from food or drink of any kind, from the dawn to dusk. With the primary goal of pleasing Allah, participants referred to fasting as means of showing empathy to the poor who suffer from hunger. This obligation is not only about fasting, but also to refrain from wrongdoing of all kinds such as telling lies, fighting, back-biting, and so on. When people fast, they also perform the training of self-consciousness to refrain from such everyday wrongdoings, which our participants referred to as an opportunity to control the mind and purify it. We found some of our participants fasting during day-times even when it was not even the *Ramadan*. Another example of material self-control is *zakat*. This is a mandatory obligation in Islam, where people have to donate a percentage of their wealth to the poor. During the Eid-ul-Fitr which was around the time of our study, we observed affluent people donating money and clothes through mosque leaders. Islamic leaders often explain this obligation as a way of establishing equity in society. We talked to a 37-year-old businessman in a neighborhood about this:

> Allah has given me enough. Giving *zakat* is the best possible way to be grateful for my wealth to Allah. Poor people take our money and pray for us with their whole heart, what else could I expect! Allah is happy, so are the people who get the money when they need it. Whoever is not giving the *zakat* even after being eligible is violating Allah's order. They won't have *barakah* [Allah's blessings] in their wealth.

Another form of divine control observed in our study involved digital technologies. Participants in our study showed their concern for *haram* content in social media and other spaces in the Internet. Encountering *haram* content is sinful for them, and thus, they have to use technology in a controlled way. Participants reported limiting their technology use, or often abandoning technology altogether for the fear of encountering *haram* content. However, we have found some participants using adaptation techniques to avoid prohibited content online. The techniques include filtering, ignoring, blocking, and making case-based justification.

Islamic *ulemas* often interpret holy texts to suggest case-based scenarios of technology use while not violating any Islamic rule. For example, our participants mentioned a set of rules while using

social media, such as avoiding interacting with people of the opposite sex, seeing *haram* content, etc. While adhering to such guidelines, they assert that the use of social media could also benefit them. Besides dependence on religious holy books, Islamic leaders compare technology use with their real-life habits involving Islamic obligations. For example, people explained that interacting with the opposite sex online is similar to interacting with them in real life. Islam suggests refraining people from wrongdoing and prohibited things in real life. Similar rules should apply while using technology. A 45-year-old *imam* was providing his justification for using Facebook:

> You are not supposed to stop [using Facebook] because there is a chance of encountering *haram*. Islam suggests to refrain yourself from *haram*, not to stop doing something. Whenever I see a female on Facebook, I don't stay there; just what you do in real life. Whenever you go to the street, you see women without proper veils. For that, do you stop going to the street at all? [...] That is what is called 'jihad'; controlling your body and mind to keep yourself safe from wrongdoing.

5.3.2 Social and Institutional Control. Societies and religious institutions act as the second checkpoint for self-control as well as setting social standards and measures. *Madrasahs*, specially *qawmi madrasahs* and residential orphanages, impose strict rules on students' daily activities. The students follow a daily routine every day. All students–coming from both poor and wealthy background–are treated equally according to *madrasah* regulations. No student is allowed to break any of the rules. This institutional control teaches students the value of discipline, equity, empathy, self-monitoring, and perseverance, among others. A 35-year-old teacher in residence gave us an example of mobile phone and social media use in their *madrasah*:

> All students here are under 16 years of age in this *madrasah*. This is a very important time in life. Whatever habits, attitude they make, whatever they learn, everything...they [the values] will persist in their whole life. Social media might help when they grow up, but in this age they will misuse this and do *haram* activities.

Besides *madrasahs*, mosques also build a neighborhood culture that imposes indirect social restrictions. Many forms of control come even without any influence from the mosque. Mosque committees from several neighborhoods form a coalition with people in the community to deal with issues related to waste management, neighborhood security, preventing gambling, among others. For instance, people in one neighborhood used to throw garbage outside of the dumpsters, but after a meeting in the mosque about this, community neighbors were given the responsibility to track the people who do this. One committee member said to us after that, "you will not see them [garbage outside of dumpsters] anymore. It's not like people are policing each other; its the fear of socially getting condemned." As well, mosque neighborhoods often help local law enforcement agencies with urgent local issues in order to keep the community safe and under control.

6 DISCUSSION AND CONCLUSION

In the section above, we have presented motivations, training, habits, and lifestyles that constitute sustainable living in Bangladeshi Islamic communities. We have illustrated how the sacred spirit shapes this lifestyle through a system of institutional and social training that turn behaviors and actions into habits. Furthermore, we have shown how habits persist through Islamic controls and limits. The findings show how sustainability is achieved through religious sacred motivations, contextual cues, persistent habits, and social controls and restrictions. The study provides important lessons for persuasion in particular, and sustainability in general. In the remainder of this section, we discuss the key takeaways from our study with implications for theories and practices of sustainability in CSCW and HCI.

6.1 Rhetoric of Sustainability: Beyond "Modern" and "Rational"

6.1.1 "Modern" and "Rational" Rhetoric and their Limitations. Our study highlights the limitations of the modernistic and traditional rhetoric of persuasion and sustainability to describe its presence at the Islamic religious communities in Bangladesh. Persuasive sustainability in CSCW and HCI is reflective of modern and rational values (save for a few exceptions) [29]. In a modernistic framing, consumption is *calculable*, consequences of consumption are predictable through *sensing* and *measurement*, and users are *efficient* and *rational* enough to take a decision based on an optimization function done mentally. Modernistic logic, metaphors, and languages have shaped the framing of sustainability, languages of the discourse, nature of theories and concepts, and solutions to problems in a way that left little room for alternative arguments. As a result, the voices of the people who on the margins and the ones outside of modern scientific and rational frameworks have been silenced in sustainable CSCW/HCI studies.

Many studies in HCI4D and post-colonial computing have shown how modern assumptions collapse when they are transferred to a region governed by different moral frameworks, spiritual orientation, and local practices [9, 83, 105, 141]. For instance, Sultana and Ahmed's study of witchcraft in health care practices explores tensions between modern science and faith-based practices [141]. They demonstrate how the moral framework in rural Bangladesh is formed through a communal harmony, which is different from the modern 'secular' and 'universal' ethics [141]. They suggest engaging with such communities with "alternative" rationalities along with the modern scientific ones to be able to better approach the moral aspects in HCI. In line with their suggestion, we engage with Islamic religious communities and others that likewise have alternative values, metaphors, and languages of sustainability. We believe the inclusion of diverse rhetoric will benefit sustainability research by providing a more robust political strategy. To this end, we discuss below the characteristics of the sustainability rhetoric in Bangladeshi Islamic communities and discuss how existing conceptual resources in CSCW and HCI could engage with this rhetoric to advance the goals of sustainability.

6.1.2 Islamic Sustainability Rhetoric. The difference in rhetorical interpretation of sustainability between our studied communities and the modern scientific ones is rooted in the difference between moral prudence and religious moral actions. Religious moral actions are different from moral prudence in that the former are related to pleasing the "sacred" (what Max Weber considers as *soteriology*) as opposed to the latter that refers to the actions one performs out of their own judgment and interests [40]. For example, our participants often refrain themselves from over-consumption out of the fear that their action would displease Allah. A non-religious modern scientific person might do the same because of their care for natural resources. Both our findings and existing literature show many examples of such differences in moral actions and consequently, in the interpretation of sustainability in different groups.

Studies in ecological theology give us insight into how the rhetoric of sustainability is expressed in Islamic communities. Islamic environmental ethics are rooted in three founding principals [60]: 1) *tawhid* (unity), that Allah has created the universe where everything is regulated with the principle of unity, balance, and harmony, 2) *khilafah* (stewardship), that humans are the stewards of the universe with the responsibility of conserving it, and 3) *akhirah* (hereafter), that humans are accountable for their deeds that might lead to destroying natural balances. These founding principals provide a base for the rhetoric in which Islamic environmental sensibilities are embedded.

Our study presents a rhetoric of sustainability through three components of communication narratives (speaker, speech, and audience [116]). In this rhetoric, a set of *speakers* (e.g., educators, holy books, *ulemas*, peer supporters, the *amir* in the *jamat*, preachers, *imams*) holistically devise a *speech* of sustainability for their *audiences* (e.g., Islamic followers, mosque goers, students in

madrasahs and *maktabs*, attendees of congregations, Islamic conventions). Islamic educators in mosques and *madrasahs*, religious preachers, Islamic influencers, and older adults in the family contribute to building people's attitude towards environmental components. The Quran, Hadiths, *ulemas*, and other scholarly resources play an active part in this attitude building. The learning process trains one to be mindful of *tawhid*, *khilafah*, and *akhirah*. This mindfulness is expressed through a set of classifications in everyday life in the forms of *halal* and *haram*. The *halal-haram* categorization guides what and how much natural resources are permissible to consume. We have further observed Islamic rituals, values, and habits extrinsically and intrinsically contribute to forming a sustainable lifestyle. We have seen people observing *zakat* very strictly during *Eid-Ul-Fitr* in the community as they follow the Islamic regulation of sharing a percentage of their worth with the poor. Many Islamic schools, orphanages, and mosques are almost entirely run by sharing of community economy coming from such donations. The concept of resource sharing is related to the colloquial campaign in Islam as "less is enough" and "share when you have more." Overall, our study explicates how Islamic environmental ethics, rituals, habits, lifestyles, and holy books dictate how people discuss and interact regarding consumption, wastage, preservation, resource, energy, and all other issues related to the environment–a rhetoric of sustainability that the modern and rational version of it in CSCW in HCI cannot fully capture and mobilize.

6.1.3 Designing with Rhetoric. Previous research in HCI has shown a greater impact of technology when a design reflects rhetorical aspects in a community. One example is the rhetoric of language. Rifat et al. conduct a randomized controlled trial (RCT) to find the impact of two types of SMS messages on donation collection in a Bangladeshi community mosque [127]. One type of message embedded religious sentiments (with verses from the Quran, Hadiths, etc., that expressed the importance of giving in Islam), and the other type expressed secular values (e.g., renovating or building mosques, conducting community programs). They find that the message with religious sentiments resulted in a greater amount of donation collection. It might be methodically challenging to empirically measure similar correlations of rhetorical elements and their impact on achieving sustainable habits, since evaluating sustainability itself is a challenging problem in HCI to date [124]. Nevertheless, our findings and previous research suggest that expression of sustainability problems through a rhetoric beyond a modernistic and rational framing might have a greater impact on technology intervention in communities where religiosity, spirituality, and other occult practices play a dominant role.

CSCW and HCI can employ its existing conceptual tools as well as design new tools to prescribe a diverse rhetoric of languages, metaphors, values, and ethics in designing for persuasion and sustainability. For example, Pierce et al. [117] cite Cialdini [41] to discuss a concept called "descriptive social norms" for interaction design aiming at sustainability. They give an example from Goldstein et al. [63], where a descriptive normative message for reusing towels increased compliance use by 28.4%. A similar strategy (align with Rifat et al., too [127]) could be used to prescribe alternative rhetoric in design explicitly. For example, an interface delivering a message "save energy, you are Allah's *khalifah* to conserve the universe" might be more appropriate for Islamic communities than "save energy, energy is limited in the planet". The former text represents an Islamic moral value, whereas the latter represents "moral prudence"; the former is related to the "sacred," whereas the latter is more reflective of a rational value.

It is important to mention that designing for religious moral rhetoric does not automatically make it irrelevant for modernistic rational values, or vice versa, given that their goals are often the same sustainable behaviors and habits. In many cases, modernistic, secular, and religious goals are not antithetical, rather they have confluences and can work together (see, for example [127]).

6.2 Designing for Sustainable Habits

Our study provides a unique culture of habit formation and persistence under a process of sacred inspiration and social restriction. This habitual culture is starkly different from traditional models of sustainability in CSCW and HCI. There are a number of commonalities in the way behaviors and habits are characterized and designed for in persuasive sustainability. The focus in persuasive technologies for sustainability has thus far gone significantly to achieving target behaviors by *deliberate* actions, while only marginally involving identification, management, and persistence of pre-existing habits. Traditional models of persuasion target non-contextual and case-specific cues and habits for behavioral changes [96, 138]. Habits are assumed to form through conscious individualistic self-interests [49]. Designing for behavior changes and habits as such poses unique challenges for Islamic communities and others likewise. We want to highlight two challenges and suggest how our findings might help to overcome them. The first one concerns breaking old habits to achieve a new one. Forming a new habit also means intervening in people's already existing habits. Breaking these pre-existing habits is challenging, as unconscious habitual behavior is resistant to changes [118]. The second difficulty concerns persisting a newly formed habit. CSCW and HCI's technologies of self-tracking and reminders help in repetitive tasks, but often struggle to maintain the habits long term. To overcome these two limitations in sustainable design, we borrow three design suggestions from Pinder et al. to discuss along with our findings, aiming to support and allow the persistence of existing habits of sustainability [118]: design for persistence, design for multiple points of interventions, and design for reactance.

6.2.1 Persistence of Habits. Our study shows that event-based and social contextual cues work better than universalized non-contextual cues for long-lasting habit formation. Sacred motivations, proper timing, and social situation define the context for Islamic communities. Most traditional persuasive interventions in CSCW and HCI are often solely dependent on technology without proper attention devoted to the religious, social, or cultural contexts. In a context, where a change in a habit or the persistence of a habit is dependent solely on the technical functionality of a technology (such as reminder tools, self-monitoring devices, tracking technologies, etc.), and not on the broader social and cultural context, the habitual behavior becomes non-persistent, culminating in a broken habit [118]. To this end, CSCW and HCI resarch can use many existing concepts that support persistence of habits in a religious community. For example, 'opportunistic training' or 'incidental interventions' can be used to improve contextual cues in existing technologies designed for promoting sustainable behaviors [118].

6.2.2 Combining Technological Interventions with Social and Institutional Resources. Multiple points of intervention that combine technological tools with social and institutional resources might outperform technological intervention alone [118]. Our findings highlight the importance of social support (and resistance at the same time) in forming and persisting a habit. While technological intervention can help to introduce new habits, the social forms controls could be combined to persist the habits. As our findings demonstrate, social enforcement comes both in the form of appreciation and acceptance (simple living is exemplary in the community) as well as peer criticism and divine fears (wasting more water than required during ablution is sinful, so others remind each others about this). To facilitate such social enforcement, both technological interventions and social organizations can work together in sustainability programs in CSCW and HCI. The goal then is to design strategies that combine different parties into a coherent program to persist a habit; in our case, combining social, sacred, and technological resources.

Islamic religious institutions around the world conduct local campaigns, organize movements, and run projects to support environmental causes [43, 126, 132]. The activism demonstrates that

Islamic institutions already have a broad-scale impact on fostering pro-environmental behaviors. This suggests that Islamic institutions such as mosques, *madrasahs*, and other NGOs could be active partners in sustainable habit formation programs. In doing so, sustainability research can draw from HCI4D literature on aspiration-based computing [147, 148]. This strand of research argues that technology can bring positive social change, where human resources, training, and aspirations are already present. Following this, research in sustainability can identify Islamic institutional motivations and forces – such as the mosques where sustainability is inspired among followers, albeit in a separate rhetoric – and then make technological interventions to amplify their impact.

6.2.3 Reactance to Non-contextual Cues. Non-contextual cues may trigger the behavior of reactance [118]. Inappropriate suggestions and a lack of personalization may damage the credibility of a system [72, 118]. Islamic communities often react when something goes against their religious ideologies. Our fieldwork had cases where participants were marking many features of technologies as *haram*. While in some cases, participants were customizing their use to avoid *haram* features, others were abandoning the technology. For this, again, a careful evaluation of Islamic sensibilities and language of expression is important so that persuasive technologies in CSCW and HCI do not trigger the behavior of reactance. There is an instance from our ethnography where an imam was discussing an advertisement that advised people to clean their surroundings to prevent dengue fever[5]. He said, *"see what this leaflet is writing. As if people have all the power now to prevent dengue just by cleaning. This is shirk. Only Allah can prevent dengue. Allah has instructed us in the first place to keep ourselves and our surroundings clean. It is part of iman. If we listened to Him, we might not have caught dengue [fever]."* This implies that a different framing of this message reflective this imam's value (such as, Allah instructs to keep your surroundings clean. Follow this and seek for Allah's mercy) might have a greater impact.

6.3 From Microeconomic Persuasion to a Divine Motivation

We are informed of the recent studies on misinformation in social media that show how "persuasion" is decreasingly looked upon as an aide for bringing positive changes. Because of this, we want to bring this discussion back to CSCW and HCI. Instead of relying entirely on Fogg's psychological conceptualization of persuasion (that is is essentially a microeconomic model of behavioral manipulation), we see benefit in a more theologically grounded version of it. We have discussed ways to support and persist sustainable habits that already exist in the lifestyle of Islamic communities in Bangladesh. Further, we have presented the unique rhetoric of sustainability in Islamic culture with a discussion on how current resources in HCI and CSCW could engage with that rhetoric. We believe a proper rhetorical appropriation (along with the associated faith) should overcome many limitations of the existing models. Thus, our study provides a fresh pathway for persuasion to broaden its scope and avoid the fate of microeconomic failures.

6.4 Reconciliation of Science and Religion

More broadly, our work joins an increasing trend of reconciliation between religion and science. Before advancing this discussion, we want to emphasize and caution that the findings reported in this paper are based on a study of Bangladeshi Sunni Muslims. Literature in ecological theology and our findings suggest that religion can open up positive avenues to advance the goals of sustainability in CSCW and HCI. Despite this, we offer our contributions in this paper as suggestive. We recommend that more research is necessary in diverse religious ideologies, contexts, and cultures before considering their partnership with technology projects involving sustainability.

[5]There was a Dengue outbreak around the same time we conducted our study in Bangladesh

With this reservation, we have the following insights gleaned from our ethnography with Islamic communities that might be relevant to religion in general.

In the pre-modern age, science, arts, and religion went hand in hand, having mutual connections and exchanging powers with each other. With the introduction of "modernity", there has been a differentiation of science, arts, and moral systems [161]. In the present day, as Wilbert explains, science has been established as an avenue for objective truth that cannot provide meanings. On the other hand, religion has found its place in creating meanings and values in society, but at the same time lost its access to public spheres [19]. While the disconnection between the two spheres–science and religion–has brought many positive social changes, it is also accompanied by dissociation, alienation, or even dissolution of moral values in "scientific" artifacts. Technological systems in HCI have also demonstrated many examples of easing or aiding moral degradation [97]. To bring a balance of religious and modern values, scholars suggest a "marriage" between science and religion [161]. HCI suggests similar integration of ethical and moral values in technological systems [22, 26, 140]. Our study joins this call by recommending the consideration of religious values in order to learn from them and include them in technology design.

Our study attends to the recent discourse of political design in HCI [39, 46, 49] regarding its connection to morality. The discourse has recently been advanced [141] by suggesting the finding of consensus among groups with various value systems. By putting forth religion as a common social interest, we support communal ties, cooperation, and collaboration; the values reinforced through the process of social persuasion. There have been moderate efforts (e.g., [75, 127, 161]) to merge science and religion, with varying success. Promoting individual and communal practices through design and intervention in CSCW can advance this coalition of science and religion.

6.5 Religious Values and Pluriverses

We are aware that a discussion on religious values and corresponding recommendations in a "modern" and "secular" space like computing may be confronted by two kinds of questions: (a) how can such recommendations that are based on religious values accommodate secular (or even anti-religion) values in the same society?, and (b) how can one reconcile contesting and conflicting values of different other religions in the same social sphere? We believe that these two points are necessary to be addressed to better situate our contribution to CSCW literature. We address these two issues through the following arguments:

First, we recall the socio-religious definition of religion that we have used in this paper - religion is not entirely defined by religious texts, but is also shaped, controlled, and reproduced by the social and cultural contexts in which it is practiced [40]. This essentially means that society plays a crucial role in the functioning of a religion. In a more practical version of it, we may point to the case of Islam, and how it is practised in a variety of ways in different societies in different parts of the world [131]. The Islam in Saudi Arabia, for example, is very different in practice from the Islam in Bangladesh. Similarly, even within Saudi Arabia, Islam is practiced in different ways in different communities. We argue that how a religion interact with non-religion or anti-religion (and vice versa) largely depends on the social and cultural context, and not entirely on religion. Religious recommendations are passed and enacted through a broader social and cultural value-system, and hence the question of co-existence is only partially dependent on individual religions. Also, for most religions, there have been historical evidences of co-existence that we can build on [92, 152].

Second, socio-religious studies have long been studying inter-faith communication, co-existence, and collaboration that ensures a negotiation between religions without losing their individual values [2, 59, 100]. Many inter-faith activities encourage people from different belief systems to meet, talk, share their opinions, dine together, and participate in different collaborative tasks. Recently, Sultana and her colleagues have studied the witchcraft practices in rural Bangladesh and

showed how the witches can work with people from both the Muslim and Hindu communities [141, 144], which supports the findings of many ethnographic studies and the basis of many design interventions in Bangladesh (see [8, 11, 13, 71, 142, 143], for example). The witchcraft practices put communal values over everything else, and through a carefully crafted rhetoric, the witches make all villagers work toward a communal harmony. Post-developmental scholar Arturo Escobar has similarly emphasized on ontological changes for making various ideologies co-exist [54]. His idea of "pluriverses" is built on the craft of “meaning-making” that has an epistemological direction toward ethical co-existence. We argue that it is possible to set such epistemological conditions for sustainability through ontological changes.

Finally, what if religious values are against the sustainability imperatives? How do we marriage the two in such cases? In fact, there is a strand of research that argues that religious cosmology is the root of current environmental crisis. Most of such research is the legacy of the medieval Historian Lynn White Jr. Based on a historical analysis of medieval Christianity and natural elements, he argues that religious sacred texts and philosophies give humans the right to dominion over nature [158]. His thesis has been echoed in multifaceted manners in many scholarships (see, for example, [68, 113, 149]). White’s thesis has been criticized as methodologically flawed and backdated as the thesis was proposed before religious environmentalism in many forms [87]. However, we note this skepticism with due seriousness. While a response to this skepticism might be found in the shift of ontology and rhetoric that we have discussed before: a mechanism for how the overarching social power creates a narrative that is both acceptable to religions and friendly to the environment. However, this will still leave the claim that some religions establish human dominance over nature. We believe that making a general comment about all religions goes far beyond the scope of this work, and we can only comment on the Islamic practices in Bangladesh as we have studied. Here, the practised Islamic values attribute the ownership of nature to the God (*tawhid*), and destroying a small part of nature is considered as a sin. Also, those values and environmental sustainability have so far been found to be aligned in most scenarios. However, we agree that more context-specific research needs to be conducted to advance this investigation. In cases where we find any misalignment, we believe that the society in question needs to come forward to align those values to ensure a better future for this universe.

6.6 Limitations

Finally, we want to acknowledge some limitations of our study. We start by mentioning the limitation of the generalizability of our study. Islam is a pluralistic religion. It has many interpretative versions worldwide [131]. Even in the Indian subcontinent, there are several Islamic traditions [79]. We conducted our study with Bangladeshi Sunni Muslims in an urban city. Although most Bangladeshi urban cities hold similar community characteristics, there might be differences in ideological traditions, resources, administration, and social structure elsewhere in Bangladesh. Because of this pluralism in Islam and other religions, we don’t argue that our findings will generalize everywhere in Bangladesh and outside of Bangladesh. Rather, we offer our contributions here as suggestive, and open future work on other religious traditions in various geographic locations to provide new insights into the intersection of religion and sustainability.

Finally, designing technologies with religious values may invoke value-level conflicting questions. For example, there are complaints of gender gaps, inequality, and prejudices against the Islamic religion. In this work, we neither engage with this discourse [14, 23, 36] nor make any claim to present religion as good or bad (which goes beyond the scope of the paper). Instead, we see religion as an origin of many individual and social values guiding many people around the world [40], especially in the community where we conducted our study. Our goal with this research is to unfold unique sustainability practices and suggest CSCW literature’s possible engagement through design.

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