

# From faith to attitude and concerns for animal and the natural environment

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From faith to attitude and concerns for animal and the natural environment:

The role of ethical ideologies, religious orientation, and narrative framing towards animal welfare and environmental concerns.

DISSERTATION

to obtain the degree of Doctor at the Maastricht University,  
on the authority of the Rector Magnificus, Prof. dr. Pamela Habibović  
in accordance with the decision of the Board of Deans, to be defended in public  
on Wednesday 6 September 2023, at 10.00 hours

by

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**Chapter 1**  
**Introduction and literature review**



”More science and more technology are not going to get us out of the present ecological crisis until we find a new religion, or rethink our old one.”

- White (1967)

The IPCC’s 5<sup>th</sup> assessment mentions the role of religion and culture as potential factors which need further investigation. Some case studies from developing countries show locals’ perception of natural phenomenon often attributed the cause to religion domain (Klein R.J.T. et al., 2014). Some studies show that religion has its significant role in perceiving and explaining the cause of climate change (i.e., to put divine power as the reason rather than human exploitation) (Artur & Hilhorst, 2012; Byg & Salick, 2009; Mustelin et al., 2010). Some find that religion is a “factor that enabled affected individuals to cope with the stress of the event which will constrain people to look other ways to adapt and mitigate effectively” (Klein R.J.T. et al., 2014 also in Lovekamp, 2008). Some religious worldviews and values may also promote skepticism and inactivity to the current environmental degradation and hinder transitions. This is very relevant in some studies where religious actors disseminate worldviews that addresses climate change as part of the welcomed apocalypse which in turn influences their religious constituents to accept climate change, more likely than to counteract it (Artur & Hilhorst, 2012; Haluza-Delay, 2014; Roscoe, 2016). And lastly, some scholars also find that low urgency and low support for environmental cause are connected to beliefs in bible, afterlife and divine intervention (Barker & Bearce, 2013; Eckberg & Blocker, 1989; Hope & Jones, 2014; Muñoz-García, 2014).

This study examines religion as a variable of influence for increasing environmental awareness and commitment. In retrospect, religion is one of the proven institutions providing worldviews and taking leadership in guiding people’s behavior. In developmental studies, understanding religion as a cultural and social practice that governs worldviews can influence

social and economic development (Selinger, 2004). Religion and the results of studying religion have been important shapers of economics, law, art, and almost every other facet of human life. To pretend that religion doesn't matter in and around the world would be to ignore a huge part of human histories and experiences (Bauman, Bohannon, & O'Brien, 2010). For centuries, religion played an important role in social transformation processes, hindering or spurring these changes: e.g., the U.S. Civil-Rights-Movement, the Iranian Revolution, the Anti-Communist Uprising in Poland, the Nicaraguan Revolution (Gardner, 2003; Herbert, 2002; Tucker, 2006 in Koehrsen, 2017). Thus, religion has been significant, though also at times stifling, to the transmission of information from generation to generation.

## **1.1 Religion studies**

The representation of religion as a determinant factor in social transformation studies (i.e., development, sustainable transition, sustainable development studies, etc.) provides valuable background in understanding how religion matters in various context. Although gradually recognized as a key-variable throughout the decades, religion and the examination of religion's roles are somewhat limited. Sustainable transition studies conceives the examination on the role of religion mostly as a background (landscape) variable (Avelino and Wittmayer, 2016; Kates and Parris, 2003; Murphy and Smith, 2013; Ouedraogo, 2006; Sengers et al., 2016; Wittmayer et al., 2016; in Koehrsen, 2017). In the development studies, before the 1980s, religion was not addressed at all (Deneulin & Rakodi, 2011; Lunn, 2009; Selinger, 2004). On the other hand, religious studies and theology, highlight the potentials of religion in environmental transitions (Clugston and Holt, 2012; Gottlieb, 2008; Rasmussen, 2011; Tucker, 2008; in Koehrsen, 2017). This thesis aims proposes ethical ideologies, religious motivation, and religious communication framing as the component of religion and investigates their relation towards environmental sustainability. The center of discussion will emphasize religious members' attitude, ethical ideologies, and religious motivation and how religion as

an institution may influence its members' attitude and support for environmental preservation through religious message framing. This thesis proposes to explore how religion may have roles in addressing environmental sustainability commitment and awareness.

### **1.1.1 Religion and Development**

The involvement of religion in development studies and debates is limited until the 1980s. Much of this because of the pragmatist view of the neo-Marxist political economy at that time (Lunn, 2009), and the assumption that modernization will eventually produce secularization (Selinger, 2004). However, to be more exact, the decreasing role of religion starts from a long struggle between state and church (Deneulin & Rakodi, 2011). Religion was seen as constraints to progress and therefore dispensable compared to national capacity to bring forth market and well-being (Deneulin & Rakodi, 2011).

Back in the 80s, the alienation of religion in development studies also derived from modernism which set within the broader context of positivist social science emerged in the 20<sup>th</sup> century (Lunn, 2009, p. 940). This positivist movement insists that studies should be objective and value-free, which makes religion slowly diminishing from the public and remains in private sphere. Beek (2000) adds that the isolation of religion in this era is caused by four factors, which are, fear to impose an outsider perspective; the dualism between the sacred and the secular; fear of conflict between different religions; and a lack of models for addressing spirituality. In contrast, while religion alienated from development, some scholars note that the whole field has clear religious—specifically Christian—roots and concepts which are essential to its vision and practice. Some scholars have also observed the irony that the development discourse, while secular, displays many of the characteristics of a religion (Lunn, 2009, p. 940)

As it progressed, after the turn of the century, scholarly discussions on religion as crucial variables re-emerge. Haynes (2002, in Gearon, 2002) argue that this “un-secularization” is a response some chain of events ranging from cold war, the rise of Iran Islam state, religion

and nationalism tension from post-communist countries and the spreading of Islam to Nigeria, Somalia, and Indonesia. Furthermore, we should note that US—which represents one of the modern nations at that time—is considered as the most religious at that time (Warner 1993 in Selinger, 2004). The conservative Christian right-wing steadily had started to influence US government policy since 1970. Specific about the US, Kohut, Green, Keeter, & Toth (2001) argue that although the constitutional barrier between church and state in the US remains intact, the boundary between religion and politics has become increasingly blurred since the Carter administration.

On the other side of the globe, the failure of development and neoliberal economic policies in developing countries resulted in “dissatisfaction with the project of the postcolonial secular state and [have led to a] conflict between religious nationalism and secular nationalism ...in the 1990s” (Thomas, 2000: 49). It also suggested that the resurgence of religion has become part of the search for ‘roots’ identity for those in the post-colonial states, as they reject the modernization paradigm as an external force and seek an “authentic” alternative to the failed policies of the West (Selinger, 2004). Interestingly the three highlighted Southern countries (Egypt, India, and Indonesia) are all facing the rise of religious nationalism today. Thomas (2000) argues that “the global resurgence of religion is a response to the widespread crisis in secular materialism in both the Western industrialized countries and in the Third World” (Thomas, 2000, p. 38).

In summary, the re-enactment of religion in development studies is important. Before Lunn, Selinger (2004) points out the ‘Christian roots and concept’ as protestant ethics embedded deep in the practice economy at that time, which have inspired capitalism and mark the age of modernism. Not only religion rooted deep in the political system (i.e., Christian ethics in the US), but also religion still play an important aspect of everyday life of many

people, and religious organizations execute important functions in most societies (Deneulin & Rakodi, 2011).

### **1.1.2 Religion in Social Change: Family Planning**

Although the notion of exploring religion (as culture domain) to address and promote environmental sustainability aims is rather broad, the practices of social change involving religion and cultural value are not new, especially in the topic of family planning. It is worth to mention that in Indonesia between the 1960s and 1990s, through its religious leaders, religion plays an important part in assisting government's family planning program and policy through religions teaching reinterpretation for moral acceptability toward family planning (Warwick, 1986). Religious teachings reinterpretation for mediating social acceptance to family planning covers almost all aspects. *First*, value consensus for program campaign (with the consensus of four from five officially recognized religions: Islam, Protestant Christianity, Catholic Christianity, and Balinese Hinduism). *Second*, inclusive partnership and involvement for continuous effort. *Third*, intensive data gathering on attitudes of Islamic leaders towards family planning. *Fourth*, dialogue, public hearing and bottom-up program tailoring to minimize offending elites. And *fifth*, the utilization of schools, mosques, prayer circles, hospitals and social networks of Islamic organizations to implement the program (Hull, 2007). Indonesia's family planning case suggests that the key to a paradigm shift (and social change in general) was Islamic institutions' reformulation of religious teachings interpretations of the shari'a, and more often unexpectedly, combine it with secular sources. These sources ranging from domestic and foreign medical authorities, government ministers from health, demography and the environment, up to the Family Planning Coordinating Board, along with experts from the World Health Organization and other international organizations (Menchik, 2014).

Furthermore, there is wide variation in Islamic interpretation on contraceptive at that time (Cammack & Heaton, 2001). These variations then become both the subject and entry

points for re-interpretation to defuse some opposing religious view (clerics who hold the view that family planning is some form of God's will violation) while on the other hand promoting the remaining religious view that supports family planning (Shiffman, 2004). Later, in 1972 two biggest Islam organizations, namely Nahdlatul Ulama (NU) and Muhammadiyah, started to accept and promote contraceptives and assist government family planning program which intensified exponentially until the 1980s.

In the context of religion's reach out for social change, the most documented extensive results on family planning in Indonesia are from Nahdlatul Ulama (NU)—Indonesia's biggest Islamic orthodox religious organization. One major shift was signaled in September 1969, when NU released a 'fatwa' (religious instruction) that encouraged family planning for the creation of family welfare (Candland & Nurjanah, 2006). NU's 'Kyai' (Islam religious leader) found justification for this fatwa from the Qur'an and Hadith<sup>1</sup>. 'Kyai' were able to elaborate on the Prophet Muhammad's teaching and argue that Islamic teachings support family planning to promote a better life for Muslim communities (Candland & Nurjanah, 2006). As a response of 1969 Fatwa, two of NU's women organization Muslimat NU (NU's women organization above the age of 40) and Fatayat NU (NU's women youth organization) became extensively involved in the promotion of 'Keluarga Maslahah' which is a family welfare program through reproductive health and family planning. It also conducts training programs for healthcare workers, works with domestic and international governmental and non-governmental agencies, and produces and distributes pamphlets and books on reproductive health. Muslimat NU and Fatayat NU women run most of NU's maternity hospitals, birthing centers, and clinics. Total

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<sup>1</sup> The Qur'an stresses that marriage is an institution designed for the satisfaction of both wife and husband, not merely for the purpose of procreation. The Qur'an does not make specific mention of contraception, but the Prophet Mohammed did. He was aware that many of his companions and some of his family members practiced 'azal' [withdrawal] as a form of birth control. He did not disapprove of their practice. Indeed, he advised those who did not want to have children to practice 'azal' but warned that the method would not prevent pregnancy if conception were God's will (Candland & Nurjanah, 2006).

fertility rates in Indonesia decreased rapidly from 5.6 births per woman in 1971 to 2.8 births per women in 1997 (Wilopo, Sigit, Hatmaji & Mohammad, 1999 in Candland & Nurjanah, 2006). The rate of reduction decreased most rapidly only after religious organizations, such as NU, became involved in family planning and the government focused on the welfare of parents and children rather than on limiting population growth (Candland & Nurjanah, 2006). Interesting enough, part of NU's efforts is not only the role of 'Kyai' and the Fatwa (along with the process of reinterpreting religious scripture as the basis of it) but also the inclusion of women as one rarity of gender issues in Indonesia's patriarchal system at that time.

### **1.1.3 Religion and Sustainability**

White (1967) essay sparked debate on the allegiance of religion (especially referring to Abrahamic religion) towards nature. It emphasizes on the increase in population, alteration and the degradation of the environment along with the exploitation of nature through expansion on science and technology. White (1967) argues that, to some extent, the current ecological crisis is due to the disconnection of nature and spirituality often promoted by religion which gives the human species rights and dominance to exploit nature which forms the basis for exploiting the natural world.

White (1967) arguments highlight the urge for sustainability in responding development and growth at that time. The concept of Sustainable Development first became prominent in the 1980s with its most mainstream definition of "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987). From this definition, three pillars approach derived consisting social sustainability, economic sustainability, and environmental sustainability. In its progression, the latter mainly become the domain of sustainability sciences while the former two (namely economic and social sustainability) have mainly become the domain of development studies. In contrast, despite efforts to incorporate research results from both

development and sustainability disciplines, complete integration between development studies and sustainability science to achieve sustainable development is facing numerous challenges. According to Goodland & Daly (1996), one of the problems is because of the difference in priorities in both disciplines. “The priority for development should be improvement in human well-being—the reduction of poverty, illiteracy, hunger, disease, and inequity. While these development goals are fundamentally important, they are quite different from the goals of environmental sustainability, the unimpaired maintenance of human life-support systems—environmental sink and source capacities” (Goodland, 1995, p. 5). Moreover, Goodland (1995) argues that environmentally sustainable development implies sustainable levels of both production (sources), and consumption (sinks), rather than sustained economic growth. The need for sustainability arose from projecting the future with the recognition of the inequitable nature of current patterns of development, which leads to biophysical impossibilities. In short, environmental concerns of sustainability discipline bring forth doubts to the current development practices. The paramount importance of sustainability arose because the world is starting to recognize that current patterns of economic development are not generalizable (Goodland & Daly, 1996) “Environment sustainability does not allow economic growth, much less sustained economic growth. We cannot "grow" into sustainability” (Goodland, 1995, p. 5).

As in the emergences of religion dimension importance in development studies, White (1967) thesis in religion and ecological crisis put forth awareness in sustainability. Some discussions revolve around the analogous similarity of protestant ethics inspiring capitalism, as religion view of domination promoting the exploitation of the natural world. Both to the development and sustainability studies, religion showed its importance. White (1967) adds religion as a significant factor in the equation of sustainability and stress the urge to incorporate sustainability to tackle our current ecological crisis. Scholars in development studies highlight religion as a crucial factor to account for in future practices. However, using Goodland (1995)



terms, both sustainability and development studies haven't yet reached consensus on the attainable priorities path-ways on whether to reach environmental sustainability or more anthropocentric (social and economic) sustainability.

Nevertheless, in sustainability, religion ecological debates bring fruitful initiatives in the following years. The first result is Assisi Declaration in 1986, where Buddhist, Christian, Hindu, Muslim, and Jewish leaders declared commitment to the protection of the environment. It then followed by "on religions of the World and Ecology" which produced knowledge product examining "the ecological implications of the beliefs, attitudes, rituals, and doctrines of various world religions" (Tucker & Grim, 2009). From 1996 to 1998 the "Harvard Conference on Religions of the World and Ecology" assembled some 800 international scholars and theologians to assess "the ecological dimensions of the world's religions to contribute to a sustaining and flourishing future for the Earth community" (Bauman et al., 2010). Later in 1998 the World Bank and the Archbishop of Canterbury convened the first World Faith Development Dialogue (WFDD) in London. Afterwards, the Millennium World Peace Summit of Religious and Spiritual leaders and in 2001 the *Daedalus* devoted a whole issue to the Relationship between religion and ecology (Tucker & Grim, 2001). In 2007, cooperating with the United Nation Development Programme (UNDP), the Alliance of Religions and Conservation (ARC) developed a framework for allowing the world's major faiths to develop commitments to combat climate change and conserve the environment. And by 2009 thirty commitments have been made by different faith groups which summarized in the report "Many Heavens, One Earth" (Colwell, Finlay, Hilliard, & Weldon, 2009).

In short, a great deal of research and policymaking is executed to reintegrate religion into the two fields of development and sustainability since the turn of the century. However, for an integrated analysis of the role of religion, development of research framework is needed to integrate insights from development studies and sustainability sciences.

#### **1.1.4 Religion in literature**

When examining the role of religion related to environmental sustainability, various definitions of religion from the field of religion and ecology have been used. Some of the definition concentrate in the elements and properties of religion (Adriance et al., 2010; Bauman et al., 2010; Gardner, 2006; Haar & Ellis, 2006; Lunn, 2009; Selinger, 2004) while other might target specific concept of religion's teaching (Hand & van Liere, 1984; Wardekker, Petersen, & van der Sluijs, 2009). Suzuki (1908) define religion as the most inner voice of human heart which under repression of finite existence, groans, and travails in pain. In some way, Suzuki (1908) may provide much more detail about humans ultimate concerns in which religion centers on the particulars of human struggles within the world and the reality. Suzuki never appeals to anything beyond human beings and see religion as a product created by "human heart." What is most real and most important for Suzuki is the very natural and common experience of suffering within the world (immanence), not the supernatural and distant reality of God or the Holy. Thus, Suzuki viewed that the problem of—and followed suffering from—environmental degradation is in itself natural (groans and travails) reality to which religion responds and therefore is aspects of religious experiences as to how it addresses, mitigates, or disguises the key sources of suffering in human life. Tillich (1963) defines religion as the state of being grasped by an ultimate concern. Tillich definition of religion concentrates on the one universal, ultimate concern of a human. The concern is rather a transcendence in which it tries to find meaning and value beyond the world rather than immanence (find meaning and value within the world) that deserves human faith. In his view, addressing the environmental degradation problem is to engage it religiously (Tillich, 1988 in Bauman et al., 2010). Both Suzuki (1908) and Tillich (1963) articulate a definition not particularly embedded in any tradition and consequently develops a view that can connect cultural and denominational

boundaries. Also, both Suzuki and Tillich centered on the substance of religion and sought to appreciatively clarify the content of religion (Bauman et al., 2010).

On other venue, some scholars define religious pragmatically. Durkheim (1995, in Bauman et al., 2010) view of religion is not about the substance of religion or to appreciatively clarify the content of religion. Durkheim sees religion as a social tool and studies the actions and beliefs of existing religious practices, observing religion as it currently is. Thus Durkheim defines religion as a social system which function to keep societies cohesive and as a force to nurture stable societies (Durkheim, 1995 in Bauman et al., 2010). Marx & Engels (1964, in Bauman et al., 2010) view religion as an ideology which is a mindset resulting from an oppressive social relation. Like Durkheim, Marx & Engels are concerned about the role religion plays within society but differ in a unique way where they see religion as a negative phenomenon which is part of oppression hierarchy where the ruling class uses it to maintain status quo. Religion soothes and comforts the poor masses, but in doing so legitimates the economic imbalances that keep them poor. Using Marx & Engels' definition leaves little room to consider religion as the catalyst for change. However, Marx & Engels' definition gives a clear idea in pointing societal problems for a social change. It helped to clear out obstacles as to when to see the role religion played as tools for status quo and in what way it can be shifted to promote social change. Scholars adopting Marks and & Engels perspectives carefully dissect the role of religion as that which trips up ideologies, which challenges systems of injustice, and which deconstructs how humans dominate the rest of the natural world. Some scholars apply this Marxist understanding of social conflict to environmental issues but do not follow Marx in dismissing religion as a force for change (Marx & Engels, 1964 in Bauman et al., 2010).

Lastly, Geertz (1973, in Bauman et al., 2010) focuses on the place of religion in a social context, and so he further explains that religious symbols formulate “conceptions of a general order of existence” that justify and explain a set of “moods and motivations”. In saying that religion as

something that evolves to sustain culture, Geertz' definition of religion is problematic in the religion capacity to change itself (and therefore society). With Geertz's definition, scholars in the field of ecology would then need to ask several questions continually. Are the existing religious traditions flexible enough to deal with contemporary environmental and social crises? Do we need new symbolic systems, new religious perspectives to deal with crises? And lastly, when something new is necessary, who has the authority and the power to develop it? How will religious symbols change and evolve in an era of environmental degradation? These questions address two essential elements of religion. *First*, the adaptive capacity of religion in assessing and adapting to challenges and changes (static or dynamic axis—depending on their ability to adapt to change and to cover various context within certain pre-defined boundaries). *Second* is the substantive-functional axis in differentiating between what religion *as is* (substantive conceptualization) with what religion *does* (functional definition) (Deneulin & Rakodi, 2011). Despite commonly treated as a background variable in most studies, in most environmental studies, ample results showed that religion plays a somewhat defining role. As examples, religion functioned as a coping mechanism in the aftermath of hurricane Katrina (Lovekamp, 2008); as people' attribution for the cause of environment degradation and disaster in reflecting how men sinned and strayed from God (Halperin, 2017); as moral compass in addressing both human cause towards the environment (Bauman et al., 2010); and, as communication framework for awareness towards the environment (Feinberg & Willer, 2013; Gifford & Comeau, 2011; Markowitz & Shariff, 2012; Nisbet, 2009). These are some good examples in showing the potential role and function played by religion. Thus, in examining the influence of religion on environmental sustainability, it is fruitful to emphasize the functional aspects of religion in its relevance to a specifically targeted context (i.e., conflict, disaster, environment, etc.).

Substantive conceptualization can be seen in Morton (in Council, 2000, p. 443), who argues religion as “community-building and maintenance, getting and keeping all the people together and celebrating cosmic togetherness”. However, Morton’s definition is overly broad and cannot explain how it can do so and why. Thus, it is very dynamic (as it can adjust to any specific context) rather than static (where it leaves no room for other expressions from what defined). In contrast, Benthall and Lincoln (in Deneulin & Rakodi, 2011) and Haynes (in Gearon, 2002) define religion to its belief system, practices, communities, and institutions. By including several elements of religion in broad terms, the definitions become more dynamic and therefore suitable for complex contexts than those focusing on one aspect of religion. At the same time, they stay more functional because the elements of religion are being made explicit and analyzable.

Table 1-1 summarizes different roles of religions found in the literature. As observed, the main consensus of religion’s roles is closely related to ideas, perspectives, attitude, motivation, and behavioral change. Second is the institution and organization which have the authority, finance, and resource to take leadership towards social change. The third is the form of moral compass which can lead their follower. And lastly, as a bridge connecting different in inter-religious/inter-faith dialogue. In the context of religion as an institution, value, and worldview, a more detailed definition provided by Lunn (2009) who proposes three elements in applying religion in development. Lunn (2009) argues that religious worldview can bridge the disconnection between the sacred and the material world. *Second*, in context of human social relation, although there is a danger where religious values are imposed on other to legitimize evangelism and conversion, they also can empower people, give them dignity and a feeling of connectedness, and help to achieve more strategies. *The third* is the central theme of Lunn’s definition emphasizing the Religious Organizations/Institution aspects in promoting development. Religion as an organization can contribute to development in two ways:

Table 1-1 Various roles of religion

Religion Roles and Function	Wilber & Jameson (1980)	Ebaugh (2002)	Palmer & Finlay (2003)	Tucker (2003)	Gardner (2006)	Ter Haar & Ellis (2006)	Selinger (2004)	Lunn (2009)	Narayanan (2013)	Adriance et. al. (2010)
As Moral Compass	√			√	√					√
Related to ideas, value, perspectives, attitude, motivation, and behavioral change	√		√			√	√	√	√	√
Emphasizing the institutional aspects of religion—as group/organization which have the authority, finance, and resource to take leadership towards social change.	√	√	√		√	√	√	√	√	√
To bridge different faith; Interreligious/ Interfaith Dialogue; Pluralism.		√	√	√						
Provides Worldview			√		√			√		
Element of culture		√					√			

organizational and motivational. They operate at all levels of society (effective distribution system), and religious organizations are believed to be very committed to serving people and society. However, using this definition alone may be too limited. It can focus on the religious institution as determinants, but non-institutionalized (aspects of) religions cannot be incorporated and therefore excluded from any analysis. Wilber & Jameson (1980) mention the relation between individual behavior with religion. They argue that this relation mediated by the religious institution in which provides some sense of moral compass, relevancy, and authority figure to individuals. Religious groups also gain increasing importance as transnational actors which stimulate development projects on a higher level, such as the Council of Churches (Wilber & Jameson, 1980). Clearly, by explaining how religion can influence people's motivation and behavior, Wilber & Jameson (1980) definition can complement Lunn's (2009) definition which only concentrates on the institutional aspects of religion.

This thesis chooses religion as moral compass; as components closely related to ideas, motivation, attitude, and behavioral change; its institutional aspects in measuring the role of religion towards environmental sustainability. Consistently overlapping throughout various definitions in numerous studies, these aspects are measurable and provide a good balance between dynamic and static dimensions so that they can apply in various contexts.

## **1.2 Environmental Sustainability**

Along with social sustainability and economic sustainability, environmental sustainability (ES) is one of the pillars of sustainable development which defined as "development that meets the cultural and physical needs of the present generation without

compromising the ability of future generations to meet their own needs (Brundtland, 1987). The popular three circles diagrams of sustainable development first introduced by Barbier (1987) consisting of the biological and resource system, the economic system, and the social system. However, when 'sustainable development' was formally institutionalized by the UN in the 1987 Brundtland report, the definition emphasized economic growth as the solution to ecological and social problems. This approach mirrors the predispositions stemming from their intergovernmental mandate for consensus formation, and adeptly mitigates substantial radical appraisal through the process of depoliticizing sustainability. Very different from Barbier's (1987) formulation which viewed these three pillars as the integration of the systems and management of trade-offs between them, UN version portrays three distinct categories of economic, social, and environmental objectives as indispensable requisites. This concept gains further consolidation from the fusion of terminology between 'sustainability' and 'sustainable development,' thereby perpetuating the implicit inclusion of economic development within the framework of sustainability, although not adequately articulated. (Purvis, Mao, & Robinson, 2019).

As Purvis, Mao, & Robinson (2019) point out, sustainability, through its complex and disparate historical origins, remains both context specific and ontologically open, and thus any rigorous operationalization requires explicit description of how it is understood. One alternative to the interpretation of sustainability was Goodland & Daly (1996)'s argument to retain disciplinary distinctions. The work of Goodland and Daly (Goodland 1995; Goodland and Daly 1996) seeks to distinguish the concept of 'environmental sustainability' from social and economic sustainability (Table 1-2). They take a largely systems-based approach to the environmental pillar, defining it in terms of input– output laws. They are critical of what they



perceive as the term ‘sustainability’ becoming a “‘landfill dump for everyone’s environmental and social wish lists” (Goodland and Daly 1996, p1002 in Purvis et al., 2019). Goodland & Daly (1996) define sustainable development as the “development without growth in throughput (the increased rates of resource extraction and pollution) of matter and energy beyond regenerative and absorptive capacities” (Goodland & Daly, 1996). They challenge the notion of throughput growth in the context of finite earth, in which as a subsystem of the finite and non-growing earth, the economy must eventually adapt to it. To emphasize this finite earth, they further challenge the economic concept of ‘income’ arguing that “any consumption that is based on the depletion of natural capital should not be counted as income.” Prevailing models of economic analysis tend to treat consumption of natural capital as income and therefore tend to promote patterns of economic activity that are unsustainable. Consumption of natural capital is a liquidation, the opposite of capital accumulation” (Goodland & Daly, 1996, p. 1005).

Goodland (1995) argues that environmental sustainability is the “maintenance of natural capital.” Natural capital—the natural environment—is defined as “the stock of environmentally provided assets (such as soil, atmosphere, forests, water, wetlands), which provide a flow of useful goods or services; these can be renewable or nonrenewable, and marketed or nonmarketed” (Goodland, 1995, p. 14). Furthermore, Goodland & Daly (1996) differentiate, at the very least, four kinds of capital which are human-made capital (the one usually considered in financial and economic accounts); natural capital (as defined previously); human capital (investments in education, health and nutrition of individuals); and social capital (the institutional and cultural basis for a society to function). Thus, environmental sustainability (ES) requires maintaining natural capital; and understanding ES

then includes defining "natural capital" and "maintenance of resources" (or at least "non-declining levels of resources"). Sustainability means maintaining environmental assets, or at least not depleting them.

Table 1-2 Comparison of social, economic, and environmental sustainability (Goodland & Daly, 1996, p. 1003)

Social sustainability ("SS")	Economic sustainability ("EcS")	Environmental sustainability ("ES")
<p>SS will be achieved only by systematic community participation and strong civil society.</p> <p>Social cohesion, cultural identity, diversity, sodality, comity, sense of community, tolerance, humility, compassion, patience, forbearance, fellowship, fraternity, institutions, love, pluralism, commonly accepted standards of honesty, laws, discipline, etc., constitute the part of <i>social capital</i> that is least subject to rigorous measurement, but probably most important for SS. This "moral capital," as some have called it, requires maintenance and replenishment by shared values and equal rights, and by community, religious, and cultural interactions. Without this care it will depreciate just as surely as will physical capital.</p> <p><i>Human capital</i>—investments in the education, health, and nutrition of individuals—is now accepted as part of economic development (WDR 1990, 1991, 1992, 1995), but the creation of social capital, as needed for SS, is not yet adequately recognized.</p>	<p>The widely accepted definition of economic sustainability is "<i>maintenance of capital</i>", or keeping capital intact, and has been used by accountants since the Middle Ages to enable merchant traders to know how much of their sales receipts they and their families could consume. Thus the modern definition of income (Hicks 1946) is already sustainable.</p> <p>Of the four forms of capital (human-made, natural, social, and human), economists have scarcely at all been concerned with <i>natural capital</i> (e.g., intact forests, healthy air) because until relatively recently it had not been scarce. Economics also prefers to value things in monetary terms, so it is having major problems valuing natural capital—intangible, intergenerational, and especially common-access resources, such as air, etc. In addition, environmental costs used to be "externalized," but are now starting to be internalized through sound environmental policies and valuation techniques.</p> <p>Because people and irreversible impacts are at stake, economics has to use anticipation and the precautionary principle routinely, and should err on the side of caution in the face of uncertainty and risk.</p>	<p>Although ES is needed by humans and originated because of social concerns, ES itself seeks to improve human welfare and SS by protecting the sources of raw materials used for human needs and ensuring that the sinks for human wastes are not exceeded, in order to prevent harm to humans. Humanity must learn to live within the limitations of the biological and physical environment, both as a provider of inputs ("sources") and as a "sink" for wastes (Serageldin 1993). This translates into holding waste emissions within the assimilative capacity of the environment without impairing it. It also means keeping harvest rates of renewables to within regeneration rates. Quasi-ES can be approached for non-renewables by holding depletion rates equal to the rate at which renewable substitutes can be created (El Serafy 1991).</p> <p>ES means maintaining natural capital, akin to the definition of EcS.</p>

Closely related to the depletion of natural capital, Goodland & Daly (1996) argue that the limiting factor for much economic development has become natural capital as much as human-made capital. "In some cases, like marine fishing, it has become the limiting factor—fish have become limiting, rather than fishing boats. Timber is limited by remaining forests, not by sawmills; petroleum is limited by geological deposits and atmospheric capacity to

absorb CO<sub>2</sub>, not by refining capacity” (Goodland & Daly, 1996, p. 1005). In this sense of finite natural capital, they also introduced cultivated natural capital (such as agriculture products, pond-bred fish, cattle herds, and plantation forests)—the combination of natural and human-made capital— which dramatically expands the capacity of natural capital to deliver services. Nevertheless, Goodland & Daly (1996) concludes that eventually, natural capital will limit this cultivated natural capital.

Thus, in conclusion, environmental sustainability-related behavior in this research refers to the value, attitude, intention, and behavior towards the natural capital and its maintenance. As discussed above, the natural capital is not differentiating between the biotic (living organism) from the abiotic environment (water, atmosphere, soil, etc.) and therefore unavoidably, the definition will closely overlap with ecology in also specifying the organism and its relations with its surrounding environment.

### **1.2.1 Religions’ Predisposition towards Environmental Sustainability**

Research on sustainability has significantly progressed our understanding of problems, factors contributing towards, and elements of the ecological crisis. But as it happened in the development area, religion also has barely considered as one of the key topics to explain anthropogenic causes in causing environmental degradation (Bauman et al., 2010). Not until after White (1967) religion gains attention from scientific communities where much of later research would then assume that the religion and ecology are interrelated. Some scholars agreed to White (1967) position. Ample research findings show that more often, religion hinders the awareness of and efforts towards environmental sustainability. They argue that religion depresses concern about the environment (Arbuckle & Konisky, 2015; Muñoz-

García, 2014); where belief in the bible (Eckberg & Blocker, 1989) and believers in Christian end-times theology are less likely to support environmental cause and policies (Barker & Bearce, 2013). Some also showed believers' relatively low perceptions of urgency for environmental issues due to beliefs in an afterlife and divine intervention (Hope & Jones, 2014). And lastly, specifically exploring the importance of religious institution as authorities to organize and structure faith and belief, the American evangelicals—which have no structured, centralized organization compared to the Catholic and Anglican—are less likely than non-evangelicals to believe that global warming is happening (N. Smith & Leiserowitz, 2013).

In contrast, some other scholars disagreed and didn't find any evidence of White's thesis (Boyd, 1999; Hayes & Marangudakis, 2000, 2001; Kanagy & Nelsen, 1995). Some other disagree by arguing different aspects of religion's scriptures that has potential support towards environmental protection (Haq, 2001; McFague, 2001; Tirosh-Samuels, 2001). Such potential support was shown and discussed in Abrahamic religion. In Islam, Quranic conception is anchored in the divine both metaphysically and morally, which is a subject of respect and preservation (Haq, 2001). In Christian, the earth belongs to the Lord and His creation and the followers should not only do what is fair to other individuals but also do what is necessary to work with God to create a just and sustainable planet (McFague, 2001). And in Judaism, using the Jewish covenantal model provides a religious justification for social ecology (Tirosh-Samuels, 2001).

Lastly, there are also findings that both agree and disagree depending on the examined key elements and topics. As discussed earlier in previous section, just as religions have been vehicles for meaning-making, for the aesthetic play of knowing relationships with

nature, they have also been major political players throughout history (Bauman et al., 2010). Thus, in this interchange of meaning and politics, the mission for sustainable future progressed back and forth. Although that religion previously stayed still in isolation in development and sustainability debates, in the emerging ecological crisis, the field of religion and ecology occurs as consequences to understand the roles of the human (anthropogenic nature) both in the despoliation of Earth and in nurturing life (Bauman et al., 2010). Such is the case with various religion denomination framing being used as narratives to gain support from both progressive and conservative politicians (Wardekker et al., 2009). Wardekker et al. (2009) show that religious conservatives respond positively not only to dominion-type denomination narrative—which weighs less support to pro-environmental value—but also to the stewardship-type denomination narrative which endorses strong support for the environment.

Overall, these overlapping and opposing research findings might show us the need to explore deeper into the dynamics of religion from a mere value and norms internalization to actual intention and behavior towards rejecting/accepting environmental sustainability topics and issues. Although it is tempting to inspect attitude towards pro-environmental value between different religions, it is important first to understand what and how religious value being internalized in relation to the selected working construct of religion elements.

### **1.2.2 Religion values and teachings on environmental sustainability**

In the debate on religion and ecology, Bauman et al.(2010) argue a shared assumption that (1) There is an important connection between religion and ecology, and (2) this connection is particularly important and in flux today because of the reality of environmental degradation. Thus, in context of this assumption, later findings would then show various results indicating

different stances amongst scholars. One of the extreme views is that faith must be antagonistic to ecological science and the natural environment. Other results show that religion is simply a different sphere that does not interact with science and public policy, and it is not connected to studies of the natural world or claims to environmental responsibility (Bauman et al., 2010). As it progressed, empirical research on the effect of religion on attitudes toward the environment remains divided into two opposing points of view. There are those who support its negative effect from those who support its positive effect on pro-environmental attitudes.

Before indulging into those differences, it is necessary first to define which religion is in the center of analysis; what makes it important compared to other religion; and what the limitation of the construct, elements, and properties determined to be analyzed. In the previous section of defining religion, this thesis decides to use Lunn's (2009) definition of religion, which is, an institutionalized system of beliefs and practices concerning the supernatural realm. *Second*, in the context of psychology as value attitude and belief, this thesis use Lunn (2009) spirituality definition as the personal beliefs by which an individual relates to and experiences the supernatural realm to represent religion's values and teachings. And *third*, the extension and emphasis on religion as an institution representing social groups, this thesis will also use religion as a social identity which the concept of personal norms, social norms, and group affiliation embedded deep within.

Thus, using common construct, properties, and elements of religion as a definition, this thesis avoids comparing pro environmental value of various religions' teachings without firstly examines the elements and properties of religion contributing to the development of it. Nevertheless, specifically knowing well and fully aware of the chosen construct, it is important to explain that there are two chosen categories separating the variability kinds of religion,

which are the Abrahamic religions (Judeo-Christian-Muslim) and Non-Abrahamic religions (Buddhism, Hinduism, etc.). About this, more often, research on religion and ecology take samples from Abrahamic religions. Existing research on Islam, Christian, and Judaism (Haq, 2001; McFague, 2001; Tirosh-Samuels, 2001) with Buddhism and Hinduism (Daniels, 2010; Narayanan, 2001; Negi, 2005) showed that there are substantive differences in views about nature between them (Judaism, Islam, Christian, Hinduism, and Buddhism). Thus, it might necessary also to observe religion's value and teachings for environmental sustainability using Abrahamic and Non-Abrahamic categorization.

The next important detail to address is to understand that religious scripture and teaching are sets of moral codes that regulate the behavior of its society. These scriptures and sets of moral code are objects that are prone to human interpretation and re-interpretation. On the other hand, reframing environmental discourse in various interpretation might be fruitful as Feinberg & Willer (2013) reduce the gap in environmental concern between liberals and conservatives by reframing environmental discourse in different moral terms according to specific to each ideology. Emphasizing religious conservatives in more elaborate detail, Feinberg & Willer (2013) argue that presenting conservatives with pro-environmental messages couched within a set of particularly conservative moral domain led conservatives to adopt more pro-environmental attitudes, comparable to those of liberals. As moral reframing can successfully sway environmental attitudes, the potential of reframing environmental sustainability in various religious teaching reinterpretation narratives might also hold promising results (Wardekker et al., 2009).

In choosing the above definition, this thesis continues to a further question. What are religious values and teachings predisposition towards environmental sustainability? While

certainly this is a question addressed to theology scholars and required the expertise of theology to answer, without trying to cross boundaries of the sub-discipline, there are some scholars and researchers in religious studies provided a somewhat useful description. In the level of religious scriptures and teachings as the object of interpretation, there are vast written stories and references which is ambivalence in regard containing both positive (Gade, 2015; Haq, 2001; McFague, 2001; Tirosh-Samuels, 2001) and negative to the pro-environment values. The conclusion whether it is positive or negative towards pro-environment values would then depend heavily on the reader as subject interpreting the scriptures. Furthermore, interpreting religious scripture requires expertise—which signifies the role of religious expert and authority summed up by the whole condition of religion’s institutional function. For example, Gade (2015) concludes that with environmental ‘fatwas’ and ‘dakwah’ in Indonesia, “..Muslims present a totalizing theory and practice that modulates an Islamic message of ecological justice” (Gade, 2015, p. 178). That conclusion is comparable to McFague (2001), who argues that “..the earth belongs to the Lord and His creation and His follower should not only do what is fair to other individuals but also do what is necessary to work with God to create a just and sustainable planet” (McFague, 2001, p. 138).

On the other hand, Haq (2001) highlights the common inaccuracy of laypeople interpreting the scripture, “..quite evident too is the ethical thrust of the frequent Qur'anic declaration that God has made the natural world "subject to" human beings” (Haq, 2001, p. 151). The inaccuracy is also comparable to other findings in Christian religion, in which the meaning of “dominion” (in Genesis 1:26), used as full dominion to the rest of creation (Fowler 1995: 80–86; Gottlieb 2006: 24–30 in Bauman et al., 2010).



In conclusion, this thesis limits the scope of the study to explore religion's attitude and perspective toward pro-environment value as the result of value internalization and of religious narratives communication framing. This will be explained in detail in the sub-section of psychology of religion (see section 1.3) *Second*, as a unique belief system, any substantive comparison of pro-environmental support is explained using the above-discussed construct, to avoid dogmatic theological discourse of a specific religious text and scripts. *Third*, this paper views religious scriptures and teachings as a priming variable.

### **1.2.3 Religion institution on environmental sustainability**

One important topic is to differentiate religion as faith from religion as an institution in examining the influence of religion value and teachings towards environmental sustainability. Smith & Leiserowitz (2013) introduce 'American evangelical' in their examination of religion and global warming. They later point out that this evangelical is quite different with Catholics and Anglicans in the sense of they are not an organized religion. Evangelicals, unlike members of other organized religions, do not have a figurehead to seek guidance from (Palmer 2012 in Smith & Leiserowitz, 2013). Considering evangelicals are theologically very similar, if global warming were driven by theological beliefs alone, opinions would be less divided amongst evangelicals (Nagle, 2008 in Smith & Leiserowitz, 2013). As expected, other than less likely to believe global warming is happening; less likely to believe human activities cause global warming; less worried about global warming than non-evangelicals; most of the American evangelicals do not have monolithic views about the issue. They are influenced by a variety of predictors. Whereas Catholics have the Pope and Anglicans have the Archbishop of Canterbury, evangelicals look to politicians and others in

influential positions to inform their beliefs and attitudes. Past research has also identified political partisanship and ideology as an impediment preventing many conservative evangelicals from accepting climate change (Hitzhusen, 2011, Wilkinson, 2010 in Smith & Leiserowitz, 2013). Therefore, for some evangelicals, the source of their belief will be the prominent Republican politicians who openly criticize climate change science while for some others will be the Democrats (N. Smith & Leiserowitz, 2013). This confirms previous findings where strong evidence suggests that evangelicalism is the least tractable of the Christian traditions for environmental theologies as "religion as social group" (religious tradition) demonstrates greater power over attitudes than does religious belief (Guth, Green, Kellstedt, & Smidt, 1995)

As an institution, religion is one of the most sustained organization practices designated to provide insight, explanation of facts, moral compass and guidance for individuals, and collective behavior reaching and shaping human civilization and history. It is important for scientific communities to account major religious institutions as an influential key player in sustainable development, considering how environmental value can be promoted or demoted by religion. The latter showed in ample of research where religious values, teachings and communications framed by religious institutions tend to explain natural hazard as the end of the world; seek to enhance the religious institution influence rather than to explain the hazard logically; and therefore, hinder the explanation of phenomenon for effective prevention (Artur & Hilhorst, 2012). Thus, this research also proposes to explore religious institutions, which influence the attitude, decision, and behavior of their followers and communities. In reaching sustained commitment for environmental sustainability, this research seeks to look over the dynamics of environmental value framing and campaign

(Adger, Butler, & Walker-Springett, 2017; Feinberg & Willer, 2013; Lorenzoni, Leiserowitz, De Franca Doria, Poortinga, & Pidgeon, 2006). It will do so in the perspective of religion as an institution and as a value belief system influencing attitudes and behavior. And this thesis also explores their effectiveness to reach out influential stakeholder in institutional settings and the strategy of communication for inclusion (Carter, 2013; Hopson & Smith, 1999; Schulze, 2014).

### **1.3 Psychology behind the internalization of religious values and beliefs**

Hitherto, we have explored various definitions of religion and hinted at the principal elements of religion. To briefly recap the elements, they are religious values and doctrinal beliefs, the expected religious attitude and its corresponding behaviors, and the religious institutions which have the authority to play a leading role in guiding the adherents towards specific religious ends. Specifically for the religious institutions, they also provide the adherents with the necessary moral motivation and modality to set the expected attitude in motion. To add depth to our aforementioned macro-sociological explanations of religion, we will provide a micro-psychological side of religious value internalization by looking at it as an individual's social and personal aspects.

#### **1.3.1 Religious orientation**

The present study utilizes Allport's religious orientation in defining the interchangeably-used religiosity or religiousness (Gallagher & Tierney, 2013), as far as it approaches beliefs, knowledge and affectation of intrinsic, extrinsic personal and extrinsic social motivation in engaging in religious activities. Allport's religious orientation consists of intrinsic personal religious orientation, where religion is deeply personal to the individual,

such as the commitment to a religious life and living out his/her religion; extrinsic personal religious orientation, with religion being a source of peace safety and comfort, which is a direct result of participating in religious activity; and, finally, extrinsic social religious orientation, where the emphasis is placed on religion as membership in a powerful in-group, providing protection, consolation or social status, and enabling religious participation (Allport & Ross, 1967; Fleck, 1981; Genia & Shaw, 1991; Kahoe & Meadow, 1981; Maltby, 1999).

#### 1.3.1.1 Social religious orientation

Allport's (1966) essay about religion and prejudice, classifies theological, sociocultural, and personal-psychological aspect of religious prejudice. Allport uses Lenski's social affiliation, which argues that individual with communal social affiliation will be more likely prejudiced than individual with associational social affiliation (Lenski, Smith, & Jamison, 1963). For Allport, this communal social affiliation turns out to be much more evident on average churchgoers rather than non-churchgoers. One of the reasons for this was that religion is also peculiarly tailored to the sociocultural aspect (e.g., class, ethnicity, or nationality) and thus in itself, church membership is also primarily of sociocultural class, and caste. The reason churchgoers are much more prejudiced than non-churchgoers is not because religion instill prejudice. It is rather that a large number of people, by virtue of their psychological make-up, require for their economy of living both prejudice and religion (Allport, 1966, p. 451).

“Some, for example, are tormented by self-doubt and insecurity. Prejudice enhances their self-esteem; religion provides them a tailored security. Others are guilt-ridden; prejudice provides a scapegoat, and religion relief. Still others live in fear of failure. Prejudice provides an explanation in terms

of menacing out-groups; religion promises a heavenly, if not terrestrial, reward. Thus, for many individuals the functional significance of prejudice and religion is identical. One does not cause the other; rather both satisfy the same psychological needs. Multitudes of churchgoers, perhaps especially in times of social anomie and crisis, embrace both supports” (Allport, 1966, p.451)

Ingroup attitudes have been given much attention in the study of religion and prejudice. One relevant finding related to religion influence towards environmental sustainability is that an individual can be committed to one’s group and have negative feelings about that same group (Umaña-Taylor et al., 2014). This underlines the power religious organizations have over their members. However, research results assigning value and belief as derivatives depicting groups norms cannot be generalized to other groups, even if there’s high consensus on values and belief made within that group.

Several years after Allport, Tajfel (1974) social identity theory (SIT) lends two important notions; individual and social processes (Tajfel & Turner, 1979). The former relates to the individuals’ attempt to acknowledge which social group/s they belong to, and the latter refers to the influence of socialization in individuals’ formation of social identity. These processes are understood as social identification. Social identification starts as early as five years of age (Allport, 1954). Children are already capable of acknowledging which group they are a member of and which groups they feel rewarded for their membership. Social identity also conceived as a part of individuals’ self-image, in which they consider their membership to certain social groups as important parts of their life (Turner, 1975). Thus, we can define

social identity as people's emotional attachment to particular social groups in which they regard these groups as important parts of their self-image.

As Allport's social religious orientation signifies the importance of sociocultural aspect of religion in religious prejudice, Tajfel (1974) provides clarity in explaining Allport's social religious orientation as the manifestation of religious social identity.

### Social identity theory

Tajfel (1974) authored a paper on social identity and intergroup behavior in which identifies the importance of social context. As he eloquently stated, "the role of men in groups" is an important aspect of studying intergroup behavior (Tajfel, 1974, p. 65). Group itself can be defined as a "cognitive entity that is meaningful to the subject at a particular point in time" (Tajfel, 1974, p. 69). For the interests of clarity, we must emphasize that the term social identity in this framework is equivalent to group identity and can sometimes be used interchangeably in this sub-section. Social identity theory proposes four main concepts to explain its mechanism (Tajfel, 1974). First, the social categorization, which refers to the individuals' tendency to organize people into meaningful categories, such as religion. Since social identity is part of individuals' self-image, it is by nature that they assign favorable attributes to their groups and on the contrary, assign the unfavorable ones to outgroups (Baumeister & Leary, 1995; Tajfel, 1981). Second is social identity. Once formed, social identity can change in its relative importance over the course of life. This is due to the third concept, which is social comparison. The last concept is psychological distinctiveness. It relates to unique characteristics of individuals' social groups that differentiate them from other groups, for instance, belief distinctiveness in different religious groups.

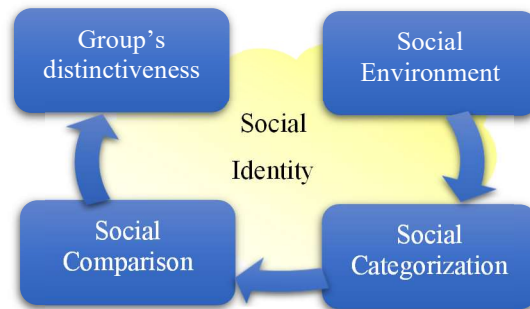


Figure 1-1 Diagrams of Social Identity Development

In general, SIT applies to a very vast broad range of human social interaction. In history, human's social identity took many forms and level of practices from a mere familial relationship to religion, and nation. Strongly related to environmental sustainability—specifically, climate change—group process also takes various from in various level such as nation (UNFCCC), and cities (ICLEI, World Mayor, etc.) suggesting that group process is important tools to gather collective efforts towards specific change.

Identity behavior depict that individual's social identity showed through behavior and therefore, the behavioral indicator is one of the main measures in the identity operationalization (Phinney & Ong, 2007). In-group attitudes, stresses the importance on having positive attitudes in responding challenges from hostility and discrimination (Phinney & Ong, 2007). In context of group and social affiliation, values and beliefs are very subjective. It only applies to individual's behavior and action per se. Values and belief are what individuals perceived about their identity (Phinney & Ong, 2007) and therefore, it is one main reason why behavioral indicator studied separately from social identity. While value and belief are building blocks of personal norms, social norm—which is the representation of social groups affect towards individual—on the other hand, is not automatically adopted into

personal norm (Klößner, 2013). Although social norm is one of the significant predictors of behavioral intention, it must be activated and internalized into personal norms for the individuals to act accordingly (Klößner, 2013). This activation is closely related to the last component of identity, which is identity salience.

As stated earlier, the importance of one's own social identity may change over time and situations (Tajfel, 1974). This relative importance refers to identity salience. A distinct social identity will become more salient when the social circumstances facilitate it to emerge (Phinney & Ong, 2007). In the field of intergroup competition, Steele, Spencer, and Aronson (2002) found that social identity is found more salient within minority groups which experienced prejudice and victimization.

#### Religious identity and extrinsic social religious orientation

SIT paves the way to see how people develop their understanding of social groups and eventually form their own group identity. Developing social identity means developing a self-image, in which people always strive for achieving positive status. When group memberships formed, people are in a better state of well-being, and they have higher self-regard (Branscombe, Schmitt, & Harvey, 1999; Tajfel & Turner, 1979). Through social identity, people feel connected with other people they may not meet face-to-face but strong enough to be loyal in preserving their positive feelings towards their membership (Allport, 1954; Tajfel, 1974). The previous section discussed social identity and how religion is addressed as one. This section will browse more on religious identity and its relation to environmental sustainability and Allport's extrinsic social religious orientation. Combining social identity and religion, as an unfalsifiable belief system, is a key step in understanding religion's influence on environmental sustainability. This is supported by two reasons. *First,*



religion offers more personal and exclusive membership than other (Hunsberger & Jackson, 2005; Muldoon, Trew, Todd, Rougier, & McLaughlin, 2007) and hence, individuals tend to give a more costly contribution based on religious identity. *Second*, this type of membership provides solid ground and highly organized support (Ysseldyk, Matheson, & Anisman, 2010) and hence when needed, collective action is feasible to perform.

Both above reasons are very close to Allport's extrinsic religious motivation. In Allport's term, extrinsic religious orientation are those individuals with motivation to use religion for their own ends, which serves other, more ultimate interests, and, extrinsic values which are always instrumental and utilitarian (Kahoe, 1985). However further studies distinguish extrinsic religious orientation into two separate dimensions of extrinsic social and extrinsic personal religious orientation. In much more recent development. Later studies deleted the extrinsic personal dimension completely (Kirkpatrick, 1989; Gorsuch & McPherson, 1989; and, Kirkpatrick & Hood, 1990 in Douglas E. Trimble, 1997). With the elimination of extrinsic personal scale, Allport's religious orientation consists of only intrinsic personal religious orientation and extrinsic social religious orientation. Hoge (1972) mentions the latter as individual being motivated with social purposes "...such as meeting the right people, gaining social standing and acceptance in the community, or selling insurance" (Hoge, 1972 in Douglas E. Trimble, 1997, p. 971). In short, extrinsic religious orientation points to a type of religion that is strictly utilitarian: useful for the self in granting safety, social standing, solace, and endorsement for one's chosen way of life. Many extrinsics do, of course, have religious needs, but they feel no obligation to attend church regularly nor to integrate religion into their way of life. Their connections are determined exclusively by mood or by crisis (Allport, 1966, p.455)

Additionally, individuals engaging in their religion extrinsically motivated with social purposes are awfully close with social identity theory. Here, the access to group support and membership and other rights and features that come along with it, are the end goals. Thus, we argue that Allport social religious orientation is one manifestation aspect of what Tajfel (1974) propose as social identity theory, in which, responding to a specific value or phenomenon, people would act and behave as what they perceived their group would act and behave. This thesis proposed that there are two reasons why religious identity plays a significant role in facing the current ecological crisis. First is that religious identity provides beliefs that consist of values and norms that are central to people's social participation in a given society (Abu-Nimer, 2001; Hunsberger & Jackson, 2005). Second, although religious identity tends to lead to the 'in-group glorification' unfaltering belief (Wellman & Tokuno, 2004; Ysseldyk et al., 2010) and moral superiority (Brewer, 1999; Muldoon et al., 2007), religion provides moral compass and authority which necessary to lead people to a certain goal. It is undebatable that religion matters and is one of the driving forces of a compelling and cohesive social identity, necessary for raising awareness for the current ecological crisis.

#### 1.3.1.2 Personal religious orientation

Aside sociocultural aspects of religion Allport (1966) emphasizes that both religion and prejudice are intensely personal states of mind. Thus, to understand religion and prejudice, we have to examine the psychological composition of individual people (Allport, 1966, p.453). Allport (1966) developed the axiology of extrinsic value and intrinsic value. He uses this to separate churchgoers whose communal type of membership supports and serves other, nonreligious ends (extrinsic orientation) from those for whom religion is an end in itself—a final, not instrumental, good. The intrinsic form of religious sentiment regards faith as a

supreme value in its own rights. Intrinsically oriented individual pursues a unification of being, takes seriously the commandment of brotherhood, and strives to transcend all self-centered need. (Allport, 1966, p. 455)

### **1.3.2 Personal and social norms related to behavior.**

To investigate religion as social and personal norms—as dynamics of internalization—will bring much broader explanation and novelty in the field of environmental sustainability. Artur & Hilhorst (2012) viewed religion as a “factor that enabled affected individuals to cope with the stress of the event which will constrain people to look other ways to adapt and mitigate effectively. Similar to that perspective, in researching Katrina Hurricane, Lovekamp (2008) argues that religious beliefs were a factor influencing the decision and behavior to remain rather than evacuate. In the field of psychology and behavior, there are various theories explaining factors which influence decision and behavior. Klöckner, (2013) investigates how people make decisions about environmentally relevant behavior and identifies that intention to act, perceived behavioral control, habit strength, and social and personal norms are important predictors of behavior. Thus, religious faith and values are important in how it interacts with behavior and intention. As defined by Cialdini & Trost (1998), “social norms are rules and standards that are understood by members of a group, and that guide and constrain social behavior without the force of laws.” Social norms evolve to regulate social life and serve the function of restricting egoistic impulses in favor of collective outcomes (Biel, Eek, & Gärling, 1999); and may become internalized in which case sanctions (in the form of guilt feelings or pride) administered by the individual him or herself (Biel & Thøgersen, 2007). Internalized norms are called personal norms (Schwartz, 1977 and

Schwartz & Howard, 1982 in Biel & Thøgersen, 2007). While it may be unique and different from the values and belief of a social group a person affiliated with him/herself to, personal norms are always learned and acquired from his/her social surroundings.

Exploring religion and governing religious value in the context of social norms is important to understand whether members of religious groups adopt their group values as their personal norm. As explained earlier in social identity theory, identity salience may change over time and situations (Tajfel, 1974). Yip & Fuligni (2002) study explored two factors influencing individuals' identity salience, which are situational characteristics and setting-level characteristics. The former refers to a situation where individuals happen to be with other people from the same social background, such as religion, at the time. The latter refers to a situation where individuals have no control of, such as being the subject of injustice due to their group identity (e.g., religion, race, ethnicity, etc.). In context of social norms, despite the flexible and situational characteristics of identity salience, personal norms--which are unique in everyone, tend to be consistent. This is because social norms are often guiding behavior in specific contexts, and many times personal norms need to be activated. Such an activation process is "more often than not" are unconscious, it does not involve much thinking or even a choice on the part of subjects. Once it is activated, it will show some inertia, in the sense that unless a major change in circumstances occurs, people will keep following the norm that has been primed (Bicchieri, 2002). Moreover, social norms tend to support cooperation in social dilemmas and sometimes also in large-scale dilemmas involving environmental problem (Biel & Thøgersen, 2007).

### **1.3.3 Ethical ideologies**

As explained in previous section, this study incorporates Lunn (2009) and Wilber & Jameson (1980) elements and roles of religion where religious worldview may bridge the disconnection between the sacred and the material world, may empower people by providing sense of dignity and feeling of connectedness, and may promote values and social change mediated by religious institution. This institution functions to provide some sense of moral compass, relevancy and authority figure which may guide their followers' behavior. However, to avoid choosing only one specific religious dogma instead of studying a more general representation of religion, we use Forsyth (1980) ethical ideologies in representing common basic elements of religious belief.

Most studies focus on the direct influence of religion value and belief toward attitude and behavior (Allport, 1966; Allport & Ross, 1967; Brewer, 1999; Emmons, 1999; Maltby, Talley, Cooper, & Leslie, 1995). On the other hand, there are several studies which treat religion as determinants of ethical judgements (Cornwell et al., 2005; Goodwin & Goodwin, 1999). These studies argued that many general spiritual principles and values are related to ethics (Skipper and Hyman, 1993; Jackson, 1999 in Cornwell et al., 2005). One of which shows an indirect influence of religious belief toward attitude and behavior through ethical ideologies (Barnett, Bass, & Brown, 1996). In line with these findings, further studies examining the relation between religious belief and ethical ideologies (Barnett et al., 1996; Cornwell et al., 2005; J. Watson, 2002; Weaver & Agle, 2002) provided evidence where ethical ideologies facilitated broader philosophical coverage which better corresponds to the focus of religious value and belief (Cornwell et al., 2005). Hence, the present study propose

to use the context of Forsyth's (1980) ethical ideologies in examining religion and religiousness.

Forsyth's (1980) ethical ideologies consist of two dimensions: ethical idealism and ethical relativism where idealist (individuals who scored high on idealism) think that ethical behavior will always lead to positive consequences, while relativist (individuals who score high on the relativism) rejects the universal moral principles and believe that moral decisions should base on the personal or situational analysis (Forsyth, 1980; Galvin & Herzog, 1992). Through idealism and relativism, people can be classified into four possible ethical positions: situationists (high idealism and high relativism), subjectivists (low idealism and high relativism), absolutists (high idealism and low relativism) and exceptionists (low idealism and low relativism) (Forsyth, 1980) (Figure 1-2).

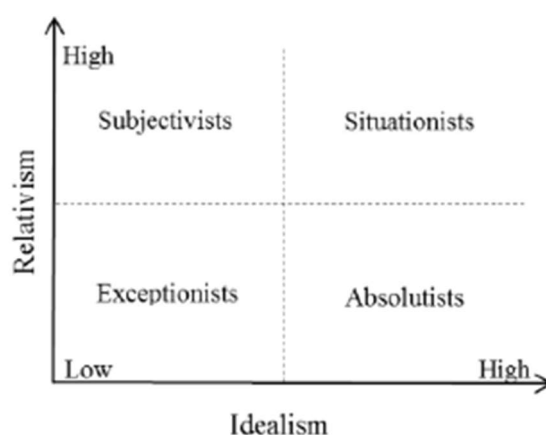


Figure 1-2 Ethical positions according to idealism and relativism

Using Forsyth's (1980) ethical ideologies, the present study address religion and religiousness as a major driver of ethics (Cornwell et al., 2005) and moral compass, both having the capacity to affect personal attitude toward a specific issue. However, while there are ample of separate studies connecting religion to ethical ideologies and religion to

environmental sustainability, studies investigating ethical ideology and environment sustainability are somehow lacking. One exception is in the field of animal welfare, where there are growing investigations confirmed the correlation between ethical ideologies and public attitudes toward animals (Galvin & Herzog, 1992; Herzog & Nickell, 1996; Signal & Taylor, 2006; B Su & Martens, 2017; Bingtao Su & Martens, 2018; Wuensch, Jenkins, & Poteat, 2002). Those studies find that belief and attitude toward animals had a leading role within the field of human-animal relationship, animal welfare, ecological belief, and environment sustainability. Thus, findings from those studies serve as a framework and reference toward a broader investigation of the natural environment importance and preservation attitude. We propose that by accounting both of religious belief and ethical ideologies, the present study provide a fresh approach to investigate findings from animal welfare research and the attitude toward the importance of the natural environment and how religion may relate to them.

#### **1.4 Research approach and outline of this dissertation**

Throughout centuries, religion played an important part in providing a moral compass and guiding behavior. In doing so, not only religion extend its role and function in explaining facts and determine what is right from wrong, but it also gave communities social identity, sense of belongingness, and worldviews about human life and their surroundings to their follower. These features put religion as one significant key-actor which could bring people and direct awareness to the current ecological crisis, or as the cause of illiteracy to our environmental needs. Recently, the latter proved more relevant at an alarming pace.

While much of research findings argue that religion worldview hinders environmental awareness, there are also substantive findings highlighting religion potential to positively support environmental awareness and preservation through careful interpretation of its scripture and teachings (belief component). However, most of the studies are discourse analysis exploring the scripture and teachings of religion which strongly require expertise and adeptness on religious teachings and literature. Most of those studies are religious studies, which are difficult to measure. The average population does not necessarily share the same interpretation of teachings and scriptures as in the perspectives of theology scholars. Thus, many religious studies lack empirical findings and need more field validity. In contrast, there are scientific scholars examine the “non-dogmatic” elements and properties of religion as a belief system ranging from religion’s roles and function in society; the channel of communication; information framing; to the institutional arrangement of religion. These studies provide sound and empirical arguments which are useful to religious studies. In this sense, scientific scholars can help to explore religion using its construct, properties, and elements without necessarily intervening in the substance of its faith.

This study examines religion as a social phenomenon in a scientific manner. We chose Forsyth’s ethical ideologies of idealism and relativism which we argue as two elements commonly found in all religious belief. Chapter one explores the background and theory about all variables being investigated. In this chapter, we discussed definition and elements of religion, the environment sustainability concept, the relevant psychological elements proposed for explaining elements of religion being explored, ethical ideologies, and how this study propose the method to study them. Nevertheless, despite a handful of results of religion’s positive relation to pro-environment value, there are alarming numbers of research results



showing otherwise. There are lots of findings directly showing religion negativity towards environmental value. Taking account of these contradictory findings, this research suggests examining three variables. *First* is Forsyth's (1980) ethical ideologies of idealism and relativism and *second* is Allport's (1967) religious orientation, which measures religion both as a social motive (extrinsic social religious orientation) and as the personal commitment and orientation of people living out their religion devoutly (intrinsic personal religious orientation). Chapter two explores how religion relates with animal welfare issues as one representation of the natural environment, and chapter three explores how religion relates to broader issues in the natural environment concerns presented using Thompson and Barton's (1994) ecocentric-anthropocentric motives for environmental attitude which specifically measure environmental motives and apathy. In both chapters, we use correlational design to examine how the targeted variables relate to religious orientation and ethical ideologies.

Lastly, we propose information and communication framing using religious priming narratives as our third variables. We propose that carefully examining these three variables may help to explain what caused the opposing results from numerous studies. Chapter four describes how religious narrative may play a huge portion in influencing environmental concerns and animal welfare. With the help from religious leaders representing a balance proportion of various religious organizations in Indonesia (namely Nahdlatul Ulama, Muhammadiyah, Protestant and Catholic church) we devise two priming narratives for participant to read before taking surveys. From those two narratives, we vary three treatment groups. We vary how the information from religious scripture and teachings will be presented and primed using various scenarios. The first group read pro-environmental narratives, the second human dominance and the third is the control group, where participants directly take

the survey without reading any narratives. Using and taking account of all above variables in measuring pro-environment attitude shall give a clear antecedent of religion's depicted worldview about environmental sustainability compared to what individual prefer. The resulting environmental attitudes differences across these various groups will clearly hint some understanding of how religion today may play an important part in building awareness for environmental concerns.

Finally, chapter five provides a conclusion and discussion of overall results and findings. In this chapter we discussed what conclusion can be derived from each chapter in the bigger context of religion and environmental concerns. We also discuss the limitations of our studies and propose some suggestions for future studies.

**Chapter 2**

**Do religious beliefs relate to concerns for animal welfare? The relation  
between religious orientation, ethical ideologies, and attitudes toward  
animal protection amongst Muslim teachers and school staff in East  
Java, Indonesia**

This chapter is published as:

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## Abstract

There is ample research supporting White's (1967) thesis, which postulates that religion and religious belief inhibit ecological concerns. This study thus seeks to explore the relationship between individuals' acceptability for harming animals as one representation of ecological concern (measured using Animal Issue scale (AIS)) and their religious belief (measured using Religious Orientation Scale (ROS)) and ethical ideology (measured using Ethical Position Questionnaire (EPQ)). The study surveyed 929 Muslim teachers and school staff in East Java, Indonesia. We found that ROS correlates with EPQ whereby intrinsic personal (IP) relates with idealism while extrinsic social religious orientation (ES)—where religion is perceived as an instrument for social gain, membership, and support—relates with relativism. However, using multiple regression analysis to examine both EPQ and ROS relation to acceptability for harming animals suggests mixed results. Idealism and IP relate to a lower acceptability for harming animals, while relativism and ES correlate to a higher acceptability for harming animals. In another model where we calculate all the main variables with all the demographic and other determinants, we found that only ROS consistently relates to acceptability for harming animals. Additionally, we identify, explain, and discuss significant demographic determinants along with this study's limitations.

## 2.1 Introduction

Animals—specifically, beliefs and attitudes towards them—have a central role within the field of human-animal relationships, animal welfare, ecological belief, and sustainability. Most research about belief and attitude shows that attitudes toward animals are closely related to some determinants such as age (Ascione, 1992; Kavanagh, Signal, & Taylor, 2013; Kellert, 1985), household income (Signal & Taylor, 2006), education (Ascione & Weber, 1996; Furnham, Mcmanus, & Scott, 2003; Nicoll, Trifone, & Samuels, 2008), pet ownership (Driscoll, 1992; Martens, Enders-Slegers, & Walker, 2016; Serpell, 1996), geographic region (Phillips et al., 2012; Pifer, Shimizu, & Pifer, 1994) and religion (Bowd & Bowd, 1989; Díaz, 2019; Driscoll, 1992; Gilhus, 2006). Regarding the latter, despite limited studies on the relationship between religious belief and public attitudes toward animals, there are growing investigations which confirm the relationship between ethical ideologies and public attitudes towards animals (Galvin & Herzog, 1992; Herzog & Nickell, 1996; B Su & Martens, 2017; Bingtao Su & Martens, 2018; Wuensch et al., 2002) as well as between ethical ideologies and religious orientation (Barnett et al., 1996; Cornwell et al., 1994; P. Watson, Morris, Hood, Milliron, & Stutz, 1998; Weaver & Agle, 2002).

For the relation between ethical ideologies and public attitudes toward animals, previous studies showed mixed results. It was found that ethical idealism relates positively to a higher concern for animal use (Galvin & Herzog, 1992). Through their research about the effectiveness of materials designed to sway public opinion about biomedical research using animals, Herzog & Nickell (1996) would later add that compared to males and those low in ethical idealism, females and subjects high in moral idealism rate higher effectiveness to those research materials and advertising that reject animal use in biomedical research (anti-animal

research materials) (p. 9). Also similar, Wuensch & Poteat (1998) concluded that support for animal research associate negatively with idealism but positively with relativism. More recent studies by B Su & Martens (2017, 2018) also confirmed these results, showing that higher idealism scorers are more likely to have a more positive attitude toward animals and a lower acceptability for harming animals. However B Su & Martens (2017, 2018) slightly deviate from older studies (Galvin & Herzog, 1992; Herzog & Nickell, 1996) whereby they find that high scorers of ethical relativism are more likely to have a more negative attitude toward animals only in China (B Su & Martens, 2017), but not in their Dutch sample (Bingtao Su & Martens, 2018). B Su & Martens (2017, 2018) argued that the differences between both samples might stem from the difference between being a developed and developing country, respectively. On the opposite spectrum, Wuensch et al. (2002) found that among non-idealists there is a significant positive relationship between misanthropy and support for animal rights, while among idealists the regression line is flat. They argued that misanthropic non-idealists discount the value of benefits to humankind (or may even consider them of negative value), and thus cannot justify animal use to benefit humankind (Wuensch et al., 2002).

For the relation between ethical ideologies and religion, previous studies' results were much more consistent and straightforward. Cornwell et al. (1994) found that religion has some effect on ethical positions. Austrian Christians are significantly less idealistic and relativistic than all other religions, even with other Christians from the United States and Britain (Cornwell et al., 1994). They argued that there are some ethical convergence between religions (Cornwell et al., 1994). In another study, Barnett et al. (1996) concluded that religiosity correlates positively with a non-relativist ethical ideology. Closely similar with them, Watson et al. (1998) argued that religious intrinsicness or religious intrinsic personal orientation is

associated with the idealism and anti-relativism of an absolutist ethical position. They argued that intrinsic commitments to religion may simply mean that certain beliefs are absolutely nonnegotiable (P. Watson et al., 1998) (p. 5). In Forsyth's (1980) terms, this absolutistic way of thinking type is the result when people strongly believe that moral decision should be guided by an universal governing principle (low relativism) rather than by personal or situational analysis (high relativism) while also convinced that ethical behavior will always lead to positive consequences. Thus, combining results from these studies, the present study aims to examine the relationship between ethical ideologies and religious orientation, and to explore how both religious orientation and ethical ideology interact and relate with participants' acceptability towards harming animals.

The role religion plays in studies of animal welfare remains unclear in some areas. One area, focusing on the correlation between religious affiliation and the treatment of animals, showed mixed results. In some cases, religious practice is negatively correlated with positive animal attitudes (Kruse, 1999; Peek, Bell, & Dunham, 1996; Binsgtao Su & Martens, 2018b), whilst in others there are no significant differences (Herzog & Nickell, 1996; Meng, 2009a). Another area focuses on the kind of animal being put into consideration. Gilhus (2006) stresses the relevance of the value of animals within different religions, which is supported by Driscoll (1992) a decade before, who argued that the acceptability in various scenarios of animal use strongly depends on the species of animal used in each of the provided examples. Lastly, another area put emphasis on the liberal-conservative continuum of ideology. Bowd & Bowd (1989) showed that religious affiliation consistently correlated with attitudes toward the treatment of animals, and the level of attitude adopted (whether more or less humane) was related to the theological position of the affiliated church (Bowd & Bowd, 1989). Participants

who affiliated with theologically liberal religious groups tend to display more positive attitudes toward animals compared to those who affiliated with more conservative religious groups (Bowd & Bowd, 1989). However, Driscoll (1992) argued that persons who reported either an affiliation with or no religious affiliation with the Catholic church, rated examples of animal use as significantly less acceptable than persons who proclaimed a traditional Protestant affiliation. This was partially supported in Díaz (2019), providing evidence that non-Catholics and non-practitioners of any religion were associated with the most positive attitudes toward animals. Similarly, Bingtao Su & Martens (2018) find lesser positive attitudes toward animals in respondents whose main source of inspiration was Christianity, as compared to those respondents who did not report Christianity as their main source of inspiration.

Despite these efforts, religion has barely been featured amongst key anthropogenic factors causing environmental degradation (Bauman et al., 2010); at least not until after White's (1967) thesis about religion gained sufficient attention from the scientific community, where much of the later research would then assume that religion and ecology are interrelated. Several studies show that more often than not, religion hinders the awareness of and efforts towards environmental sustainability, where it depresses concern about the environment (Arbuckle & Konisky, 2015; Barker & Bearce, 2013; Muñoz-García, 2014). Others, however, have found that the belief in God or the identification with a particular religion is not associated with measures of environmental concern (Boyd, 1999; Hayes & Marangudakis, 2000, 2001; N. Smith & Leiserowitz, 2013). There are several possible reasons for these mixed results. One reason might stem from how each study addresses different aspects and properties of religion in measuring religious value, such as religious scriptures, contents and interpretation (Haq, 2001; McFague, 2001; Tirosh-Samuels, 2001), or communication framing (N. Smith



& Leiserowitz, 2013; Wardekker et al., 2009). Another reason might reside in how various studies differ in how they define religiosity, religiousness or religious belief. Gallagher & Tierney (2013) argue that religiosity and religiousness are interchangeable as far as an individual's conviction, devotion and veneration towards a divinity is concerned. However, religiosity or religiousness can be broadly or narrowly formulated using differing aspects such as (1) human cognitive aspect (beliefs, knowledge), (2) affect, which relates emotions to religion, and (3) behavior, such as time spent praying or reading religious texts, attendance, or affiliation (Cornwall, 1989). Thus, differing foci and aspects produced various operationalizations of religiosity, such as religious orthodoxy (Fullerton & Hunsberger, 1982; Hunsberger, 1989), typology (Glock & Stark, 1965), fundamentalism (Kellstedt & Smidt, 1991; McFarland, 1989), and religious orientation (Allport, 1966; Allport & Ross, 1967; Donahue, 1985).

The present study utilizes Allport's religious orientation in defining the interchangeably used religiosity or religiousness, as far as it approaches beliefs, knowledge, and affectation of intrinsic, extrinsic personal and extrinsic social motivation in engaging in religious activities. In detail, Allport's religious orientation consists of intrinsic religious orientation, where religion is deeply personal to the individual, such as the commitment to a religious life and living out his/her religion; extrinsic personal religious orientation, with religion being a source of peace safety and comfort, which is a direct result of participating in religious activity; and, finally, extrinsic social religious orientation, where the emphasis is placed on religion as membership in a powerful in-group, providing protection, consolation or social status, and enabling religious participation (Allport & Ross, 1967; Fleck, 1981; Genia & Shaw, 1991; Kahoe & Meadow, 1981; Maltby, 1999).

In other areas, studies examining the relationship between religious belief and ethical ideologies (Cornwell et al., 2005; P. Watson et al., 1998; Weaver & Agle, 2002) provide evidence that ethical ideologies facilitate broader philosophical coverage corresponding to religious values and beliefs (Cornwell et al., 2005). Several studies argue that general spiritual principles and values are largely related to ethics (Cornwell et al., 2005; Jackson, 1999; Skipper & Hyman, 1993), indicating that religiosity significantly correlated with Forsyth's (1980) idealist and anti-relativist ethical ideologies (Barnett et al., 1996; P. Watson et al., 1998).

Forsyth's (1980) ethical ideologies consist of two components, namely, ethical idealism and ethical relativism. An idealist thinks that ethical behavior will always lead to positive consequences, while a relativist rejects universal moral principles, instead believing that moral decisions should be based on a personal or situational analysis (Forsyth, 1980). Several studies of ethical ideologies and attitudes towards animals and animal protection demonstrate that public attitudes toward animals or animal experiments are related to their ethical perspectives. One study investigating the role of idealism and relativism in the United States demonstrates how idealists often express greater moral concern for how animals are utilized than their relativist counterparts (Wuensch & Poteat, 1998). Later studies provide more evidence that positive attitudes towards animals are positively correlated to ethical idealism, where people's moral idealism significantly influences their attitudes toward animals (Galvin & Herzog, 1992; B Su & Martens, 2017). The more those individuals consider their ethical behavior would always lead to desirable consequences, the more they appreciate animals (B Su & Martens, 2017).

Nonetheless, the role religion plays regarding attitudes towards animals is still unclear. Most studies of ethical ideologies provide reliable evidence that the position of ethical idealism bears positive attitudes towards animals and animal protection (Galvin & Herzog, 1992; B Su & Martens, 2017; Bingtao Su & Martens, 2018; Wuensch & Poteat, 1998). Moreover, research on ethical ideologies also provide clear evidence where religiosity significantly correlates with idealism and anti-relativism (Barnett et al., 1996; P. Watson et al., 1998). Thus, the present study aims to utilize ethical ideologies to examine the relationship between religiousness—as a major driver of ethics (Cornwell et al., 2005)—and public attitudes towards animals. This study aims to also consider, therefore, how both religious belief and ethical ideology interact with attitudes towards animals and their welfare and protection.

As it was found in previous studies (Barnett et al., 1996; P. Watson et al., 1998), as the first working hypothesis, we predict that intrinsic personal religious orientations will have a positive correlation with ethical idealism and a negative correlation with relativism. Also taking the consistent results from various studies (Galvin & Herzog, 1992; B Su & Martens, 2017; Bingtao Su & Martens, 2018; Wuensch & Poteat, 1998), as our second working hypothesis we predict that higher acceptability for harming animals relates to a lower ethical idealism and a higher relativism. The third working hypothesis is the extension of the first hypothesis, in which it predicts how religious orientation relates to attitudes toward animals and animal protection by examining how it correlates to ethical ideologies. We hypothesize that Allport's intrinsic personal religious orientations will have positive correlations to lower acceptability for harming animals.

In later developments of religious orientation (Donahue, 1985; Maltby, 1999; D. E. Trimble, 1997), the dimension of extrinsic social motives has been added. Extrinsic social religious orientation addresses how individuals practice religion more as an instrument for social gain such as membership in a powerful in-group, providing protection, consolation, or social status, and enabling religious participation. The extrinsic social religious orientation is more closely related to the social identity in-group membership concept (Tajfel, 1974, 1981; Turner, 1975) which introduce instrumental views of religion for social gain whereby religious belief systems are used to obtain desirable outcomes that might unnecessarily be ethical or unethical. On one hand, the ethical means for social gain may very much correspond to the concept of ethical idealism where ethical behavior is believed will always bring positive outcome. However, on the other hand, should there be unethical means for social gains, it may relate to lower idealism, and higher relativism in which a person strongly believes that there is no universal moral standard, and therefore, moral decisions should be based on the personal or situational analysis. In this sense, we are carefully posing a working hypothesis for the relationship between extrinsic social religious orientation and ethical ideologies. Thus, as the fourth hypothesis, we predict that higher extrinsic social religious orientation relates to a lower idealism and higher relativism position, whereas higher relativism relates to a higher acceptability for harming animals.

The observation that extrinsic social religious orientation overlaps with the social identity in-group membership concept (Tajfel, 1974, 1981; Turner, 1975) shows how important the concept of social category is. In this study, the religious group is treated as a social category that offers a sense of group positioning within which individuals identify themselves vis-à-vis religious outgroups (Blumer, 1958; Tajfel & Turner, 1979). Thus,

individuals who identify themselves as Muslims are more likely to behave in accordance with the typical behaviors of fellow Muslims. Thus, applying the above findings to the context of Indonesia, the present study avoids describing Islamic religious worldview of animals. Despite it being true that most people in Indonesia follow Islam, this investigation is not theological in nature. Moreover, it is important to mention that this study purposefully selects the population in East Java province, depicting considering that it represents some of the oldest, most influential Islamic communities and organizations, whilst also being the province with the most diverse Islamic denomination. The province of East Java is the birthplace of Nahdlatul Ulama (NU), the largest Islamic mass organization in Indonesia. It has approximately 40 million members throughout the nation and its influence is not merely at the regency-level but also at the national (Anwar, 2019). Secondly, East Java is well-known for its long history of Islamic boarding schools. Pesantren Darul Ulum is one of the oldest and most distinguished in Jombang, East Java (Turmudi, 2006). Thirdly, East Java offers an interesting segment of the political constellation in Indonesia. Its political influence at the national level has been prominent since the making of the nation (Bush, 2009). Two of the most renowned instances were the appointment of Abdurrahman Wahid as the fourth President of Indonesia (1999-2001) and the appointment of Ma'ruf Amin as the current Indonesian vice president (took office in 2019), both of whom have strong ties to Nahdlatul Ulama in East Java. All in all, the above reasons foster East Java as one of the most relevant candidate-grounds for scrutinizing the relationship between religiousness and the attitudes held towards animals and animal protection; moreover, due to the religious groups' prevalence in East Java, we should point out that our respondents are likely to be Muslims. Regardless of all the above, however close a representation East Java is of the everyday major religious worldview in

Indonesia, the present study avoids over-generalization of the results representing the whole country.

Aside from the above hypotheses, we also emphasize the demographic determinants commonly suggested in most studies about religion, ethical ideologies and animal welfare, such as gender, age, household income, education, pet ownership, religious organization affiliation, meat consumption (B Su & Martens, 2017; Bingtao Su & Martens, 2018). We will therefore closely scrutinize these important demographics or other determinants in our analysis.

## **2.2 Materials and methods**

We confirm that this article was reviewed and approved by the institutional review board (ethics committee). We have submitted the plan for conducting the study, the time schedule, the questionnaires, and the tools for collecting data and acquired the approval from the Maastricht University's Ethics Review Committee Inner City faculties. This research article conforms with the ethics for human participant regulated by the General Rules for Information Protection (European Union) 2016/679. All personal information is handled with extreme care so that personal data will not be opened to third parties or stored on servers that are accessible to the public. Names and positions are replaced by an alphanumeric code to keep identity protected.

We wrote an invitation letter to each school requesting their willingness to participate. This invitation letter was formalized and legalized by the relevant body of Indonesia government ranging from national, province to districts. All schools/universities that rejected

our invitation were not surveyed. For each of those schools/universities that accepted and were surveyed, we re-confirmed each participants' willingness to participate by obtaining the oral consent that they are freely and voluntarily participating in the survey.

This research targeted Muslim teachers and school staff in the province of East Java, Indonesia, using cluster sampling, whereby a paper and pencil survey of teachers was conducted. One of the reasons for the participant selection is in viewing that as an institution, both public and private schools are subjects to nation-wide education curriculum whereby collected data may generally capture a nation-wide curriculum's learning goals (Swirski, 2002) relevant to animal protection and welfare. However, there were also a lengthy discussions about educators roles as transformative intellectuals rather than as nation-state agent teaching nation-state learning goals (Leite, Fernandes, & Figueiredo, 2020; Muff & Bekerman, 2019; Tan, 2016). Also, taking some roles and responsibilities of a parent (*loco parentis*), teacher may be as well provide assistance and insight on moral, political, religious and ethical issues for their students (Grubb, 1995) as one study hinted that teachers act as role-models for the students and influence their students' political attitudes (Bar-Tal & Harel, 2002).

In another study related to transformative agency, teachers' inclusive practices, moral purposes, competence, autonomy and reflexivity (Pantić, 2015) are important factors to act as an agent of change. The duality of being transformational agents while also fulfilling their obligatory role to implement the nation-state education curriculum agenda, Muff & Bekerman (2019) argued that teachers mediated their roles between the different demands that of the civic education politics imposes on them by navigating elegantly both in producing hegemonic discourse and in fostering ways to rebel against and draw counter-hegemonic strategies in their

classroom practice. Thus, this study viewed that having teachers as the participants for the research would capture some dynamics of interlocking roles at play. To name a few, the nation-state curriculum goals, teachers' beliefs, moral purposes, reflexivity, and awareness in responding to the nation-state curriculum, and their combined roles as transformative intellectuals, more or less, are the dynamics reflected in classroom discourses. Teachers' attitudes towards animal welfare and protection may best represent the nation's sets of environmental policy and the younger generation's perspective.

Survey participation invitations were sent to 67 schools (ranging from junior to senior high schools). The survey invitation emphasized that it was important for the school to provide a balanced proportion of male and female teachers or school staff. A total of 37 schools, from 10 districts of East Java, replied and agreed to participate, providing 1007 participants. However, only 929 participants were analyzed due to removing 78 participants because of incomplete and unengaged answers (*see section 2.3.2*).

All the questionnaires in the survey were originally in English (*see S1 questionnaires in English*). We then translated them to Indonesian (*see S2 questionnaires Bahasa Indonesia adaptation*). The method of translation and adaptation was using expert judgement and back translation. The questionnaires were translated to Bahasa Indonesia and sent to experts for evaluation and finalization of the translation. After corrections, the questionnaires were translated back to English by three Indonesian academicians from Universitas Indonesia. Back-translated items that were very similar to their English language origin were retained, and the remaining were modified or deleted.

The set of questionnaires consists of four sections. In the first section, we asked a variety of important determinants and demographic details such as birth year (age), gender,



highest level of education completed, their experience or participation in either animal protection, nature conservation, or human health organization, their household composition (for example, single, married, or widow(er), with children or not), place of residence (rural or urban), type of house (apartment, live with parents, etc.), their opinion regarding the importance of religion/spirituality in their lives, household income, pet ownership, kinds of pet, their weekly frequency of meat consumption, and the frequency of visiting public zoos or aquariums in a year.

In the second section, the Animal Issue Scale (AIS) (Meng, 2009a) is used to measure acceptability toward harming animals. There are 43 questions in the original AIS, representing eight animal issues: use of animals, animal integrity destruction, killing animals, animal welfare deprivation, experimentation on animals, changes in animals' genotypes, harm animals for environmental reasons, and societal attitudes toward animals [harm animals for social issues]. Each question is rated on a five-point scale ranging from one, extremely unacceptable, to five, extremely acceptable. A high score on a question indicates a high level of acceptability for the particular issue (Phillips et al., 2012). Using principal axis factoring factor analysis (S3 Missing case analysis, Factor Analysis and Reliability; Table 3 to 5), the original ‘killing animal’ and ‘animal deprivation’ issues were identified as one factor (Table 2-1).

Table 2-1 AIS Rotated Factor Matrix

Items	Factor <sup>a</sup>						
	1	2	3	4	5	6	7
AI01_AnimUse Keeping animals for the production of food or clothing							.490
AI02_AnimUse Keeping animals as pets							.447
AI04_AnimUse Using animals for work							.624
AI05_AnimUse Using animals for entertainment or sports							.654
AI08_Intgrty De-sexing by hormone implants				.542			
AI09_Intgrty Removal of a body part, such as tail docking or de-clawing				.662			

AI10_Intgrty	Marking animals by branding or ear notching	.589
AI11_Intgrty	Removal of dead tissue, such as hair/wool removal or foot trimming	.557
AI14_Kill	Using animals for products after their natural death	.439
AI16_Kill	Euthanizing healthy and unwanted pets because of overpopulation	.556
AI17_Welfare	Depriving animals of their needs for food and water	.768
AI18_Welfare	Depriving animals of an appropriate environment to rest, including shelter	.765
AI19_Welfare	Inflicting pain, injury, or disease on animals	.798
AI20_Welfare	Not providing sufficient space, proper facilities and company needed for animals	.701
AI21_Welfare	Subjecting animals to conditions and treatment which cause mental suffering	.501
AI24_Xprmnt	Medical experiments using animals to improve human health	.553
AI25_Xprmnt	Testing cosmetics or household products on animals	.636
AI26_Xprmnt	Operating on living animals for the benefits of human medicine research	.755
AI27_Genchng	Increasing animals' reproductive or productive capabilities by genetic changes, e.g., cows producing more milk	.633
AI28_Genchng	Increasing animals' health or disease resistance by genetic changes	.693
AI29_Genchng	Creating farm animals that are more profitable because they feel happy with little stimulation and have little desire to be active	.749

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Table 2-1 AIS Rotated Factor Matrix (continued)

Items	Factor <sup>a</sup>						
	1	2	3	4	5	6	7
AI30_Genchng Genetic selection of pet animals, such as dogs and cats, to increase their rarity, potential for showing or pedigree value			.600				
AI34_Envlss Controlling wildlife populations by killing						.542	
AI35_Envlss Controlling animal populations by sterilization						.439	
AI36_Envlss Destroying the habitat of endangered animal species						.596	
AI37_Envlss Destroying the habitat of non-endangered animal species to develop and promote urbanization or crops to feed humans						.465	
AI39_SocAtt Considering some animal species as sacred or good luck symbols or totems		.606					
AI40_SocAtt Considering some animal species as evil or bad luck		.765					
AI41_SocAtt Parents displaying cruel treatment of animals in front of their children		.591					
AI42_SocAtt Inflicting pain or injury on animals as part of cultural traditions		.570					
AI43_SocAtt Cloning animals for human benefit		.435					

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

Thus, the present study reduced AIS to only 31 items, conveying only 7 factors. Additionally, this study included the Animal Attitudes Scale (AAS) (Herzog, Jr., Betchart, & Pittman, 1991) for measuring public attitudes toward animals. However, after principal axis factoring factor analysis, previously intended as cross-validation for the AIS, the 20-item Likert-like scale AAS failed to provide a stable unidimensional construct as it was in its original psychometric properties (*see* S3 Missing case analysis, Factor Analysis and Reliability; Table 35 to 49). Alpha's reliability also showed small to moderate coefficients for each of the resulting factors. Thus, AAS was removed from the analysis.

In the third section, the Religious Orientation Scale (ROS) (Allport, 1966; Allport & Ross, 1967; Leong & Zachar, 1990) was originally used to measure intrinsic and extrinsic religious orientation. We use Maltby's (1999) 15-item version which incorporates

Kirkpatrick's (1999) analysis expanding ROS into three scales: intrinsic orientation (IP), extrinsic personal—religion as a source of comfort (EP) and extrinsic social—religion as social gain (ES). The 15-item scale therefore consists of nine questions addressing IP, for example, 'I try hard to live all my life according to my religious beliefs', 'My whole approach to life is based on my religion', 'It is important to me to spend time in private thought and prayer'); three questions addressing EP, for example 'Prayer is for peace and happiness', 'I pray mainly to gain relief and protection'; and lastly, the remaining three covering the ES dimension, for example, 'I go to church because it helps me make friends', 'I go to church mainly because I enjoy seeing people I know there'. However, after principal axis factoring factor analysis (S3 Missing case analysis, Factor Analysis and Reliability; Table 21 to 26), the present study found only two dimensions of intrinsic personal (IP) and extrinsic social (ES). After factor analysis, the EP was accounted as the same factor as IP (Table 2-2), and thus, will be considered as the same as IP.

Table 2-2 ROS Rotated Factor Matrix

Items	Factor <sup>a</sup>	
	1	2
ROS01 (IP) I try hard to live all my life according to my religious beliefs	.673	
ROS03 (IP) I have often had a strong sense of God's presence	.608	
ROS04 (IP) My whole approach to life is based on my religion	.705	
ROS05 (IP) Prayers I say when I'm alone are as important as those I say in church	.577	
ROS06 (IP) I attend church once a week or more	.358	
ROS07 (IP) My religion is important because it answers many questions about the meaning of life	.741	
ROS08 (IP) I enjoy reading about my religion	.750	
ROS09 (IP) It is important to me to spend time in private thought and prayer	.630	

Table 2-2 ROS Rotated Factor Matrix (continued)

Items	Factor <sup>a</sup>	
	1	2
ROS10 (EP) What religion offers me most is comfort in times of trouble and sorrow	.665	
ROS11 (EP) Prayer is for peace and happiness	.764	
ROS12 (EP) I pray mainly to gain relief and protection	.622	
ROS13 (ES) I go to church because it helps me make friends		.833
ROS14 (ES) I go to church mainly because I enjoy seeing people I know there		.894
ROS15 (ES) I go to church mostly to spend time with my friends		.787

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

In the fourth section, the Ethical Position Questionnaire (EPQ) was used to measure the differences in personal moral philosophy (Forsyth, 1980; Galvin & Herzog, 1992). The original EPQ was a 20-items Likert scale consisting of two sub-scales. The first 10 items were designed to measure the ethical idealism dimension, while the last 10 items measured ethical relativism. Respondents were asked to respond to statement using the nine-point EPQ ranging from one (completely disagree) to nine (completely agree). Regarding ethical idealism, six items were removed from analysis of this study. Four out of those six items were removed because of significant skew values which were outside the range between -2 to 2 (Kim, 2013). The remaining two were removed because of low factor loading, along with three items from ethical relativism. After principal axis factoring factor analysis (S3 Missing case analysis, Factor Analysis and Reliability; Table 27 to 34), the present study uses only 11 EPQ items. In which four items from the idealism scale, and seven items from the relativism scale. Factor analysis also found that the remaining seven items of ethical relativism were put into two factors. However, after ensuring a relatively stable Cronbach alpha's reliability in one factor model, the present study decided to retain ethical relativism as it was, a one factor construct (model two, *see* Table 2-3).

Table 2-3 EPQ Pattern Matrix

Items	Model 1 (using eigen value > 1) <sup>ab</sup>			Model 2 (forced as 2 factor loadings) <sup>cb</sup>	
	1	2	3	1	2
EPQ02 (I) Risks to another should never be tolerated, irrespective of how small the risks might be.		0.57			0.52
EPQ03 (I) The existence of potential harm to others is always wrong, irrespective of the benefits to be gained.		0.68			0.627
EPQ08 (I) The dignity and welfare of the people should be the most important concern in any society.		0.563			0.584
EPQ10 (I) Moral behaviors are actions that closely match ideals of the most “perfect” action.		0.453			0.48
EPQ13 (R) Moral standards should be seen as being individualistic; what one person considers to be moral may be judged to be immoral by another person.	0.742			0.459	
EPQ14 (R) Different types of morality cannot be compared as to “rightness.”	0.679			0.491	
EPQ15 (R) Questions of what is ethical for everyone can never be resolved since what is moral or immoral is up to the individual.	0.757			0.624	
EPQ16 (R) Moral standards are simply personal rules that indicate how a person should behave and are not to be applied in making judgments of others.	0.508			0.534	
EPQ18 (R) Rigidly codifying an ethical position that prevents certain types of actions could stand in the way of better human relations and adjustment.				0.528	
EPQ19 (R) No rule concerning lying can be formulated; whether a lie is permissible or not permissible totally depends upon the situation.			0.882	0.729	
EPQ20 (R) Whether a lie is judged to be moral or immoral depends upon the circumstances surrounding the action.			0.727	0.673	

Extraction Method: Principal Axis Factoring.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 7 iterations.

b. Suppressing values less than 0.4

c. Rotation converged in 5 iterations

### Statistical Analysis

Religious orientation, ethical ideologies and acceptability toward harming animals were analyzed with IBM SPSS 24 using multiple regression statistical procedures. This study also used Pearson correlation product moment in investigating the relation between religious

orientation and ethical ideologies. The resulting correlation tables provide additional explanation for the multiple regression results.

Previous studies examining the relation between EPQ public attitude toward animal and animal protection were conducted using ANOVA design (B Su & Martens, 2017; Bingtao Su & Martens, 2018), where EPQ was considered as categorical variables differentiated into four groups depending on the high and low of each ethical idealism and relativism score. These groups are, situationists (high idealism and high relativism), subjectivists (low idealism and high relativism), absolutists (high idealism and low relativism) and exceptionists (low idealism and low relativism) (*see* Figure 1-2 in the first chapter). In this study however, we view that it is best to retain the interval properties from the total score of ethical idealism and relativism to provide richer and more detailed data. Thus, multiple regression is our selected statistical procedure for the given data.

This study uses two models of multiple regression. The first model only investigates the main variables, while the second model takes all main variables with the demographic and other important determinants. For both of the regression models, this study avoids stepwise method in considering that stepwise estimates are not invariant to inconsequential linear transformation. (G. Smith, 2018). Rather, we follow Whittingham, Stephens, Bradbury, & Freckleton (2006) suggestion to use a full model including all of the effects (enter method) for the second regression model, where it takes all multiple variables (main variables, demographic and other determinants) which mainly consist of either interval or categorical properties. As a side note, this study converts all categorical variables into dummy variables, in which we expand each category as a new variable scored with either one or zero.

As Pearson correlation procedure is vulnerable from skewed and kurtosis distribution, we made preliminary normal distribution check to avoid inflated correlation. Each item in the questionnaire was checked for normal distribution assumption (S3 Missing case analysis, Factor Analysis and Reliability; Table 2). In regards to normal distribution assumption, Kim (2013) stressed that the tendency of large samples producing inflated z in consideration to large samples will usually produce a very small standard error for both skewness and kurtosis. Therefore, using skewness and kurtosis reference values for N more than 300, the present study removed items with kurtosis value outside the range between -7 to 7, or skew value outside the range between -2 to 2 (Kim, 2013).

After analyzing each items in the questionnaires, this study removed four items from EPQ idealism, which were “People should make certain that their actions never intentionally harm another even to a small degree”, “One should never psychologically or physically harm another person”, “One should not perform an action which might in any way threaten the dignity and welfare of another individual”, and “If an action could harm an innocent other, then it should not be done”. Table 2-4 shows that all scales from the collected data is safely within the normal distribution bound. Thus, no transformation for normalization is needed.

Table 2-4 Skewness and kurtosis value of main variables

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
AIS	929	.389	.080	.939	.160
Animal use subscale	929	-.132	.080	.191	.160
Integrity destruction	929	.446	.080	.239	.160



Table 2-4 Skewness and kurtosis value of main variables (continued)

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
AIS (continued)					
Killing animal and animal welfare deprivation	929	.789	.080	.689	.160
Animal experimentation	929	-.250	.080	-.008	.160
Genotype change	929	-.426	.080	.463	.160
Harm animal for environmental issue	929	.418	.080	.022	.160
Societal attitude toward animal.	929	.565	.080	.289	.160
EPQ Idealism	929	-1.196	.080	1.162	.160
EPQ Relativism	929	-.568	.080	-.017	.160
ROS Intrinsic Personal	929	-.751	.080	1.430	.160
ROS Extrinsic Social	929	.195	.080	-.495	.160
Valid N (listwise)	929				

## 2.3 Results

### 2.3.1 Instruments validity

Table 2-5 provides the descriptive statistics for the variables used in the analysis. All the Cronbach's coefficient are acceptable, ranging from a moderate internal consistency value of 0.66 for the 'animal use' issue to a value of 0.91 for the overall animal issue scale.

Table 2-5 Descriptive statistics and measurement characteristics for variables

Variable	Scale description	Number of items	Reliability	Mean	SD
ROS-Intrinsic Personal (IP)	5-point Likert-like	11	0.88	4.22	0.53
ROS-Extrinsic social (ES)	5-point Likert-like	3	0.87	2.79	0.99
EPQ Idealism	9-point Likert-like	4	0.66	7.2	1.22
EPQ Relativism	9-point Likert-like	7	0.80	6.29	1.46
Animal Issue Scale (AIS)	5-point Likert-like	31	0.91	2.54	0.52
Animal use	5-point Likert-like	4	0.66	3.1	0.65

\*Using Pearson correlation coefficient instead of Cronbach alpha, considering that the scale consists of only two items.

Table 2-5 Descriptive statistics and measurement characteristics for variables (continued)

Variable	Scale description	Number of items	Reliability	Mean	SD
AIS (continued)					
Integrity destruction	5-point Likert-like	4	0.78	2.37	0.79
Killing-welfare deprivation	5-point Likert-like	7	0.87	2.09	0.76
Experiment	5-point Likert-like	3	0.82	3	0.83
Genetic change	5-point Likert-like	4	0.8	3.3	0.75
Harm for environmental issues	5-point Likert-like	4	0.75	2.37	0.79
Harm for social issues	5-point Likert-like	5	0.84	2.11	0.76

\*Using Pearson correlation coefficient instead of Cronbach alpha, considering that the scale consists of only two items.

The mean score for IP was 4.22 (SD=0.53, with maximum score of five) indicating that, overall, the respondents considered themselves to be strongly committed to their personal religious life. The mean score for ES was 2.79 (SD=0.99) indicating that, overall, the respondents were neither strongly nor weakly disposed towards viewing their religious practices as an instrument for social gain.

The mean idealism score of 7.2 (SD= 1.22, with a maximum score of 9) indicated that, in general, the sample had a strong idealistic ethical ideology, where they believe that their ethical behavior will always lead to positive consequences. The mean relativism score was 6.29 (SD=1.46), indicating that overall, the respondents believe that moral decision-making should be based on situational, rather than universal principles.

The mean score of overall acceptability toward harming animals (AIS) was 2.54 (SD=0.52), indicating that, in general, were neither strongly nor weakly disposed towards acceptability of harming animals. Except for the issues of animal use (mean of 3.1, SD=0.65), experimentation (mean of 3, SD=0.83) and genetic change (mean of 3.3, SD=0.75), the remaining four dimensions of animal integrity destruction (mean of 2.37, SD=0.79), killing-

welfare deprivation of animal (mean of 2.09, SD=0.76), harm (animals) for environmental issue (mean of 2.37, SD=0.79), and harm (animals) for social issue (mean of 2.11, SD=0.76) showed some tendencies to lean more to a lower acceptability of harming animals.

### **2.3.2 Response rates**

Of 1007 total responses obtained, 78 respondents (8%) were removed due to unengaged answers (in other words, these were the respondents who gave the same answer for all the questions in the questionnaire). After the removal, there were still some incomplete answers (listwise missing case) from for the remaining 929 participants (S3 Missing case analysis, Factor Analysis and Reliability, table 1). Those missing cases were imputed using a linear trend method. In total, this research collected and analyzed 929 respondents. The mean age of all respondents (51% female (N=475) and 49% male (N=454)) is 36.38 years old (SD=10.02). The completed surveys have a relatively balanced proportion of rural (61%) and urban (39%) areas. Additionally, several complementary variables were assessed, such as pet ownership, where 48% of respondents adopted one or more pet(s), while 52% of respondents didn't adopt any pet. For home ownership, 1% lived in an apartment, 9% live in a rented room, 55% lived and owned a house, while the remaining 40% still live in their parent's house. For the highest level of education, 74% hold a Bachelor, 14% a PhD or a Master, 8% graduated high school, 3% hold a diploma, while for the categories of those who either finished middle or high school, where they either hold another degree, or did not answer, were each less than 1%. Regarding the frequency of zoo or aquarium visitation, 4% visited a zoo once a month, 7% at least every six months, 22% once a year, 42% once in every two or more years, and lastly, 22% never visited a zoo or aquarium, leaving the remaining 1% respondents without

answer. Regarding professions, all the respondents were teachers or school staff. However, some of the respondents had a secondary profession, as follows: 5% as an entrepreneur, 39% as an employee in the private sector, 24% as civil servants, 5% are also scholarship students, 19% are teachers or lecturers without a secondary profession, while the remaining 6% are either semi-retired, social workers, or university researchers, working in the farming or livestock sector; others did not disclose their professions, or did not or did not want to answer. Finally, we also asked about the frequency of weekly meat consumption whereby 6% didn't eat meat, 28% ate meat once in a week, 36% ate meat two to three days in a week, 13% four to six days in a week, and lastly, 14% ate meat every day.

### 2.3.3 Ethical ideologies and religious orientation

The hypothesis presented in this section is that higher personal religious orientation relates to a higher idealism and a lower relativism. Table 2-6 provides the correlation matrix for the studied variables. We find positive relationship between idealism with personal religious orientation (IP) ( $r[927]=0.21, p<0.01$ ). However, there is no significant relationship between relativism with IP ( $r[927]=0.000, p>0.05$ ), and therefore, while the hypothesis is rejected by every relation with relativism, it is accepted in predicting the relationship between idealism with IP. Lastly, the correlation between extrinsic social religious orientation, idealism ( $r[927]=-0.02, p>0.05$ ) and relativism ( $r[927]=0.15, p<0.01$ ) is reported with a more detail in another section (*see section 2.3.6*).

Table 2-6 Correlation Matrix between AIS, ROS and EPQ

	AIS			IP			ES			EPQ Idealism		
	r	CI 95%		r	CI 95%		r	CI 95%		r	CI 95%	
		lower	upper		lower	upper		lower	upper		lower	upper
AIS												
IP	-0.19**	-0.25	-0.12									

ES	0.24**	0.17	0.30	0.05	-0.02	0.11						
Idealism	-0.04	-0.11	0.02	0.21**	0.15	0.27	-0.02	-0.08	0.05			
Relativism	0.15**	-0.21	-0.08	0.00	-0.06	0.06	0.15**	0.08	0.21	0.35**	0.29	0.41

\*\* . Correlation is significant at the 0.01 level (2-tailed).

### 2.3.4 Ethical ideologies and acceptability for harming animals

The hypothesis presented in this section is that higher acceptability for harming animals (AIS) relates to a lower idealism and a higher relativism. There are two models developed and analyzed using the multiple regression method (Table 2-7). The first model analyses the four main variables relation to AIS, namely idealism, relativism, intrinsic personal and extrinsic social religious orientation. The second model investigates all four main variables by taking all potential demographic and other determinants into account with the equation.

Table 2-7 Regression of EPQ, ROS, and demographic determinants toward AIS

Model	AIS		Effect Size	95% CI	
	b	(Std. b)		Lower	Upper
<b>1 - Main Variables<sup>A</sup> (R=0.33; R<sup>2</sup>=0.11, df=9,439)</b>					
(Constant)	2.84	**		2.524	3.147
EPQ Ideal	-0.02	-0.04	0.00 <sup>C</sup>	-0.05	0.01
EPQ Relative	0.05	0.13**	0.01 <sup>C</sup>	0.02	0.07
ROS Personal	-0.18	-0.19**	0.03 <sup>C+</sup>	-0.25	-0.12
ROS Social	0.12	0.22**	0.05 <sup>C+</sup>	0.08	0.15
<b>2 - Main Variable + Demographic and other determinants<sup>B</sup> (R=0.40; R<sup>2</sup>=0.16, df=40, 408)</b>					
(Constant)	2.52	**		1.874	3.175
<sup>1</sup> How often do you consume meat in a week? I don't consume meat: Yes (1) – No (0)	0.36	0.18 **	0.10 <sup>D</sup> +	-0.109	0.217
<sup>2</sup> What is your gender? Female: Yes (1) – No (0)	-0.14	-0.16 **	0.22 <sup>D</sup> +	-0.18	-0.05
<sup>3</sup> What is the highest level of schooling you have completed? Diploma: Yes (1) – No (0)	0.39	0.12 *	0.69 <sup>D</sup> ++	0.16	0.61
ROS Personal	-0.11	-0.11 *	0.01 <sup>C</sup>	-0.200	-0.014
ROS Social	0.05	0.11 *	0.01 <sup>C</sup>	0.007	0.095
<sup>4</sup> In what sort of house do you live? Own house: Yes (1) – No (0)	0.11	0.12 *	0.16 <sup>D</sup>	0.01	0.16

\*p<.05; \*\*p<.01; <sup>A</sup>regression using enter method in a stepwise manner; <sup>B</sup>regression using enter method; <sup>C</sup>effect-size calculation using eta squared (F<sup>2</sup>); <sup>D</sup>effect-size calculation using Hedges' g; +small effect size F<sup>2</sup>>=0.02 (or in some cases of categorical dummy variable, using Cohen's D/Hedges' g >= 0.2); ++medium effect size F<sup>2</sup>>=0.15 (or in some cases of categorical dummy variable, using Cohen's D/Hedges' g >=0.5); <sup>1</sup>compared to respondents who eat meat once a week; <sup>2</sup>compared to male respondent; <sup>3</sup>compared to those respondents with Master/PhD degree; <sup>4</sup>compared to those who live with their parents

Table 2-7 Regression of EPQ, ROS, and demographic determinants toward AIS (continued)

Model	AIS		Effect Size	95% CI	
	b	(Std. b)		Lower	Upper
<b>2 - Main Variable + Demographic and other determinants<sup>B</sup></b>					
<b>(R=0.40; R<sup>2</sup>=0.16, df=40, 408) (continued)</b>					
What is your gross household expenses per month? Above 25 million: Yes (1) – No (0)	-0.50	-0.07	-	-1.130	0.131
How often do you visit a zoo or aquarium? Once every six months: Yes (1) – No (0)	-0.15	-0.08	-	-0.343	0.045
Where is your current residence place? Urban area: Yes (1) – No (0)	-0.07	-0.08	-	-0.169	0.025
What is your gross household expenses per month? Refuse to answer: Yes (1) – No (0)	-0.08	-0.07	-	-0.193	0.034
What is your age?	0.00	0.08	-	-0.002	0.010
What is the highest level of schooling you have completed? Bachelor: Yes (1) – No (0)	0.08	0.08	-	-0.044	0.210
What is your gross household expenses per month? Five to 10 million: Yes (1) – No (0)	-0.09	-0.07	-	-0.237	0.053
Do you have children? Yes (1) – No (0)	0.09	0.09	-	-0.061	0.250
In what sort of house do you live? Apartment: Yes (1) – No (0)	0.25	0.06	-	-0.167	0.665
EPQ Ideal	-0.02	-0.06	-	-0.060	0.016
EPQ Relative	0.02	0.05	-	-0.015	0.049
How often do you consume meat in a week? Two to three times a week: Yes (1) – No (0)	0.05	0.06	-	-0.049	0.156
What is your marriage status? Married: Yes (1) – No (0)	-0.09	-0.08	-	-0.267	0.088
Is religion important for you? Yes (1) – No (0)	0.19	0.05	-	-0.189	0.572
How often do you consume meat in a week? Once a week: Yes (1) – No (0)	0.07	0.05	-	-0.071	0.205
Do you have a pet? Yes (1) – No (0)	-0.04	-0.05	-	-0.134	0.046
What is your marriage status? Widow(er): Yes (1) – No (0)	-0.16	-0.05	-	-0.523	0.199
In what sort of house do you live? Room rent: Yes (1) – No (0)	0.07	0.05	-	-0.087	0.219
Do you belong or donate to an organization or charity involved in or concerned with: Conservation of the natural environment: Yes (1) – No (0)	0.08	0.05	-	-0.115	0.267
What is your gross household income per month? More than twice the average income in my country: Yes (1) – No (0)	0.21	0.04	-	-0.328	0.749
What is your gross household expenses per month? 10 to 15 million: Yes (1) – No (0)	-0.20	-0.04	-	-0.718	0.319
What is the highest level of schooling you have completed? Senior high: Yes (1) – No (0)	-0.07	-0.04	-	-0.269	0.128
Do you belong or donate to an organization or charity involved in or concerned with: Improving health or human rights: Yes (1) – No (0)	0.06	0.04	-	-0.106	0.220
How often do you visit a zoo or aquarium? Once every two or more year: Yes (1) – No (0)	-0.03	-0.04	-	-0.149	0.082
Do you have your own backyard? Yes (1) – No (0)	-0.03	-0.03	-	-0.116	0.064
How often do you consume meat in a week? Four to six times a week: Yes (1) – No (0)	0.04	0.03	-	-0.103	0.181
What is your gross household income per month? Refuse to answer: Yes (1) – No (0)	0.03	0.03	-	-0.088	0.155
What is your gross household income per month? About twice the average income in my country: Yes (1) – No (0)	0.08	0.03	-	-0.224	0.390
Do you belong or donate to an organization or charity involved in or concerned with: Animal sector: Yes (1) – No (0)	-0.05	-0.02	-	-0.339	0.242
How often do you visit a zoo or aquarium? Once a month: Yes (1) – No (0)	-0.04	-0.02	-	-0.288	0.211
How often do you visit a zoo or aquarium? Once a year: Yes (1) – No (0)	-0.02	-0.02	-	-0.148	0.112

What is your gross household income per month? About the average income in my country: Yes (1) – No (0)	-0.01	-0.01	-	-0.138	0.115
Do you have any affiliation with religious organization? Yes (1) – No (0)	-0.01	-0.01	-	-0.116	0.102
What is your gross household income per month? About the minimum income in my country: Yes (1) – No (0)	0.01	0.01	-	-0.130	0.146

\* $p < .05$ ; \*\* $p < .01$ ; <sup>A</sup>regression using enter method in a stepwise manner; <sup>B</sup>regression using enter method; <sup>C</sup>effect-size calculation using eta squared ( $F^2$ ); <sup>D</sup>effect-size calculation using Hedges'  $g$ ; +small effect size  $F^2 \geq 0.02$  (or in some cases of categorical dummy variable, using Cohen's  $D$ /Hedges'  $g \geq 0.2$ ); ++medium effect size  $F^2 \geq 0.15$  (or in some cases of categorical dummy variable, using Cohen's  $D$ /Hedges'  $g \geq 0.5$ ); <sup>1</sup>compared to respondents who eat meat once a week; <sup>2</sup>compared to male respondent; <sup>3</sup>compared to those respondents with Master/PhD degree; <sup>4</sup>compared to those who live with their parents

For the first model (Table 2-7), we find only partial evidence to support the hypothesis. The results show that only for ethical relativism we can accept the hypothesis, where we find higher relativism is more likely lead to a higher overall acceptability for harming animals (AIS) ( $b=0.05$ ,  $p < 0.01$ ). This means that when holding all other variables constant, one point increase in relativism is likely to increase 0.05 point of AIS score. Moreover, it is important to mention that from the effect-size aspect, relativism has little to no effect toward AIS score ( $F^2 \leq 0.02$ ). Through the confidence interval, if we were to retake the regression for total of 20 random trials, taking samples of the same size from the same population, we can be confident that for 19 out of total 20 trials (95% of the time), an increase of 1 unit of relativism will be more likely to increase AIS between 0.02 to 0.07 point. Thus, despite accepting the hypothesis for every relation with relativism, this study advises to take caution to limit the interpretation because of the near non-existent effect-size. In short, in the first model, idealism has no relation to overall acceptability for harming animals (AIS), and relativism significantly relates to a higher AIS ( $b=0.05$ ,  $p < 0.01$ ). However, the confidence interval and effect-size indicate a small to no effect, suggesting that relativism relation to AIS is not as strong as its relations with IP, ES, and some of demographic or other determinants.

An important addition from this study is when observing the second regression model, whereby all main variables along with demographics and other determinants are taken together as well as independently. From the second model, this study shows no significant relation between AIS with both relativism and idealism.

### **2.3.5 Religious orientation and acceptability for harming animals**

The hypothesis presented in this section is that higher intrinsic (IP) religious orientation relates to a lower acceptability for harming animals (AIS). In both of model (Table 2-7), the present study accepts the third hypothesis. We find that higher intrinsic personal religious orientation correlates to a lower overall acceptability for harming animals ( $b=-0.18$ ,  $p<0.01$  in model 1; and  $b=-0.11$ ,  $p<0.05$  in model 2). This means that when holding all other variables constant, one point increase in IP is more likely to decrease 0.18 point of AIS score in the first, and 0.14 point in the second model. However, there is one difference between both models whereby the effect-size of IP shows small effect-size toward AIS score in the first model ( $0.02 \leq F^2 < 0.15$ ), but rather small to no effect in the second model ( $F^2 < 0.02$ ). Through the confidence interval, if we were to retake both models for total of 20 random trials, taking samples of the same size from the same population, we can be confident that for 19 out of total 20 trials (95% of the time), an increase of one unit in IP will be more likely to decrease AIS between -0.25 to -0.12 point in the first model, while in the second model will be more likely to decrease AIS between -0.20 to -0.014 point.

### **2.3.6 Extrinsic social religious orientation, ethical ideologies, and acceptability for harming animals**



The hypothesis presented in this section is that a higher extrinsic social religious orientation (ES) correlates to lower idealism (I), higher relativism (R), and a higher acceptability for harming animals (AIS). We find only partial support to the fourth hypothesis. Table 2-6 shows that higher extrinsic social religious orientation correlates to a higher relativism ( $r[927]=0.15, p<0.01$ ), but not to a lower idealism ( $r[927]=-0.02, p>0.05$ ). In Table 2-7, using multiple regression, we confirm that higher extrinsic social religious orientation relates to a higher overall acceptability for harming animals in both the first ( $b=0.12, p<0.01$ ) and the second model ( $b=0.05, p<0.05$ ). This means that when holding all other variables constant, one point increase in ES is more likely to increase 0.12 point of AIS score in the first, but only 0.05 point in the second model. However, there is one difference between both models whereby the effect-size of ES shows small effect-size toward AIS score in the first model ( $0.02 \leq F^2 < 0.15$ ), but rather small to no effect in the second model ( $F^2 < 0.02$ ). For the confidence interval, if we were to re-fit both models for total of 20 random trials, taking samples of the same size from the same population, we can be confident that for 19 out of total 20 trials (95% of the time), an increase of one unit of ES will be more likely to increase AIS between 0.08 to 0.15 point in the first model, while in the second model will be more likely to increase AIS between 0.007 to 0.095 point. Therefore, except for every relation with idealism, the present study accepts all the expected main variables' relations in the hypothesis.

### **2.3.7 Demographic and other determinants**

In the second regression model (*see* Table 2-7), aside the main variables, there are some demographic and other determinants closely related to AIS, which are meat consumption

( $b=0.36$ ,  $p<0.01$ ), gender ( $b=-0.14$ ,  $p<0.01$ ), diploma ( $b=0.39$ ,  $p<0.05$ ) education level and living in own house home ownership ( $b=0.11$ ,  $p<0.05$ ).

## 2.4 Discussion

Three general conclusions are supported by the present study: *first*, two components of religious orientation relate to ethical ideologies. Intrinsic personal religious correlates with idealism, and extrinsic social religious orientation correlates with relativism. This evidence leans more towards the study by Watson et al. (1998), stressing the relationship between religious orientation and ethical ideologies, rather than the study by Barnett et al. (1996), stressing religiosity related only to ethical relativism. However, in another vein, the present study differs greatly from Watson et al. (1998), who stated that “..intrinsicness seemed to reflect an idealistic and antirelativistic religious identity” (p. 160). In contrast, with intrinsic and extrinsic social religious orientation, this study provides evidence for the connection of religiousness to idealism and relativism. *Second*, rather than idealism, observing the first regression model, we find that only ethical relativism relates to the acceptability for harming animals in the predicted direction, which strengthens the role of relativism found in previous studies (Galvin & Herzog, 1992; Herzog & Nickell, 1996; B Su & Martens, 2017; Bingtao Su & Martens, 2018; Wuensch et al., 2002). However, from the second model there is no significant relation between ethical ideologies and AIS, and therefore we stress religious orientation as a more consistent predictor to the acceptability for harming animals. *Third*, both the intrinsic personal and extrinsic social religious orientation, as hypothesized, consistently relate to the acceptability for harming animals. However, contrary to previous studies, we find no support for the relation between the treatment of animals with religious inspiration (Bingtao

Su & Martens, 2018), and with religious affiliation (Kruse, 1999; Peek et al., 1996; Bingtao Su & Martens, 2018).

Lastly, by including common important determinants—consistently suggested by previous studies—in the regression of the main variables, this study presents a critical evaluation for the correlation of all the main variables' relations. Each set of the results for ROS and EPQ towards AIS are discussed in the respective sections.

#### **2.4.1 Ethical ideologies to AIS**

Taking only the main variable as predictor in the first model, except for idealism, this study confirms B Su & Martens (2017) findings whereby higher relativism significantly correlated with higher acceptability for harming animals (Bègue & Laine, 2017; McPhedran, 2009). For ethical idealism, this study produces mixed results, which are not always in agreement with B Su & Martens (2017). As we reported previously, to overall AIS total score, there is no significant relation from ethical idealism. However, observing regression results of only the main variables (model 1) to each of AIS' sub-issues (*see* S4 AIS subscales multiple regression results; Table 1 to 7), on the one hand, for 'killing animals and animal welfare deprivation', 'harming animal for environmental' and 'harming animal for social' issues, the result suggests that the more the respondents consider their ethical behavior will lead to desirable consequences (a high score of ethical idealism), the lower their acceptability toward harming animals. On the other hand, the reverse happens in 'animal use,' 'experimentation on animals,' and 'animal genotype change.' While B Su & Martens (2017) proposed that the association is most likely due to the idealist's reluctance to overlook animal suffering (Wuensch & Poteat, 1998) which relates to empathy, this study suggests that it also closely

depends on the core motives for harming animals. Provided with the motives and reasons for harming animals, it seems that people may view differently what is considered as ethical and non-ethical behavior. Nevertheless, from the first regression model (in S4 AIS subscales multiple regression results; Table 1 to 7), the significance of idealism towards various AIS subscales is rather ambiguous.

For ethical relativism, the present study finds relationship between relativism and AIS and therefore replicates and strengthens B Su & Martens (2017) findings where they reveals that a high level of ethical relativism more likely to lead to a higher acceptability for harming animals. In the first model, compared to idealism, relativism acts as stronger predictor for acceptability for harming animal. The more the respondents view multiple ways and principles undergirding their judgement and decision-making, the more likely they are to accept harming animals. This result is also consistently true in most of AIS' subscales, namely, 'integrity destruction,' 'killing animals and animal welfare deprivation,' 'harming animal for environmental' and 'harming animal for social' issues. Only in 'animal use,' 'animal experimentation' and 'animal genetic change' issues, does this study find no significant role of relativism.

Nevertheless, as one important addition, through the second model, this study offers a new insight of the non-existent ethical ideologies' relation to the acceptability for harming animals when including other competing factors. With the account of demographic and other determinants, this study shows that compared to religious orientation, ethical ideologies simply have no role in predicting acceptability for harming animals.

#### **2.4.2 Religious orientation to AIS**

White's (1967) study marked a milestone where research of religions' relationship with environmental sustainability began. In that growing research field, related to the aspect of belief (Eckberg & Blocker, 1989), end-times theology (Barker & Bearce, 2013), or belief in either an afterlife or divine intervention (Hope & Jones, 2014), a broad swathe of evidence has shown that religion depresses concerns for the environment (Arbuckle & Konisky, 2015; Muñoz-García, 2014) and religious believers' were found to have a relatively low perception of urgency for environmental issues. Examining religious orientations' relationship to the acceptability for harming animals, the present study do not find unanimous evidence supporting White's (1967) thesis. Respondents with high IP are more likely to have a lower acceptability for harming animals. Rather than hindering the importance of animal protection, religious belief and the degree to which religion is internalized into respondents' everyday conduct has been found to enhance respondents' perceptions of the importance of animal protection. By way of explaining this mixed result, the present study suggests that individuals' interpretation of religious scripture as the result of communication framing may be important (Feinberg & Willer, 2013; Wardekker et al., 2009). One study has pointed out that reframing environmental discourse in multiple religious teaching interpretations reduces the gap in environmental concern between liberals and conservatives (Feinberg & Willer, 2013). In another study, religious framing of climate change resonates with the electorates of both progressive and conservative politicians and serves as a bridging device for bipartisan climate-policy initiatives (Wardekker et al., 2009). Hence, this study suggests that providing information about, or controlling for, multiple religious teaching scenarios is important to further explaining variation between different research results.

On the other hand, the ES religious orientation dimension supports White's (1967) thesis whereby religion depresses concerns about ecology and also, therefore, about animals. Individuals who have high ES showed a higher acceptability for harming animals. The construct of ES implies religion serves as an instrument for social gain, exemplified by the membership of a powerful in-group, providing protection, consolation and social status, allowing religious participation, or use of an ego defense (Allport & Ross, 1967; Fleck, 1981; Genia & Shaw, 1991; Kahoe & Meadow, 1981; Maltby, 1999). Thus, ES properties appear to resemble the embodiment of social identity theory more closely, rather than that of religious belief and commitment. Therefore, the present study may reveal how the social identity aspects of religion (for example, religious group affiliation, participation, and the like) can hinder concern for the environment.

Lastly through the second model, the present study stresses the consistent relationship between religious orientation with acceptability for harming animals. Even when considering all other variables including demographic and other important determinants, religious orientation remains consistent in predicting acceptability for harming animals.

### **2.4.3 ROS an EPQ to AIS**

Other than unearthing important evidence for ethical relativism, perhaps one of the more significant contributions from the present study is that it also examines the main correlation of religious orientation components (IP and ES) and ethical ideology components (idealism and relativism), all taken together, as well as independently.

Contrary to prediction, IP does not have a significant relationship with relativism. This is surprising considering that the sample mean indicated that most of the respondents

considered themselves to be very strongly committed to their religious beliefs (IP Mean of 4.22 with maximum score of five) suggesting that having a strong, deep religious belief and commitment does not necessarily mean that respondents consider them as their sole governing universal moral guiding principle for their judgement and decision-making. Furthermore, IP correlates with idealism (Forsyth, O'Boyle, & McDaniel, 2008). This may suggest that rather than operating as the extent to which an individual believes in universal governing moral principles (low relativism), intrinsic personal religious motives, belief and commitment may function more as a principle with which individuals portray and justify their actions as correct, to achieve desirable outcomes (high idealism).

*Second*, ES relates to relativism. The more individuals view their religious belief, participation, and practices as the means to an end for social motives and affiliation (for example, as group protection, group status, or other means of social gain), the more likely they are to have high relativism. High relativistic individuals' moral judgments are adaptable, for they base their appraisals on features of the situation and action they are evaluating. People who express low relativism, in contrast, have more cognitive beliefs in universal moral principles, and use them to make judgements and decisions (Feinberg & Willer, 2013) (p. 815).

It is interesting to note that an unexpected positive correlation was observed between idealism and relativism ( $r[927]=0.35, p<0.01$ ). This is contrary to the original EPQ study which suggested that the two scales were essentially orthogonal (Barnett et al., 1996; Forsyth, 1980). Moreover, this unexpected correlation was also shown in Barnett et al. (1996) when investigating the relation between EPQ and religiousness. Their study suggested consistent

evidence of the psychometric limitations of ethical idealism and relativism constructs when presented and measured on a single scale (Forsyth et al., 2008).

Lastly, when considering all the main variables with demographic and other important determinants, the results stress the importance of religious orientation as the sole main variable that relates to acceptability for harming animals. Both idealism and relativism do not have any correlation to acceptability for harming animals in this model. This finding strongly suggests religious orientation as the more prominent main variable in predicting acceptability for harming animals.

#### **2.4.4 Demographics and other Determinants**

Demographic factors like meat consumption, gender, level of schooling, and type of home ownership are significant with respect to the overall AIS score (*see* Table 2-7). However, by examining the effect size, only meat consumption, gender, and diploma level of schooling are discussed.

Gender was often found to be a correlated factor (Binngießer, Wilhelm, & Randler, 2013; Herzog, Jr. et al., 1991; Prokop & Tunnicliffe, 2010) and the present study replicated those findings. After all demographic and other factors are considered, this study reveals gender as one of the persistent predictors for AIS. In one study, women are regarded as being more concerned with animal welfare than men (Wuensch & Poteat, 1998). On the other hand, personality differences between gender may play important roles as one study suggests that the differences whereby men are less likely to have sympathetic reactions to animals than women are probably derived from men's lower levels of belief in the mental abilities of animals compared to women (Knight, Nunokoosing, Vrij, & Cherryman, 2003).



The next Important demographic determinant is how often respondents consume meat in each week. The result shows that, compared to those who consume meat once per week, individuals who do not consume meat have higher acceptability for harming animals. It is difficult to explain this result without fully understanding the respondents' monthly income. Unless this result originates from being conscious of leading a healthy life, or from the motive to preserve the natural environment, answering no meat consumption in their daily diets voices a very different meaning when it is in the context of low monthly income category. However, related to monthly income and expenses, the present study finds no significant relation in the regression model. Cross-checking with ANOVA, this study finds significant difference between income categorical groups ( $F[5]=2.50, p=0.029$ ). However, the post-hoc tests using Bonferroni method show no significant difference between income group categories. One possible cause may rest in how this study allows participants to choose 'refuse to answer' option to answer the monthly income question. It is possible that respondents from both highest and lowest monthly income may refuse to answer this specific question, and thus, blurs whatever group difference that may be found otherwise. Therefore, this study does not yet have a sufficient explanation other than to carefully propose that meat consumption may warrant further investigation by examining how it may relate to monthly income.

The present study also indicates that the level of schooling correlates with the overall acceptability for harming animals. Specific to this, result shows that compared to respondents with a Master/PhD degree, those respondents who have a diploma as their last level of schooling have higher acceptability for harming animals. One probable explanation is that participants with higher level and more advance degree like Master or PhD may have more

exposure and access to environmental and animal welfare information, compared to diploma degree which usually revolves more around pragmatic and technical skills.

#### **2.4.5 Limitations**

Despite the present study's success in examining EPQ and ROS along with influential factors for the acceptability for harming animals, meat consumption and home ownership variables remain unexplained. For the latter, findings show that respondents who live in their own house are more likely to have a higher acceptability for harming animals compared to those who still live with their parents. It may be possible that having own house refers to an older, more mature, and more pragmatic respondents having more responsibilities for their livelihood compared to younger respondents who still live with their parents. However, considering the small effect-size, the present study suggests the need for a deeper effort in deploying follow-up interviews to gain insight into how those variables may or may not necessarily relate to the primary variables. Lastly, the present study only finds partial evidence that acceptability for harming animals correlates positively with ethical relativism, as it was reported by B Su & Martens (2017). However, the remaining parts unearthed with this study are the consistent roles of religious orientation, even more significant than ethical ideologies. Previous studies confirm that the mechanisms underlying the relation of ethical idealism and relativism to attitudes toward animals may vary in different countries and cultures (Forsyth et al., 2008). Nevertheless, the present study provides further insight and introduces religious orientation as one of the contributing cultural factors that warrants further investigation.

#### **2.4.6 Animal welfare implications**

The present study highlights the significant relationship between religious orientation and relativism to AIS. Regarding relativism, the results imply that individuals who believe in a universal governing moral principle are more likely to have a higher awareness of animal protection, and, therefore, a lower acceptability toward harming animals. For religious orientation, results imply that individuals who have deep personal religious belief and commitment to their religion would likely have a low acceptability for harming animals. However, when people have extra ulterior motives for pursuing social gain, status, affiliation, or membership with their religious activities and participation, it would be more likely that they have a higher acceptability for harming animals. Thus, the present study not only supports previous findings (B Su & Martens, 2017; Bingtao Su & Martens, 2018), but also contributes to addressing religious orientation as a significant variable closely related to attitudes towards animals. Perhaps, one additional contribution of this study is that it may help to explain some mixed results in studies investigating White's (1967) thesis about the inhibiting influence of religion to environment preservation action and effort.

In addition, the present study extends the potential for animal protection awareness to reach broader platforms, for example, in the case where religious values and institutions could serve as motivational platforms. One key implication of these results is the need to examine how religious orientation interacts with ethical ideology in affecting people's positive attitudes towards animals. Finally, as this is one of the early paper to investigate how both religious orientation and ethical ideology relates to animal protection, other research focusing on specific animals such as companion animals (Martens et al., 2016; Bingtao Su, Koda, & Martens, 2018), carnivores (Bjerke & Kaltenborn, 1999), or animals important to maintaining

ecosystem health for environmental sustainability, may be introduced as focal points in religious studies and related platforms.

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**Chapter 3**

**The role of religious orientation and ethical ideologies in  
environmental concerns amongst teachers and school staff in East  
Java, Indonesia**

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## Abstract

Several studies show that often, religion hinders the preservation awareness and efforts towards ecology. Others, however, have found that the belief in God or the identification with a particular religion is not associated with measures for environmental concern. This study investigates how Allport's intrinsic personal (IP), and extrinsic social (ES) religious orientation and Forsyth's ethical ideologies of idealism and relativism relate to the measures of environmental concerns using ecocentric (EM), anthropocentric motives (AM) and general environment apathy (GEA). Using quantitative design, we surveyed a total of 929 schoolteachers and staff from 37 schools in East Java. Multiple regression is applied to analyze the data. Results suggest mixed results whereby a higher IP more often leads to a lower GEA and a higher EM and AM. On the other hand, relativism and ES consistently relate to a higher AM and a higher GEA. We also identify different components of religious orientation which correlate significantly with idealism and relativism, suggesting that individuals' religious orientation may closely relate to their ethical belief and decision. Lastly, several approaches to interpret the results along with several significant demographic and other determinants with each of their limitations, are discussed.

### **3.1 Introduction**

Religion has barely been featured amongst key anthropogenic factors causing environmental degradation (Bauman et al., 2010); at least not until after White's (1967) thesis about religion gained sufficient attention from the scientific community, where much of the later research would then assume that religion and ecology are interrelated. Several studies show that more often than not, religion hinders the awareness of and efforts for environmental sustainability, where it depresses concern about the environment (Arbuckle & Konisky, 2015; Barker & Bearce, 2013; Muñoz-García, 2014). Others, however, have found that the belief in God or the identification with a particular religion is not associated with measures of environmental concern (Boyd, 1999; Hayes & Marangudakis, 2000, 2001; Smith & Leiserowitz, 2013).

There are several possible reasons for these mixed results. One reason might stem from how each study addresses different aspects and properties of religion in measuring religious value, such as religious scriptures, contents and interpretation (Haq, 2001; McFague, 2001; Tirosh-Samuelson, 2001), or communication framing (Smith & Leiserowitz, 2013; Wardekker, Petersen, & van der Sluijs, 2009). Another reason might reside in how various studies differ in how they define religiosity, religiousness, or religious belief. Gallagher & Tierney (Gallagher & Tierney, 2013) argue that religiosity and religiousness are interchangeable as far as an individual's conviction, devotion and veneration towards a divinity is concerned. However, religiosity or religiousness can be broadly or narrowly formulated using differing aspects such as (1) human cognitive aspect (beliefs, knowledge), (2) affect, which relates emotions to religion, and (3) behavior, such as time spent praying or reading religious texts, attendance, or affiliation (Cornwall, 1989). Thus, differing foci and aspects

produced various operationalizations of religiosity, such as religious orthodoxy (Fullerton & Hunsberger, 1982; Hunsberger, 1989), typology (Glock & Stark, 1965), fundamentalism (Kellstedt & Smidt, 1991; McFarland, 1989), and religious orientation (Allport, 1966; Allport & Ross, 1967; Donahue, 1985). For religious belief, this study views Allport's religious orientation fits well in defining the interchangeably used religiosity or religiousness, as far as it approaches beliefs, knowledge, and affectation of intrinsic, extrinsic personal and extrinsic social motivation in engaging in religious activities. In detail, Allport's religious orientation consists of intrinsic religious orientation, where religion is deeply personal to the individual, such as the commitment to a religious life and living out his/her religion; extrinsic personal religious orientation, with religion being a source of peace safety and comfort, which is a direct result of participating in religious activity; and, finally, extrinsic social religious orientation, where the emphasis is placed on religion as membership in a powerful in-group, providing protection, consolation or social status, and enabling religious participation (Allport & Ross, 1967; Fleck, 1981; Genia & Shaw, 1991; Kahoe & Meadow, 1981; Maltby, 1999).

The present study proposes to address religion as a major driver of ethics and how it relates to attitudes towards the natural environment preservation and sustainability. Studies examining the relationship between religious belief and ethical ideologies (Cornwell et al., 2005; P. Watson et al., 1998; Weaver & Agle, 2002) provide evidence that ethical ideologies facilitate broader philosophical coverage corresponding to religious values and beliefs. Several studies argue that general spiritual principles and values are largely related to ethics (Cornwell et al., 2005; Jackson, 1999; Skipper & Hyman, 1993), indicating that religiosity significantly correlates with Forsyth (1980) idealist and anti-relativist ethical ideologies (Barnett et al., 1996; P. Watson et al., 1998). Cornwell et al. (1994) found that religion has



some effect on ethical positions. Austrian Christians are significantly less idealistic and relativistic than all other religions, even with other Christians from the United States and Britain. They argued that there are some ethical convergences between religions. In another study, Barnett et al. (1996) concluded that religiosity correlates positively with a non-relativist ethical ideology. Closely similar with them, Watson et al. (1998) argued that religious intrinsicness or religious intrinsic personal orientation is associated with the idealism and anti-relativism of an absolutist ethical position. They argued that intrinsic commitments to religion may simply mean that certain beliefs are absolutely non-negotiable (Watson et al., 1998, p. 5). In Forsyth's (1980) terms, this absolutistic way of thinking type is the result when people strongly believe that moral decision should be guided by an universal governing principle (low relativism) rather than by personal or situational analysis (high relativism) while also convinced that ethical behavior will always lead to positive consequences.

Forsyth (1980) ethical ideologies consist of two components, namely, ethical idealism and ethical relativism. An idealist thinks that ethical behavior will always lead to positive consequences, while a relativist rejects universal moral principles, instead believing that moral decisions should be based on a personal or situational analysis (Forsyth, 1980). Nonetheless, the role religion plays in the concerns for ecology is still unclear. Studies on ethical ideologies provide clear evidence where religiosity significantly correlates with idealism and anti-relativism (Barnett et al., 1996; P. Watson et al., 1998). Thus, combining results from above mentioned studies, the present study targets religious orientation and ethical ideologies as the main variables to explore how both religiousness and ethic relate and interact with concerns for the natural environment preservation. For the first working hypothesis, this

study predicts that intrinsic personal religious orientation has a positive correlation with ethical idealism and a negative correlation with relativism.

For sustainability and the attitude or concerns to the natural environment, White (1967) arguments highlight the urge for sustainability in responding development and growth at that time. White (1967) argues that, to some extent, the current ecological crisis is due to the disconnection of nature and spirituality often promoted by religion which gives the human species rights and dominance to exploit nature which forms the basis for exploiting the natural world. The concept of Sustainable Development first became prominent in the 1980s with its most mainstream definition of “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, 1987). From this definition, three pillars approach derived consisting social sustainability, economic sustainability, and environmental sustainability. In its progression, the latter mainly become the domain of sustainability sciences while the former two (namely economic and social sustainability) have mainly become the domain of development studies.

In contrast, despite efforts to incorporate research results from both development and sustainability disciplines, complete integration to achieve sustainable development is facing numerous challenges. According to Goodland & Daly (1996), one of the problems is because of the difference in priorities in both disciplines. While the development goals are fundamentally important, they are quite different from the goals of environmental sustainability, which is the unimpaired maintenance of human life-support systems Goodland (1995, p. 5). Goodland & Daly (1996) differentiate, at the very least, four kinds of capital which are human-made capital (the one usually considered in financial and economic accounts); natural capital (the stock of environmentally provided assets such as soil,

atmosphere, forests, water, wetlands); human capital (investments in education, health and nutrition of individuals); and social capital (the institutional and cultural basis for a society to function). Goodland & Daly (1996) challenge the notion of throughput growth in the context of finite earth, in which as a subsystem of the finite and non-growing earth, the economy must eventually adapt to it. To emphasize this finite earth, they further challenge the economic concept of 'income' arguing that "any consumption that is based on the depletion of natural capital should not be counted as income." Prevailing models of economic analysis tend to treat consumption of natural capital as income and therefore tend to promote patterns of economic activity that are unsustainable. Consumption of natural capital is a liquidation, the opposite of capital accumulation" (Goodland & Daly, 1996, p. 1005). Thus, environmental sustainability requires maintaining natural capital; and to understand it includes defining 'natural capital' and 'maintenance of resource' (or at least 'non-declining levels of resource'). Sustainability means maintaining environmental assets, or at least not depleting them. Goodland & Daly (1996) argue that the limiting factor for much economic development has become natural capital as much as human-made capital. "In some cases, like marine fishing, it has become the limiting factor—fish have become limiting, rather than fishing boats. Timber is limited by remaining forests, not by sawmills; petroleum is limited by geological deposits and atmospheric capacity to absorb CO<sub>2</sub>, not by refining capacity" (Goodland & Daly, 1996, p. 1005). In this sense of finite natural capital, they also introduced cultivated natural capital (such as agriculture products, pond-bred fish, cattle herds, and plantation forests)—the combination of natural and human-made capital— which dramatically expands the capacity of natural capital to deliver services. Nevertheless, Goodland & Daly (1996) concludes that eventually, natural capital will limit this cultivated natural capital.

In support to Goodland (1995) and Goodland & Daly (1996), the present study bring forth the dilemma between sustainability science and development studies whereby they haven't yet reached consensus on the attainable priorities path-ways on whether to reach environmental sustainability or more anthropocentric (social and economic) sustainability. Similarly, Thompson & Barton (1994) formulated and developed two underlying motives of environmental attitudes, which are ecocentrism—valuing nature for its own sake; and anthropocentrism—valuing nature because of the material or physical benefits it provides; with an additional dimension of general apathy towards the environment (Gardner & Stern, Stern & Dietz, Oksanen, as cited in Bjerke & Kaltenborn, 1999). Thompson & Barton (1994) proposed that the motives and values which underlie environmental attitudes are of great significance in which the same positive attitude to the importance and conservation of the natural environment might come from ecocentric or anthropocentric motives, or even both, making the importance of general environment apathy scale as one strong potential cross-section predictor for both environmental attitude and acceptability of harming animal. This is especially relevant after Bjerke and Kaltenborn (1999) further riddled this topic when they found that ecocentric motives scored differently to different job-groups categorization when valuing carnivores animals compared to herbivores. In their study of ecocentric and anthropocentric motives relationship to attitudes towards large carnivores, Bjerke and Kaltenborn (1999) highlighted that high ecocentrism and low apathy to the natural environment only specifically resonate to those research biologist and wildlife managers groups who scored positive attitude towards carnivores. Thus as the second working hypothesis, the present study proposes Thompson & Barton's (1994) general environmental apathy scale will negatively correlated with ecocentric and anthropocentric motives.

While there are ample studies connecting religion either to ethical ideologies or to environmental sustainability, studies examining both ethical ideologies and environment sustainability at once, are lacking. One exception is in the field of animal welfare, where there are a growing number of investigations confirming positive correlation between ethical ideologies and public's attitudes towards animals (Galvin & Herzog, 1992; Herzog & Nickell, 1996; B Su & Martens, 2017; Bingtao Su & Martens, 2018; Wuensch et al., 2002). Studies of ethical ideologies and attitudes towards animals and animal protection demonstrate that the public's attitudes towards animals or animal experiments are related to their ethical perspectives. One study investigating the role of idealism and relativism in research using animal in the United States demonstrates that idealism correlates negatively and relativism correlates positively to support for animal research (Wuensch & Poteat, 1998). They argued that idealists often express greater moral concern for how animals are utilized than their relativist counterparts (Wuensch & Poteat, 1998). Specifically for Forsyth's idealism, later studies provide more evidence that positive attitudes to animals correlate positively to ethical idealism, where people's moral idealism significantly influences their attitudes towards animals (Galvin & Herzog, 1992; B Su & Martens, 2017). Galvin & Herzog (1992) found that ethical idealism relates positively to a higher concern for animal use. Through their research about the effectiveness of materials designed to sway public's opinion about biomedical research using animals, Herzog & Nickell (1996) would later add that compared to males and those low in ethical idealism, females and subjects high in moral idealism rate higher effectiveness to those research materials and advertising that reject animal use in biomedical research (anti-animal research materials) (p. 9). More recent studies by B Su & Martens (2017, 2018) also confirmed these results, showing that higher idealism scorers are more likely to

have a more positive attitude to animals and a lower acceptability for harming animals. The more those individuals consider their ethical behavior would always lead to desirable consequences, the more they appreciate animals (B Su & Martens, 2017). At the very least, it has been consistently proven that ethical idealism lowers acceptability for harming animals, instead encouraging more positive attitudes towards animal (Galvin & Herzog, 1992; B Su & Martens, 2017; Bingtao Su & Martens, 2018). There was not much support for the significance of relativism except only from Wuensch & Poteat (1998) who found that higher score of relativism relates to higher support for research using animals.

However B Su & Martens (2017, 2018) slightly deviate from older studies (Galvin & Herzog, 1992; Herzog & Nickell, 1996) whereby they find that high scorers of ethical relativism are more likely to have a more negative attitude towards animals only in China (B Su & Martens, 2017), but not in their Dutch sample (Bingtao Su & Martens, 2018). B Su & Martens (2017, 2018) argued that the differences between both samples may stem from the difference between being a developed and developing country, respectively. However, despite this slight difference, most animal welfare studies examining the role of ethical ideologies showed that ethical idealism and relativism relate to people's attitude towards and acceptability for harming animals. Thus, incorporating previous research results from the field of animal welfare, this study tries to carefully simulate for whether those findings from animal welfare studies also replicate to the attitude to the natural environment preservation.

Bjerke and Kaltenborn (1999) argued that positive attitudes towards animals may stem from either anthropocentric or ecocentric motives or both. The present study considers these ecocentric and anthropocentric values and motives to be particularly important partly as the results of ethical idealism and ethical relativism ideologies. Borrowing findings from

previously mentioned animal welfare studies (Galvin & Herzog, 1992; B Su & Martens, 2017; Bingtao Su & Martens, 2018; Wuensch & Poteat, 1998), this study tries to extend those results into a more general environmental preservation concerns. A person highly views that his/her ethical behavior will always lead to positive consequences and who also firmly believes that there are universal moral principles (low relativism), may weigh more to higher environmental concerns in perceiving his/her surroundings. On the other hand, a person who views that his/her ethical behavior will not always lead to positive consequences (low idealism) while also firmly believes that there are no governing universal moral principles (high relativism) may weigh in more to lower environmental concerns. Therefore, the third working hypothesis of this study predicts that higher environmental concern correlates positively with ethical idealism and negatively with relativism. In more detail, this study proposes that individuals with higher environmental concerns are those participants who scored a lower general environmental apathy and a higher ecocentric motives in valuing the natural environment. And such, taking together as well as independently, lower general environment apathy and higher ecocentric motives should relate to a higher idealism and a lower relativism. Thus, for the third hypothesis the opposite should also be true, whereby a higher general environmental apathy and a lower ecocentric motives in valuing the natural environment should relate with a lower idealism and a higher relativism.

In addition, using the context of White's (1967) perspectives, the present study aims to further examine the relation between religion (i.e. both as cognitive belief and ethical judgment) and the attitude to the importance and conservation of the natural environment. Allport & Ross (1967) religious orientation construct has been chosen to measure religious intrinsic, extrinsic personal and extrinsic social orientations. In later developments of religious

orientation, the dimension of extrinsic social motives has been added (Donahue, 1985; Maltby, 1999; D. E. Trimble, 1997). Extrinsic social religious orientation addresses how individuals practice religion more as an instrument for social gain such as membership in a powerful in-group, providing protection, consolation, or social status, and enabling religious participation. The extrinsic social religious orientation is more closely related to the social identity in-group membership concept (Tajfel, 1974, 1981; Turner, 1975) which introduce instrumental views of religion for social gain whereby religious belief systems are used to obtain desirable outcomes that may unnecessarily be ethical or unethical. On one hand, the ethical means for social gain may very much correspond to the concept of ethical idealism where ethical behavior is believed will always bring positive outcome. However, on the other hand, should there be unethical means for social gains, it may relate to lower idealism, and higher relativism in which a person strongly believes that there is no universal moral standard, and therefore, moral decisions should be based on the personal or situational analysis. In this sense, we are carefully posing the working hypothesis for the relationship between extrinsic social religious orientation and ethical ideologies. Therefore, as the fourth hypothesis, we predict that higher extrinsic social religious orientation relates to a lower idealism and higher relativism. This hypothesis is an extension from the first hypothesis, in which we seek to find evidence of how religious orientation relates to the natural environment preservation attitude by examining how it correlates to ethical ideologies. Lastly, as previously in the third hypothesis we predict that higher relativism relates to a higher environmental apathy, for the fifth hypothesis, this study expects that a higher extrinsic social religious orientation will also relate to a higher environmental apathy.



It is important to emphasize that this study is not theological in nature and is not describing Islamic religious worldview of the natural environment. As previously discussed, this study approaches the religious belief through Allport & Ross' (1967) religious orientation. Specifically for extrinsic social religious orientation (ES), we argue that it strongly overlaps with the social identity in-group membership theory (Tajfel, 1974, 1981; Turner, 1975) especially in the concept of social category. In this study, we view that the extrinsic social religious orientation echoes a social category notion that offers a sense of identity which individuals identify with and act in the ways they believe represent their group's identity (Blumer, 1958; Tajfel & Turner, 1979). Individuals who identify themselves as Muslims are more likely to behave in accordance with the typical behaviors of fellow Muslims. Therefore, this study purposefully selects the population in East Java province, considering that it represents some of the oldest, most influential Islamic communities and organizations, whilst also being the province with the most diverse Islamic denomination.

The province of East Java is the birthplace of Nahdlatul Ulama (NU), the largest Islamic mass organization in Indonesia. It has approximately 40 million members throughout the nation and its influence is not merely at the regency-level but also at the national (Anwar, 2019). Secondly, East Java is well-known for its long history of Islamic boarding schools. Pesantren Darul Ulum is one of the oldest and most distinguished in Jombang, East Java (Turmudi, 2006). Thirdly, East Java offers an interesting segment of the political constellation in Indonesia. Its political influence at the national level has been prominent since the making of the nation (Bush, 2009). Two of the most renowned instances were the appointment of Abdurrahman Wahid as the fourth President of Indonesia (1999-2001) and the appointment of Ma'ruf Amin as the current Indonesian vice president (took office in 2019), both of whom

have strong ties to Nahdlatul Ulama in East Java. All in all, the above reasons foster East Java as one of the most relevant candidate-grounds for scrutinizing the relationship between religiousness and the attitudes held towards the importance of natural environment preservation; moreover, due to the religious groups' prevalence in East Java, we should point out that our respondents are likely to be Muslims. Regardless of all the above, however close a representation East Java is of the everyday major religious worldview in Indonesia, the present study avoids over-generalization of the results representing the whole country.

This study targeted school teacher and staff in viewing that as an institution, both public and private schools are subjects to nation-wide education curriculum whereby collected data may generally capture a nation-wide curriculum's learning goals (Swirski, 2002) relevant to natural environment protection. However, there were also a lengthy discussions about educators roles as transformative intellectuals rather than as nation-state agent teaching nation-state learning goals (Leite et al., 2020; Muff & Bekerman, 2019; Tan, 2016). Also, taking some roles and responsibilities of a parent (*loco parentis*), teacher may be as well provide assistance and insight on moral, political, religious and ethical issues for their students (Grubb, 1995) as one study hinted that teachers act as role-models for the students and influence their students' political attitudes (Bar-Tal & Harel, 2002).

In other study related to transformative agency, teachers' inclusive practices, moral purposes, competence, autonomy and reflexivity (Pantić, 2015) are important factors to act as an agent of change. The duality of being transformational agents while also fulfilling their obligatory role to implement the nation-state education curriculum agenda, Muff & Bekerman (2019) argued that teachers mediate their roles between the different demands that of the civic education politics impose to them by navigating elegantly both in producing hegemonic

discourse and in fostering ways to rebel against and draw counter-hegemonic strategies in their classroom practice. Thus, this study viewed that having teachers as the participants for the research would capture some dynamics of interlocking roles at play. To name a few, the nation-state curriculum goals, teachers' beliefs, moral purposes, reflexivity, and awareness in responding to the nation-state curriculum, and their combined roles as transformative intellectuals are the dynamics reflected in classroom discourses. Teachers' attitudes to the preservation and protection of the natural environment may best represent the nation's sets of environmental policy and the younger generation's perspective.

Lastly, we also emphasize the demographic determinants commonly suggested in most studies about religion and ethical ideologies, such as gender, age, household income, education, pet ownership, religious organization affiliation, meat consumption (B Su & Martens, 2017; Bingtao Su & Martens, 2018). We will therefore closely scrutinize these important demographics or other determinants in our analysis.

### **3.2 Material and Methods**

This research targeted Muslim teachers and school staff in the province of East Java, Indonesia, using cluster sampling, whereby a paper and pencil survey of teachers was conducted. Survey participation invitations were sent to 67 schools (ranging from junior to senior high schools). The survey invitation emphasizes that it is important for the school to provide a balanced proportion of male and female teachers or school staff. A total of 37 schools, from 10 districts of East Java, replied and agreed to participate, providing 1007 participants. However, only 929 participants were analyzed due to removing 78 participants because of incomplete and unengaged answers (*see section 3.3.2*).

All the questionnaires in the survey were originally in English (see S1 questionnaires in English). We then translated them to Indonesian (see S2 questionnaires Bahasa Indonesia adaptation). The method of translation and adaptation was using expert judgement and back translation. The questionnaires were translated to Bahasa Indonesia and sent to experts for evaluation and finalization of the translation. After corrections, the questionnaires were translated back to English by three Indonesian academicians from Universitas Indonesia. Back-translated items that are very similar to their English language origin are retained, and the remaining are modified or deleted.

The set of questionnaires consists of four sections. In the first section, we asked a variety of important determinants and demographic details such as birth year (age), gender, highest level of education completed, their household composition (for example, single, married, or widow(er), with children or not), place of residence (rural or urban), type of house (apartment, live with parents, etc.), their opinion regarding the importance of religion/spirituality in their lives, their experience or participation in religious organization, household income, pet ownership, kinds of pet, their weekly frequency of meat consumption, and the frequency of visiting public zoos or aquariums in a year.

In the second section, Thompson & Barton's (1994) Ecocentric-Anthropocentric Scale of Environmental Attitude (EASEA) is used to measure environmental motives and apathy. There are 30-items rated on a five-point scale ranging from one, extremely disagree, to five, extremely agree. To translate and adapt this questionnaire into Indonesia language, we feel necessary to translate a question into two forms, which in turn make the resulting Indonesian version to total 31-items. A high score on a question indicates a high level of agreeableness for the topic, which basically consists of three dimensions. The first measures

ecocentric motive where nature is valued for its own sake, and therefore, judged that it deserves protection because of its intrinsic value. The type of issue statement being asked are, for example, 'I can enjoy spending time in natural settings just for the sake of being out in nature,' 'Sometimes animals seem almost human to me,' or 'Nature is valuable for its own sake.' There are total of 12 questions in the ecocentric dimension. However, after principal axis factoring factor analysis (S3 Missing case analysis, Factor Analysis and Reliability; Table 3 to 8), this study not only reduced the items to only seven items, but also found that the ecocentric dimension consists of two factors (Table 3-1). The two-factors findings of this study may confirm Amérigo et al., (2007) which argue that ecocentrism seems to include two concepts: the self in nature (egobiocentrism) and nature itself (biospherism). In ecocentrism motives, on the one hand, there are items about physical or psychological benefits for the individual, brought about by the mere fact of being in or thinking about nature (e.g., "Being out in nature is a great stress reducer for me"). These are related to the positive emotional effects produced by contact with nature where the protagonist is the self and it is the only direct beneficiary of the goodness of the natural environment which could be considered to be related to an egoistic dimension (Amérigo et al., 2007). On the other hand, the remaining ecocentric items refer to biospheric aspects that emphasize the intrinsic value of Nature (e.g. "Nature is valuable for its own sake") which may be oriented to two different viewpoints of (a) a psychosocial perspective that contemplates the human-being-in-nature and in which the environment is valued as an element that procures the individual's physical and psychological well-being, and (b) a strictly biospheric dimension in which the environment is valued intrinsically and that contemplates the nonhuman elements of nature (Amérigo et al., 2007).

The present study addresses item 2, 12, 15, and 26 as those from the egobiocentrism factor while the remaining are those closely related to biospherism factor.

Table 3-1 EASEA-Ecocentric Rotated Factor Matrix

Items	Factor <sup>a</sup>	
	1	2
ECCANTH02 I enjoy spending time in natural settings just for the sake of being out in nature	.464	
ECCANTH12 I need time in nature to be happy	.608	
ECCANTH15 Sometimes when I am unhappy, I find comfort in nature	.622	
ECCANTH26 Being out in nature is a great stress reducer for me	.666	
ECCANTH28 One of the most important reasons to conserve is to preserve wild areas		.428
ECCANTH30 Sometimes animals seem almost human to me		.616
ECCANTH31 Human are as much a part of the ecosystem as other animals		.612

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

The second measures anthropocentric motive where the natural environment is valued due to its importance in maintaining or enhancing the quality of life for humankind and therefore should be protected (Thompson & Barton, 1994, p.149). The type of issue statement being asked are, for example, ‘the most important reason for conservation is human survival,’ ‘we need to preserve resources to maintain a high quality of life,’ or ‘one of the best things about recycling is that it saves money.’ There are total of 10 questions in the anthropocentric motive dimension. However, after principal axis factoring factor analysis (S3 Missing case analysis, Factor Analysis and Reliability; Table 9 to 12), this study not only reduced the items to only seven items, but also found that the anthropocentric motives dimension consisted of two factors (

Table 3-2). The outcome of two-factors anthropocentric motives is unexpected considering that item 5 was not an original item rather than a new one created to give a clear, simple to understand Indonesia translation of item 4. We assumed that the second factor

(consisted of only item 4 and 5) might emerge because of the similarity of the statement and the order of appearance next to each other in the questionnaire. This may give involuntary needs for consistency to the participants when answering item 5 after they finish answering the previous one (item 4). After reliability analysis, this study decided to use Model 2 anthropocentric scale using only 6 items (5,20,22,25,27,29).

Table 3-2 EASEA-Anthropocentric Rotated Factor Matrix

Items	Model 1 (using eigen value > 1) <sup>ab</sup>		Model 2 (as one factor) <sup>cb</sup>
	1	2	
ECCANTH04 The worst thing about the loss of the rain forest is that it will restrict the development of new medicines		.771	Delete
ECCANTH05 The worst thing about the loss of the rain forest is that it will reduce plants and animals which benefit for humankind		.497	.414
ECCANTH20 The most important reason for conservation is human survival	.510		.429
ECCANTH22 Nature is important because of what it can contribute to the pleasure and welfare of humans	.611		.564
ECCANTH25 We need to preserve resources to maintain a high quality of life	.600		.567
ECCANTH27 One of the most important reasons to conserve is to ensure a continued high standard of living	.429		.563
ECCANTH29 Continued land development is a good idea as long as a high quality of life can be preserved	.412		.501

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

b. Suppressing values less than 0.4

c. Rotation converged in 5 iterations

Lastly, the third-dimension measures general apathy to the natural environment. The type of issue statement being asked are, for example, ‘environmental threats such as deforestation and ozone depletion have been exaggerated,’ too much emphasis has been placed on conservation,’ or ‘I don't care about environmental problems.’ There are total of nine questions in the anthropocentric motive dimension. However, after principal axis factoring factor analysis (S3 Missing case analysis, Factor Analysis and Reliability; Table 10 to 18), this study not only reduced the items to only seven items, but also found that the apathy dimension consisted of two factors instead of one. However, after ensuring a relatively stable

Cronbach alpha's reliability in one factor model, the present study decided to retain the environmental apathy dimension as it was originally, a one factor construct (model two, *see Table 3-3*).

Table 3-3 EASEA-General Environment Apathy Rotated Factor Matrix

Items	Model 1 (using eigen value > 1) <sup>ab</sup>		Model 2 (as one factor) <sup>cb</sup>
	1	2	
ECCANTH03 Environmental threats such as deforestation and ozone depletion have been exaggerated	.462		.518
ECCANTH07 It seems to me that most conservationists are pessimistic and somewhat paranoid.	.535		.594
ECCANTH09 I do not think the problem of depletion of natural resources is as as bad as many people make it out to be	.692		.651
ECCANTH10 I find it hard to get too concerned about environmental issues	.721		.611
ECCANTH14 I do not feel that humans are dependent on nature to survive		.445	.545
ECCANTH17 I don't care about environmental problems		.746	.549
ECCANTH18 I'm opposed to programs to preserve wilderness, reduce pollution, and conserve resources		.683	.591

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

b. Suppressing values less than 0.4

c. Rotation converged in 5 iterations

In the third section, the Religious Orientation Scale (ROS) (Allport, 1966; Allport & Ross, 1967; Leong & Zachar, 1990) was originally used to measure intrinsic and extrinsic religious orientation. We used Maltby's (1999) 15-item version which incorporated Kirkpatrick's (1999) analysis expanding ROS into three scales: intrinsic orientation (IP), extrinsic personal—religion as a source of comfort (EP) and extrinsic social—religion as social gain (ES). The 15-item scale therefore consists of nine questions addressing IP, for example, 'I try hard to live all my life according to my religious beliefs', 'My whole approach to life is based on my religion', 'It is important to me to spend time in private thought and prayer'); three questions addressing EP, for example 'Prayer is for peace and happiness', 'I pray mainly to gain relief and protection'; and lastly, the remaining three covering the ES



dimension, for example, ‘I go to church because it helps me make friends’, ‘I go to church mainly because I enjoy seeing people I know there’. However, after principal axis factoring factor analysis (S3 Missing case analysis, Factor Analysis and Reliability; Table 21 to 26), the present study found only two dimensions of intrinsic personal (IP) and extrinsic social (ES). After factor analysis, the EP was accounted as the same factor as IP (Table 3-4), and thus, will be considered as the same as IP.

Table 3-4 ROS Rotated Factor Matrix

Items	Factor <sup>a</sup>	
	1	2
ROS01 (IP) I try hard to live all my life according to my religious beliefs	.673	
ROS03 (IP) I have often had a strong sense of God’s presence	.608	
ROS04 (IP) My whole approach to life is based on my religion	.705	
ROS05 (IP) Prayers I say when I’m alone are as important as those I say in church	.577	
ROS06 (IP) I attend church once a week or more	.358	
ROS07 (IP) My religion is important because it answers many questions about the meaning of life	.741	
ROS08 (IP) I enjoy reading about my religion	.750	
ROS09 (IP) It is important to me to spend time in private thought and prayer	.630	
ROS10 (EP) What religion offers me most is comfort in times of trouble and sorrow	.665	
ROS11 (EP) Prayer is for peace and happiness	.764	
ROS12 (EP) I pray mainly to gain relief and protection	.622	
ROS13 (ES) I go to church because it helps me make friends		.833
ROS14 (ES) I go to church mainly because I enjoy seeing people I know there		.894
ROS15 (ES) I go to church mostly to spend time with my friends		.787

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

In the fourth section, the Ethical Position Questionnaire (EPQ) was used to measure the differences in personal moral philosophy (Forsyth, 1980; Galvin & Herzog, 1992). The original EPQ was a 20-items Likert scale consisting of two sub-scales. The first 10 items were designed to measure the ethical idealism dimension, while the last 10 items measured ethical relativism. Respondents were asked to respond to statement using the nine-point EPQ ranging from one (completely disagree) to nine (completely agree). Regarding ethical idealism, six items were removed from analysis of this study. Four out of those six items were removed

because of significant skew values which were outside the range between -2 to 2 (Kim, 2013). The remaining two were removed because of low factor loading, along with three items from ethical relativism. After principal axis factoring factor analysis (S3 Missing case analysis, Factor Analysis and Reliability; Table 27 to 34), the present study uses only 11 EPQ items. In which four items from the idealism scale, and seven items from the relativism scale. Factor analysis also found that the remaining seven items of ethical relativism were put into two factors. However, after ensuring a relatively stable Cronbach alpha's reliability in one factor model, the present study decided to retain ethical relativism as it was, a one factor construct (model two, *see* Table 3-5).

Table 3-5 EPQ Pattern Matrix

	Model 1 (using eigen value > 1) <sup>ab</sup>			Model 2 (forced as 2 factor loadings) <sup>cb</sup>	
	1	2	3	1	2
EPQ02 (I) Risks to another should never be tolerated, irrespective of how small the risks might be.			.551		.549
EPQ03 (I) The existence of potential harm to others is always wrong, irrespective of the benefits to be gained.			.651		.656
EPQ08 (I) The dignity and welfare of the people should be the most important concern in any society.			.581		.580
EPQ10 (I) Moral behaviors are actions that closely match ideals of the most "perfect" action.			.465		.463
EPQ15 (R) Questions of what is ethical for everyone can never be resolved since what is moral or immoral is up to the individual.	.650			.603	
EPQ16 (R) Moral standards are simply personal rules that indicate how a person should behave and are not be applied in making judgments of others.	.704			.589	
EPQ17 (R) Ethical considerations in interpersonal relations are so complex that individuals should be allowed to formulate their own individual codes.	.712			.742	
EPQ18 (R) Rigidly codifying an ethical position that prevents certain types of actions could stand in the way of better human relations and adjustment.		.425		.561	
EPQ19 (R) No rule concerning lying can be formulated; whether a lie is permissible or not permissible totally depends upon the situation.		.762		.673	
EPQ20 (R) Whether a lie is judged to be moral or immoral depends upon the circumstances surrounding the action.		.748		.600	

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

b. Suppressing values less than 0.4

c. Rotation converged in 3 iterations

### Statistical analysis

Religious orientation, ethical ideologies and EASEA were analyzed with IBM SPSS 24 using multiple regression statistical procedures. This study also used Pearson correlation product moment in investigating the relation between religious orientation and ethical ideologies. The resulting correlation tables provide additional explanation for the multiple regression results.

One common method examining EPQ were conducted using ANOVA design (B Su & Martens, 2017; Bingtao Su & Martens, 2018), where EPQ was considered as categorical variables differentiated into four groups depending on the high and low of each ethical idealism and relativism score. These groups are, situationists (high idealism and high relativism), subjectivists (low idealism and high relativism), absolutists (high idealism and low relativism) and exceptionists (low idealism and low relativism) (*see* Figure 1-2 in the first chapter). In this study however, we view that it is best to retain the interval properties from the total score of ethical idealism and relativism to provide richer and more detailed data. Thus, multiple regression is our selected statistical procedure for the given data.

This study uses two models of multiple regression. The first model only investigates the main variables, while the second model takes all main variables with the demographic and other important determinants. For both of the regression models, this study avoids stepwise method in considering that stepwise estimates are not invariant to inconsequential linear transformation (Smith, 2018). Rather, we follow Whittingham et al. (2006) suggestion to use

a full model including all of the effects (enter method) for the second regression model, where it takes all multiple variables (main variables, demographic and other determinants) which mainly consist of either interval or categorical properties. As a side note, this study converts all categorical variables into dummy variables, in which we expand each category as a new variable scored with either one or zero.

As Pearson correlation procedure is vulnerable from skewed and kurtosis distribution, we made preliminary normal distribution check to avoid inflated correlation. Each item in the questionnaire was checked for normal distribution assumption (S3 Missing case analysis, Factor Analysis and Reliability; Table 2). In regards to normal distribution assumption, Kim (2013) stressed that the tendency of large samples producing inflated z in consideration to large samples will usually produce a very small standard error for both skewness and kurtosis. Therefore, using skewness and kurtosis reference values for N more than 300, the present study removed items with kurtosis value outside the range between -7 to 7, or skew value outside the range between -2 to 2 (Kim, 2013).

After analyzing each items in the questionnaires, this study removed four items from EPQ idealism, which were “People should make certain that their actions never intentionally harm another even to a small degree”, “One should never psychologically or physically harm another person”, “One should not perform an action which might in any way threaten the dignity and welfare of another individual”, and “If an action could harm an innocent other, then it should not be done”. Table 3-6 shows that all scales from the collected data is safely within the normal distribution bound. Thus, no transformation for normalization is needed.

Table 3-6 Skewness and kurtosis value of main variables

N	Skewness	Kurtosis
---	----------	----------

	Statistic	Statistic	Std. Error	Statistic	Std. Error
EASEA-Ecocentric Egobiospher (EEM)	929	-.422	.080	.556	.160
EASEA-Ecocentric Biosphere (EBM)	929	-.469	.080	.876	.160
EASEA-Anthropocentric Motives (AM)	929	-.505	.080	1.298	.160
EASEA-General environment Apathy (GEA)	929	.343	.080	-.119	.160
EPQ Idealism	929	-1.196	.080	1.162	.160
EPQ Relativism	929	-.568	.080	-.017	.160
ROS Intrinsic Personal	929	-.751	.080	1.430	.160
ROS Extrinsic Social	929	.195	.080	-.495	.160
Valid N (listwise)	929				

### 3.3 Results

#### 3.3.1 Instrument validity

Table 3-7 provides the descriptive statistics for the variables used in the analysis. All the Cronbach's coefficient are acceptable, ranging from a moderate internal consistency value of 0.66 for the 'EPQ Idealism' issue to a value of 0.88 for the intrinsic personal religious orientation.

The mean score for IP was 4.22 (SD=0.53, with maximum score of five) indicating that, overall, the respondents considered themselves to be strongly committed to their personal religious life. The mean score for ES was 2.79 (SD=0.99) indicating that overall respondents were neither strongly nor weakly disposed towards viewing their religious practices as an instrument for social gain.

The mean idealism score of 7.2 (SD= 1.22, with a maximum score of 9) indicated that, in general, the sample had a strong idealistic ethical ideology, where they believe that their ethical behavior will always lead to positive consequences. The mean relativism score was 6.29 (SD=1.46), indicating that overall, the respondents believe that moral decision-making should be situational, rather than based on universal principles.

Table 3-7 Descriptive statistics and measurement characteristics for variables

Variable	Scale description	Number of	Reliability	Mean	SD
----------	-------------------	-----------	-------------	------	----

		items			
ROS-Intrinsic Personal (IP)	5-point Likert-like	11	0.88	4.22	0.53
ROS-Extrinsic social (ES)	5-point Likert-like	3	0.87	2.79	0.99
EPQ Idealism	9-point Likert-like	4	0.66	7.2	1.22
EPQ Relativism	9-point Likert-like	7	0.80	6.29	1.46
Ecocentric Egobiosphere (EEM)	5-point Likert-like	4	0.71	3.90	0.64
Ecocentric Biosphere (EBM)	5-point Likert-like	3	0.74	3.67	0.66
Anthropocentric Motives (AM)	5-point Likert-like	5	0.66	3.87	0.54
Env. Apathy	5-point Likert-like	7	0.79	2.52	0.72

\*Using Pearson correlation coefficient instead of Cronbach alpha, considering that the scale consists of only two items.

The ecocentric for egobiosphere values mean score was 3.9 (SD = 0.64, maximum score of five), indicating that, the respondents had rather high belief in valuing the importance of the natural environment for one's own positive emotional effect. The ecocentric for biosphere values mean score was 3.67 (SD = 0.66), indicating that, the respondents had an above average belief in valuing the importance of the natural environment. The anthropocentric motive mean score was 3.87 (SD = 0.54) indicating that the respondents had an above average belief in valuing the natural environment importance for the benefit of human. Lastly, the general environmental apathy mean score was 2.52 (SD = 0.72), indicating that the respondents had neither strong nor weak apathy to the natural environment.

### 3.3.2 Response rates

Of 1007 total responses obtained, 78 respondents (8%) were removed due to unengaged answers (in other words, these were the respondents who gave the same answer for all the questions in the questionnaire). After the removal, there were still some incomplete answers (listwise missing case) from for the remaining 929 participants (S3 Missing case analysis, Factor Analysis and Reliability, table 1). Those missing cases were imputed using a

linear trend method. In total, this research collected and analyzed 929 respondents. The mean age of all respondents (51% female (N=475) and 49% male (N=454)) is 36.38 years old (SD=10.02). The completed surveys have a relatively balanced proportion of rural (61%) and urban (39%) areas. Additionally, several complementary variables were assessed, such as pet ownership, where 48% of respondents adopted one or more pet(s), while 52% of respondents did not adopt any pet. For home ownership, 1% lived in an apartment, 9% live in a rented room, 55% lived and owned a house, while the remaining 40% still live in their parent's house. For the highest level of education, 74% hold a Bachelor, 14% a PhD or a Master, 8% graduated high school, 3% hold a diploma, while for the categories of those who either finished middle or high school, where they either hold another degree, or did not answer, were each less than 1%. Regarding the frequency of zoo or aquarium visitation, 4% visited a zoo once a month, 7% at least every six months, 22% once a year, 42% once in every two or more years, and lastly, 22% never visited a zoo or aquarium, leaving the remaining 1% respondents without answer. Regarding professions, all the respondents were teachers or school staff. However, some of the respondents had a secondary profession, as follows: 5% as an entrepreneur, 39% as an employee in the private sector, 24% as civil servants, 5% are also scholarship students, 19% are teachers or lecturers without a secondary profession, while the remaining 6% are either semi-retired, social workers, or university researchers, working in the farming or livestock sector; others did not disclose their professions, or did not or did not want to answer. Finally, we also asked about the frequency of weekly meat consumption whereby 6% did not eat meat, 28% ate meat once in a week, 36% ate meat two to three days in a week, 13% four to six days in a week, and lastly, 14% ate meat every day.

### 3.3.3 Ethical ideologies, religious orientation, and the attitude towards natural environment preservation

There are two models developed and analyzed using the multiple regression method. The first model analyses the four main variables relation (EPQ Idealism, relativism, intrinsic personal and extrinsic social religious orientation) to the natural environment protection attitude, while the second model investigates all four main variables with all potential demographic and other determinants taking together as well as independently. In both of the model, we regress all the predictors to environmental concerns variables which are ecocentric egobiosphere (EEM,

Table 3-8), ecocentric biosphere (EBM, Table 3-9), anthropocentric motive (AM, Table 3-10) and general environment apathy (GEA, Table 3-11).

For EEM (

Table 3-8) the first model shows that higher EEM score relates to a higher relativism ( $b=0.04, p<0.01$ ) and a higher IP ( $b=0.43, p<0.01$ ). However, in the second model, EEM score is more likely relate to IP ( $b=0.34, p<0.01$ ), public zoo or aquarium visitation (once a year  $b=0.18, p<0.01$  and once every semester  $b=0.22, p<0.01$ ), gender ( $b=0.10, p<0.01$ ) and meat consumption ( $b=-0.23, p<0.01$ ).

Table 3-8 Multiple regression towards egobiosphere value in ecocentric motive (EEM)

Model	EEM b (Std. b)	Effect Size	95% CI	
			Lower r	Upper

1 - Main Variable<sup>A</sup> (R=0.33; R<sup>2</sup>=0.11, df=9,439)



(Constant)	1.70	**		1.330	2.077
EPQ Ideal	0.00	0.01	0.00 <sup>C</sup>	-0.029	0.039
EPQ Relative	0.04	0.11**	0.01 <sup>C</sup>	0.018	0.070
IP	0.43	0.35**	0.13 <sup>C+</sup>	0.351	0.499
ES	0.04	0.06	0.00 <sup>C</sup>	-0.003	0.076

## 2 - Main Variable + Demographic and other determinants<sup>B</sup>

(R=0.40; R<sup>2</sup>=0.16, df=40, 408)

(Constant)	2.62	**		1.949	3.294
IP	0.34	0.28 **	0.07 <sup>C</sup> +	0.243	0.434
How often do you visit a zoo or aquarium <sup>1</sup> ? Once a year: Yes (1) – No (0)	0.18	0.13 *	0.26 <sup>D</sup> +	0.043	0.291
How often do you visit a zoo or aquarium <sup>1</sup> ? Once every six months: Yes (1) – No (0)	0.22	0.10 *	0.36 <sup>D</sup> +	0.056	0.396
How often do you consume meat in a week <sup>2</sup> ? I don't consume meat: Yes (1) – No (0)	-0.23	-0.09 *	0.11 <sup>D</sup>	-0.249	0.115
What is your gender? Female <sup>3</sup> : Yes (1) – No (0)	0.10	0.08 *	0.16 <sup>D</sup>	0.022	0.187

\*p<.05; \*\*p<.01; <sup>A</sup>regression using enter method in a stepwise manner; <sup>B</sup>regression using enter method, insignificant results omitted (for all the results, see S4 multiple regression results); <sup>C</sup>effect-size calculation using eta squared (F<sup>2</sup>); <sup>D</sup>effect-size calculation using Hedge's g; +small effect size F<sup>2</sup>>=0.02 (or in some cases of categorical dummy variable, using Cohen's D/Hedges' g >= 0.2); ++medium effect size F<sup>2</sup>>=0.15 (or in some cases of categorical dummy variable, using Cohen's D/Hedges' g >=0.5); <sup>1</sup>compared to respondents who never visit public zoo/aquarium; <sup>2</sup>compared to respondents who eat meat once a week; <sup>3</sup>compared to male respondent.

For EBM (Table 3-9) the first model shows that higher EBM score relates to a higher IP (b=0.48, p<0.01) and a higher ES (b=0.06, p<0.01). However, in the second model, EBM score is more likely relate to IP (b=0.48, p<0.01) and level of schooling (b=-0.26, p<0.01).

For AM (Table 3-10) the first model shows that higher EEM score relates to a higher relativism (b=0.04, p<0.01) and a higher IP (b=0.46, p<0.01). These relationships are replicated also in the second model, whereby EEM score is more likely relate to a higher relativism (b=0.04, p<0.01), a higher IP (b=0.46, p<0.01) and older age (b=0.01, p<0.05). However lower EEM is more likely occurred in bachelor level of schooling compared to those of Master/PhD (b=-0.12, p<0.05).

Table 3-9 Multiple regression towards biosphere value in ecocentric motive (EBM)

Model	EBM		Effect Size	95% CI	
	b	(Std. b)		Lower	Upper
<b>1 - Main Variable<sup>A</sup> (R=0.33; R<sup>2</sup>=0.11, df=9,439)</b>					
(Constant)	1.23	**		0.857	1.606
EPQ Ideal	0.03	0.06	0.00 <sup>C</sup>	-0.002	0.066
EPQ Relative	0.00	-0.01	0.00 <sup>C</sup>	-0.028	0.023
IP	0.48	0.39**	0.17 <sup>C+</sup>	0.410	0.559
ES	0.06	0.10**	0.01 <sup>C</sup>	0.024	0.103
<b>2 - Main Variable + Demographic and other determinants<sup>B</sup></b>					
<b>(R=0.40; R<sup>2</sup>=0.16, df=40, 408)</b>					
(Constant)	1.61	**		0.907	2.304
IP	0.48	0.38 **	0.14 <sup>C+</sup>	0.385	0.583
What is the highest level of schooling you have completed <sup>1</sup> ? Senior	-0.26	-0.11 *	0.49 <sup>D++</sup>	-0.509	-0.137
high: Yes (1) – No (0)					

\*p<.05; \*\*p<.01; <sup>A</sup>regression using enter method in a stepwise manner; <sup>B</sup>regression using enter method, insignificant results omitted (for all the results, see S4 multiple regression results); <sup>C</sup>effect-size calculation using eta squared (F<sup>2</sup>); <sup>D</sup>effect-size calculation using Hedge's g; +small effect size F<sup>2</sup>>=0.02 (or in some cases of categorical dummy variable, using Cohen's D/Hedges' g >= 0.2); ++medium effect size F<sup>2</sup>>=0.15 (or in some cases of categorical dummy variable, using Cohen's D/Hedges' g >=0.5); <sup>1</sup>compared to those respondent with Master/PhD degree.

Table 3-10 Multiple regression towards anthropocentric motive (AM)

Model	AM		Effect Size	95% CI	
	b	(Std. b)		Lower	Upper
<b>1 - Main Variable<sup>A</sup> (R=0.33; R<sup>2</sup>=0.11, df=9,439)</b>					
(Constant)	1.48	**		1.183	1.783
EPQ Ideal	0.01	0.03	0.00 <sup>C</sup>	-0.014	0.040
EPQ Relative	0.04	0.12**	0.01 <sup>C</sup>	0.020	0.061
IP	0.46	0.45**	0.24 <sup>C+</sup>	0.404	0.524
ES	0.03	0.05	0.00 <sup>C</sup>	-0.002	0.061
<b>2 - Main Variable + Demographic and other determinants<sup>B</sup></b>					
<b>(R=0.40; R<sup>2</sup>=0.16, df=40, 408)</b>					
(Constant)	1.60	**		1.053	2.147

IP	0.46	0.44 **	0.20 <sup>C</sup> +	0.378	0.533
EPQ Relative	0.04	0.12 **	0.01 <sup>C</sup>	0.015	0.063
What is your age?	0.01	0.11 *	0.01 <sup>C</sup>	0.001	0.011
What is the highest level of schooling you have completed? Bachelor: Yes (1) – No (0)	-0.12	-0.10 *	0.26 <sup>D</sup> +	-0.243	-0.037

\* $p < .05$ ; \*\* $p < .01$ ; <sup>A</sup>regression using enter method in a stepwise manner; <sup>B</sup>regression using enter method, insignificant results omitted (for all the results, see S4 multiple regression results); <sup>C</sup>effect-size calculation using eta squared ( $F^2$ ); <sup>D</sup>effect-size calculation using Hedge's  $g$ ; +small effect size  $F^2 \geq 0.02$  (or in some cases of categorical dummy variable, using Cohen's  $D$ /Hedges'  $g \geq 0.2$ ); ++medium effect size  $F^2 \geq 0.15$  (or in some cases of categorical dummy variable, using Cohen's  $D$ /Hedges'  $g \geq 0.5$ ); <sup>1</sup>compared to those respondent with Master/PhD degree

**Table 3-11 Multiple regression towards general environmental apathy (GEA)**

Model	GEA		Effect Size	95% CI	
	b	(Std. b)		Lower r	Upper
<b>1 - Main Variable<sup>A</sup> (R=0.33; R<sup>2</sup>=0.11, df=9,439)</b>					
(Constant)	2.97	**		2.552	3.380
EPQ Ideal	-0.07	-0.11**	0.01 <sup>C</sup>	-0.104	-0.029
EPQ Relative	0.10	0.23**	0.05 <sup>C+</sup>	0.074	0.131
IP	-0.25	-0.19**	0.03 <sup>C+</sup>	-0.335	-0.171
ES	0.17	0.24**	0.06 <sup>C+</sup>	0.128	0.215
<b>2 - Main Variable + Demographic and other determinants<sup>B</sup> (R=0.40; R<sup>2</sup>=0.16, df=40, 408)</b>					
(Constant)	2.91	**		2.174	3.648
EPQ Relative	0.10	0.23 **	0.05 <sup>C</sup> +	0.065	0.131
IP	-0.26	-0.19 **	0.03 <sup>C</sup> +	-0.363	-0.155
ES	0.12	0.17 **	0.03 <sup>C</sup> +	0.068	0.174
How often do you consume meat in a week <sup>1</sup> ? Four to six days a week: Yes (1) – No (0)	-0.21	-0.10 *	0.19 <sup>D</sup> +	-0.016	0.283
What is your gross household expenses per month <sup>2</sup> ? Refuse to answer: Yes (1) – No (0)	0.16	0.10 *	0.17 <sup>D</sup>	-0.226	-0.007
EPQ Ideal	-0.05	-0.09 *	0.01 <sup>C</sup>	-0.097	-0.008
Do you have any affiliation to religious organization <sup>3</sup> ? Yes (1) – No (0)	0.13	0.09 *	0.10 <sup>D</sup>	-0.022	0.169
How often do you consume meat in a week <sup>1</sup> ? I don't consume meat: Yes (1) – No (0)	0.25	0.09 *	0.20 <sup>D</sup> +	-0.336	0.057

\* $p < .05$ ; \*\* $p < .01$ ; <sup>A</sup>regression using enter method in a stepwise manner; <sup>B</sup>regression using enter method, insignificant results omitted (*for all the results, see S4 multiple regression results*); <sup>C</sup>effect-size calculation using eta squared ( $F^2$ ); <sup>D</sup>effect-size calculation using Hedge's  $g$ ; +small effect size  $F^2 \geq 0.02$  (or in some cases of categorical dummy variable, using Cohen's  $D$ /Hedges'  $g \geq 0.2$ ); ++medium effect size  $F^2 \geq 0.15$  (or in some cases of categorical dummy variable, using Cohen's  $D$ /Hedges'  $g \geq 0.5$ ); <sup>1</sup>compared to respondents who eat meat once a week; <sup>2</sup>compared to respondent whose monthly expenses below IDR 5 million; <sup>3</sup>compared to those respondent who don't have affiliation/membership to any religious organization

For GEA (Table 3-11), higher GEA score relates to a lower idealism ( $b = -0.07$ ,  $p < 0.01$ ), a higher R ( $b = 0.1$ ,  $p < 0.01$ ), a lower IP ( $b = -0.25$ ,  $p < 0.01$ ), and a higher ES ( $b = 0.17$ ,  $p < 0.01$ ). However in the second model, GEA score is more likely relate to a higher relativism ( $b = 0.1$ ,  $p < 0.01$ ), lower IP ( $b = -0.26$ ,  $p < 0.01$ ), higher ES ( $b = 0.12$ ,  $p < 0.01$ ) and lower idealism ( $b = -0.05$ ,  $p < 0.05$ ) and level of schooling ( $b = -0.26$ ,  $p < 0.01$ ) along with meat consumption (four to six day weekly ( $b = -0.21$ ,  $p < 0.05$ ) and no meat consumption ( $b = 0.21$ ,  $p < 0.05$ )), household expenses ( $b = 0.16$ ,  $p < 0.05$ ), and religious organization affiliation ( $b = 0.13$ ,  $p < 0.05$ ).

In summary, there is no evidence to support the hypothesized relationship direction for EEM, EBM and AM. ES is not significant with both EEM and AM, while relativism is not significant to EBM. High scores of IP, however, will likely relate to a higher EEM, EBM and AM. The higher the intrinsic religious orientation, the more a person believes in the importance of preserving the natural environment, in both ecocentric and anthropocentric motives. In addition, relativism and ES only relate to anthropocentric motives. The higher the relativism and extrinsic social religious orientation, the more likely a person believes in anthropocentric values as the motivation for preserving the natural environment. For the second model, only in GEA that all the main variables show consistent and stable relationship. A higher GEA score is more likely scored when a person scores a lower idealism, a lower

intrinsic personal religious orientation, a higher relativism, and a higher extrinsic social religious orientation.

### **3.3.4 Extrinsic social religious orientation, ethical ideologies, and environmental concerns**

The hypothesis presented in this section is that a higher ES correlates to lower idealism, higher relativism, and a higher general environmental apathy. We find only partial support for the fourth and fifth hypothesis. The results show partial support to the fourth hypothesis. On the one hand, to both idealism and relativism as we found no support for the relation of IP, we also found no support in ES. It seems that ES only positively correlates with relativism ( $r[927]=0.15$ ,  $p<0.01$ ), and IP only positively correlates with idealism ( $r[927]=0.21$ ,  $p<0.01$ ). The relation of religious orientation to environmental concerns is very similar to ethical ideologies. The only difference is, while there is correlation between idealism and relativism ( $r[927]=0.35$ ,  $p<0.01$ ), we find no correlation between IP and ES (

Table 3-12). Moreover, in Table 3-11, using multiple regression we confirm that higher extrinsic social religious orientation relates to a higher GEA in both the first and the second model. This means that when holding all other variables constant, one point increase in ES is more likely to increase 0.17 point of GEA score in the first, and 0.12 point in the second model. In both models, the effect-size of ES shows small effect-size ( $0.02 \leq F2 < 0.15$ ). For the confidence interval, if we were to re-fit both models for total of 20 random trials, taking samples of the same size from the same population, we can be confident that for 19 out of total 20 trials (95% of the time), an increase of one unit of ES will be more likely to increase GEA between 0.128 to 0.215 point in the first model, while in the second model will be more

likely to increase GEA between 0.068 to 0.174 point. Therefore, except for with idealism, the present study accepts all the expected ES' relations in the hypothesis.

### 3.3.5 Ethical ideologies and religious orientation

The working hypothesis presented in this section is that higher personal religious orientation relates to a higher idealism and a lower relativism.

Table 3-12 provides the correlation matrix for the studied variables. We find positive relationship between idealism with personal religious orientation (IP) ( $r[927]=0.21, p<0.01$ ). However, there is no significant relationship between relativism with IP ( $r[927]=0.000, p>0.05$ ), and therefore, while the hypothesis is rejected by every relation with relativism, it is accepted in predicting the relationship between idealism with IP. Lastly, the correlation between extrinsic social religious orientation and idealism ( $r[927]=-0.02, p>0.05$ ) and relativism ( $r[927]=0.15, p<0.01$ ) is already reported with a more detail in previous section (*see section 3.3.4*)

Table 3-12 Correlation Matrix between ROS and EPQ

	IP			ES			EPQ Idealism			EPQ Relativism		
	r	CI 95%		r	CI 95%		r	CI 95%		r	CI 95%	
		lower	upper		lower	upper		lower	upper		lower	upper
IP												
ES	0.05	-0.02	0.11									
Idealism	0.21**	0.15	0.27	-0.02	-0.08	0.05						
Relativism	0.00	-0.06	0.06	0.15**	0.08	0.21	0.35**	0.29	0.41			

\*\* . Correlation is significant at the 0.01 level (2-tailed).

### 3.3.6 Natural environment preservation attitude (EASE)

The working hypothesis presented in this section is general environmental apathy scale will negatively correlate with ecocentric and anthropocentric motives. Table 3-13 provides the correlation matrix for the studied variables. We find significant correlation in the predicted direction between general environment apathy (GEA) with ecocentric egobiosphere motive (EEM) ( $r[927]=-0.11, p<0.01$ ), and with ecocentric biosphere motives (EBM) ( $r[927]=-0.1, p<0.01$ ). However, there is no significant relationship between GEA with anthropocentric motives (AM) ( $r[927]=-0.04, p<0.05$ ).

Table 3-13 Correlation Matrix between EASEA components

		EEM		EBM		AM		GEA		
		CI 95%		r	CI 95%		r	CI 95%		
r		lower	upper		lower	upper		lower	upper	
Eco	Egobiosphere (EEM)									
Eco	Biosphere (EBM)	0.437**	0.384	0.488						
Anthropocentric	motivation (AM)	0.454**	0.401	0.504	0.497**	0.447	0.544			
General	Environment Apathy (GEA)	-0.113**	-0.176	-0.049	-0.102**	-0.165	-0.038	-0.041	-0.105	0.023

\*\* . Correlation is significant at the 0.01 level (2-tailed).

### 3.3.7 Demographic and other determinants

For all the second regression model (*see*

Table 3-8 to Table 3-11), aside the main variables, there are some demographic and other determinants closely related to environmental concerns (EEM, EBM, AM and GEA which are gender, age, level of schooling, weekly meat consumption, zoo visitation, monthly expenses, and affiliation to religious organization. While these determinants were found significantly related with environmental preservation concerns, this study only selectively discusses those determinants with small to medium effect-size relationship namely level of schooling and weekly meat consumption. The effect-size is measured using two methods. For the dummy categorical variable, we use Hedges' *g* in consideration that the compared groups are different in *N* and *Sd*. For the regression's *b*, we use the Cohen's *F* squared ( $F^2$ ) method.

### **3.4 Discussion**

The present study considers that other than ethical ideologies, religious orientation also relates to the attitude to the natural environment preservation. Five general conclusions are supported by the present study: *first*, two components of religious orientation relate to ethical ideologies. Intrinsic personal religious orientation correlates with idealism, and extrinsic social religious orientation correlates with relativism. This evidence leans more to the study by Watson et al. (1998), stressing the relationship between religious orientation and ethical ideologies, rather than only to ethical relativism (Barnett et al.,1996). However, in another vein, the present study differs greatly from Watson et al. (1998), who stated that “..intrinsicness seemed to reflect an idealistic and antirelativistic religious identity” (p. 160). In this study, intrinsic personal (IP) religious orientation only relates to idealism, and extrinsic social (ES) religious orientation only relates to relativism. Moreover, although this study shows evidence for the relation between idealism and relativism, there is no correlation



between IP and ES. Additionally, while it is easy to view that, “those who expressed a strong commitment to religious belief also believed more strongly in universal moral principles” (Barnett et al., 1996, p. 1169), it is important to note that both EPQ and ROS permit a notion where those who score high in relativism can also have a strong commitment to religious beliefs. This is proven in the present study considering that most of the proposed hypotheses are supported.

*Second*, rather than EPQ, observing results from both first and second regression models, we find that religious orientations (specifically IP) consistently relate to environmental concerns. However, this study fails to differentiate between ecocentric and anthropocentric motives for environmental preservation in context of their relationship with idealism and IP. On one hand, ethical idealism is non-significant to all ecocentric egobiosphere (EEM), ecocentric biosphere (EBM) and anthropocentric motives (AM), while a higher relativism is more likely relates to a higher general environment apathy (GEA) and AM. On the other hand, IP proves significant indiscriminately to EEM, EBM and AM, while ES only relates to a higher GEA. One possible explanation for idealism and IP indiscriminate patterns of relation towards EEM, EBM, AM may lie in the nature of Thompson & Barton's (1994) ecocentric and anthropocentric scale itself. As discussed previously in the introduction, by differentiating natural capital (the stock of environmentally provided assets such as soil, atmosphere, forests, water, wetlands) with cultivated natural capital (e.g. agriculture products, pond-bred fish, cattle herds, and plantation forests), Goodland (1995) and Goodland & Daly (1996) explain the dilemma of differentiating between environmental sustainability and anthropocentric (social and economic) sustainability. It is very easy to see that often, there are no clear ways to determine whether a person's environmental concerns stem from ecocentric,

or anthropocentric motives or both. Moreover, even purely in ecocentric motives alone, Amérigo et al., (2007) proves that it actually can be divided into two factors: the egobiocentrism (self in nature) which is more or less the element of anthropocentric in nature and the biospherism (nature itself). Luckily, Thompson & Barton (1994) provide one other factor in their scale namely general environment apathy, which we argue as one critical aspect to differentiate whether a person has environmental concerns or rather apathy disposition towards their natural environment.

*Third*, partially accepting the working hypothesis, both the intrinsic personal and extrinsic social religious orientation relate consistently to the natural environmental concerns only for the general environmental apathy. High IP consistently relates to a lower environmental apathy, and it indiscriminately relates to higher EEM, EBM and AM. Apparently, no matter what the motives are (either ecocentric or anthropocentric or both), a person with high intrinsic personal religious orientation is more likely has a higher concern for the natural environment preservation. On the other hand, ES component relates consistently to the general environmental apathy in the hypothesized direction. A person with high extrinsic social religious orientation is more likely to have higher environmental apathy.

*Fourth*, from both the first and second regression model, this study emphasizes the strength and reliability of religious orientation (rather than ethical ideologies), as a more consistent factor for all the variables designated to measure the natural environment concerns. In addition, we find that religious affiliation relates to general environmental apathy.

Lastly, it is important to mention that in the result, many of the relation between variables are small in effect size. While effect size is critical in evaluating whether the difference or relation is important in terms of magnitude, by using two regression models, this

study shows consistent recurring relationships of the main variables with environmental concerns. Thus, despite the small effect size, these relationships are critically important because of their consistency, especially when all possible demographic and other determinants compete with the main variables in the multiple regression computation.

#### **3.4.1 Ethical ideologies and attitudes towards the importance of natural environment**

Results for ecocentric and anthropocentric motives show that while idealism has no significant relation, relativism relates to AM. However, despite the significant relation between relativism and AM, the effect size is very small to guarantee reliable conclusion.

The most consistent support for the hypotheses is shown through GEA. With small effect-size, the results significantly show that higher relativism is more likely to relate to a higher environmental apathy. The more the respondents view that there are no absolute universal moral principles undergirding their moral judgement and decision-making, the more likely they are to have higher score of environmental apathy. In other study about animal protection and welfare, higher relativism significantly correlated with higher acceptability for harming animals (Bègue & Laine, 2017; McPhedran, 2009; B Su & Martens, 2017) whereby a high score of ethical idealism is more likely related to a lower acceptability for harming animals (B Su & Martens, 2017). Despite animals and ecology are not the same, environmental beliefs may transform general ecocentric values into negative or positive attitudes to one specific environmental category (Bjerke & Kaltenborn, 1999). Moreover, the similarity between findings of attitudes towards the natural environment and animals both showing consistent patterns relativism, suggest that it is necessary to cross-examine such findings.

In addition, through the second model, this study offers a new insight of the reduced strength of ethical ideologies as one of the predictors for environmental concerns. With the account of demographic and other determinants, this study shows that ethical ideologies are not as consistent as religious orientation in predicting environmental concerns. Rather than ethical ideologies, this study proposes religious orientation as a stronger and reliable factor as the predictors for ecocentric and anthropocentric motives of environmental concerns.

### **3.4.2 Religious Orientation and attitudes towards the importance of the natural environment**

White (1967) marked a milestone in which research on religious allegiance towards environmental sustainability started. Ever since, a many studies shows both supporting (Arbuckle & Konisky, 2015; Barker & Bearce, 2013; Eckberg & Blocker, 1989; Hope & Jones, 2014; Muñoz-García, 2014) and opposing evidences (Boyd, 1999; Hayes & Marangudakis, 2000, 2001). The present study also finds mixed results. For environment preservation attitude, the present study hasn't found any significant evidence supporting White's (1967) thesis. Instead, high scores of personal religious orientations (IP) relate to a more positive ecocentric (EEM and EBM) and anthropocentric motives (AM) in valuing the natural environment, and a lower general environmental apathy (GEA). Rather than hindering, religious belief and the degree to which religion is internalized into respondents' everyday conduct promote respondents' perceptions for the importance of natural environmental preservation. By way of explaining this mixed result, the present study suggests that individuals' interpretation of religious scripture as the result of communication framing may

be important (Feinberg & Willer, 2013; Wardekker et al., 2009). One study points out that reframing environmental discourse in multiple religious teaching interpretations reduces the gap in environmental concern between liberals and conservatives (Feinberg & Willer, 2013). In another study, religious framing of climate change resonates with the electorates of both progressive and conservative politicians and serves as a bridging device for bipartisan climate-policy initiatives (Wardekker et al., 2009). Hence, this study suggests that providing information about, or controlling for, multiple religious teaching scenarios is important to further explaining variation between different research results.

On the other hand, in the present paper, support for White's (1967) thesis (that religion depresses concern for the environment) is only found in the relation between social religious orientation and environmental apathy. High scorers of extrinsic social religious orientation are more likely to have higher general environmental apathy. The construct of ES implies religion serves as an instrument for social gain, exemplified by the membership of a powerful in-group, providing protection, consolation and social status, allowing religious participation, or use of an ego defense (Allport & Ross, 1967; Fleck, 1981; Genia & Shaw, 1991; Kahoe & Meadow, 1981; Maltby, 1999). Thus, ES properties appear to resemble the embodiment of social identity theory more closely, rather than that of religious belief and commitment. Therefore, the present study may reveal how the social identity aspects of religion (for example, religious group affiliation, participation, and the like) can hinder concern for the environment. Lastly through the second regression model, the present study stressed the consistent relationship between religious orientation with the natural environment preservation motives. Even when considering all other variables including demographic and other important determinants,

religious orientation remained consistent in predicting the concerns for the natural environment preservation.

### **3.4.3 ROS, EPQ and attitudes towards the importance of the natural environment**

Other than unearthing important evidence for ethical relativism, perhaps one of the more significant contributions from the present study is that it also examines the main correlation of religious orientation components (IP and ES) and ethical ideology components (idealism and relativism). Contrary to prediction, IP does not have a significant relationship with relativism. This is surprising considering that intrinsic personal religious orientation puts religion as a deeply personal belief, and that the sample mean indicates that most of the respondents consider themselves to be very strongly committed to their religious beliefs (IP Mean of 4.22 with maximum score of five). This suggests that having a strong, deep religious belief and commitment does not necessarily mean that respondents consider those as their sole governing universal moral guiding principle for their judgement and decision-making. Furthermore, IP correlates with idealism (Forsyth et al., 2008). This may suggest that rather than operating as the extent to which an individual believes in universal governing moral principles (low relativism), intrinsic personal religious motives, belief and commitment may relate more to a principle with which individuals portray and justify their actions as correct, to achieve desirable outcomes (high idealism).

*Second*, ES relates to relativism. The more individuals view their religious belief, participation, and practices as the means to an end for social motives and affiliation (for example, as group protection, group status, or other means of social gain), the more likely they are to have high relativism. High relativistic individuals' moral judgments are adaptable, for

they base their appraisals on features of the situation and action they are evaluating. People who express low relativism, in contrast, have more cognitive beliefs in universal moral principles, and use them to make judgements and decisions (Feinberg & Willer, 2013, p. 815).

Moreover, it is interesting to note that an unexpected positive correlation is found between idealism and relativism ( $r[927]=0.29, p<0.01$ ). This is contrary to the original EPQ study which suggests that the two scales are essentially orthogonal (Barnett et al., 1996; Forsyth, 1980). Moreover, this unexpected correlation was also shown in Barnett et al. (1996) when investigating the relation between EPQ and religiousness. Their study suggested consistent evidence of the psychometric limitations of ethical idealism and relativism constructs when presented and measured on a single scale (Forsyth et al., 2008).

Lastly, when considering all the main variables along with demographic and other important determinants, the results stress the importance of ethical relativism, and religious orientation as the main variables that relate to environmental concerns. However, only intrinsic personal religious orientation strongly relates to all measurement components for environmental concerns (EEM, EBM, AM, and GEA) which clearly rejects White (1967) thesis. In contrast, specifically in GEA, the result that extrinsic personal religious orientation relates to higher environmental apathy clearly in line with White (1967) thesis.

#### **3.4.4 Demographics and other determinants**

Age, gender, and level of schooling are often found to be significant demographic determinants in most studies of religion (Arbuckle & Konisky, 2015; Barker & Bearce, 2013; Smith & Leiserowitz, 2013) and environment (Boyd, 1999; Hayes & Marangudakis, 2000; Ignatow, 2006; Wolkomir, Futreal, Woodrum, & Hoban, 1997). This study adds public zoo

visitation, meat consumption, monthly household expenses, and religious organization affiliation as other determinants that relate to environmental concerns. However, this study finds only level of schooling and weekly meat consumption that have the ideal effect-size for a more detailed explanation and discussion (see

Table 3-8 to Table 3-11).

Results show that compared to respondents who consume meat once a week, respondents who consume meat four to six times in a week have a lower environmental apathy while respondents who don't consume meat tend to have a higher environmental apathy. We propose to explain this result through the respondents' socio-economic status more often represented with monthly income and expenses indicators. Unless this result originates from being conscious of leading a healthy life, or from the motive to preserve the natural environment, answering no meat consumption in their daily diets voices a very different meaning when it is in the context of low monthly income category. On monthly income the present study finds no significant relation in the regression model, but, on monthly expenses, we find relations between GEA and refuse to answer monthly expenses group ( $b=0.16$ ,  $p<0.05$ ). Respondents who refuse to answer their monthly expenses tend to have higher general environmental apathy compared to respondents whose monthly expenses are below IDR five million. Thus, we continue to examine between-group differences using ANOVA. This study finds significant differences between income categorical groups ( $F[5]=3.24$ ,  $p=0.007$ ). Post-hoc tests using Bonferroni method show only one significantly higher GEA in the minimum monthly wage compared to the average monthly Income group categories ( $p=0.004$ ). For monthly expenses, this study finds significant difference between monthly



expenses categorical groups ( $F[5]=2.507$ ,  $p=0.029$ ). However, the post-hoc Bonferroni test fails to show any significant difference between monthly expenses groups. One possible cause may rest in how this study allows participants to choose ‘refuse to answer’ option to answer the monthly income and expenses question. It is possible that respondents from both highest and lowest monthly income may refuse to answer this specific question, and thus, blurs whatever group difference that may be found otherwise. Therefore, this study does not yet have a sufficient explanation other than to carefully propose that meat consumption may warrant further investigation by examining how it may relate to monthly income and expenses.

The present study also indicates that the level of schooling correlates with ecocentric and anthropocentric motives. Specific to this, result shows that compared to respondents with a Master/PhD degree, those respondents who finished senior high as their last level of schooling have higher EBM and those respondents who finished bachelor’s degree as their last level of schooling have higher AM. One probable explanation may lie in the role and nature of those teachers who only finished senior high compared to those teachers with bachelor’s degree. All the teachers who only completed senior high level of schooling are situated in elementary madrasah (religious-based elementary school)—either private owned or formal official government school—and function as teaching assistants. Most of them have dual livelihood as teaching assistants and farmers who may have higher concerns for the natural environment. For AM, one probable explanation is that participants with a higher, more advance degree like Master or PhD may have more exposure and access to environmental and animal welfare information, compared to bachelor’s degree which usually revolves more around general knowledge.

### **3.4.5 Limitation**

Despite the present study's success in examining EPQ and ROS along with influential factors for the importance of the natural environment preservation, several other variables remain unexplained, such as age, religious organization affiliation, monthly household income, expenses, public zoo/aquarium visitation, and several others. Hence, these limitations address the need for a deeper effort in deploying follow-up interviews to gain insight into how those variables may have interacted with the primary variables.

Lastly, posing animal welfare studies as one important reference, the present study only found partial evidence for the role of ethical ideologies in respect to environmental concerns. However, the remaining parts unearthed with this study are the consistent roles of religious orientation even more significant than the role of EPQ in animal welfare and environmental protection studies. Moreover, previous studies confirm that the mechanisms underlying the relation of ethical idealism and relativism to attitudes might vary in different countries and cultures (Forsyth et al., 2008). The present study provides further insight and introduces religious orientation as contributing cultural factors that warrants further investigation.

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**Chapter 4**

**The role of religious narratives and religious orientation towards  
concerns for the natural environment and animal welfare**

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## Abstract

Several studies show that religion hinders concerns for natural environment preservation. Others, however, have found that the belief in God or the identification with a particular religion is not associated with measures for environmental concerns. This study investigates the influence of religious narrative framing and the relation between Allport's intrinsic personal (IP) and extrinsic social (ES) religious orientation towards general environmental apathy (GEA) and acceptability for harming animals (AIS). This study surveyed 657 teachers and school staff in East Java, Indonesia. Using ANOVA, we find that religious narrative affects participant's GEA and AIS. Participants in stewardship narrative group have significantly lower GEA and AIS compared to participants in human dominance and the non-narratives control group. Using multiple regression, we also confirm the persistence of religious narrative's influence towards GEA. In addition, lower GEA and AIS correlate with higher IP and lower ES. Lastly, we identify and discuss significant demographic and other determinants relation to GEA and AIS.

## 4.1 Introduction

Sustainable Development first became prominent in the 1980s with its most mainstream definition of “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, 1987). From this definition, sustainability studies formulate three pillars consist of social, economic, and environmental sustainability as the objective for sustainable development. From there, environmental sustainability becomes the domain of sustainability sciences while the former two (namely, economic, and social sustainability) become the domain of development studies. However, a complete reconciliation between both studies is not without challenge. According to Goodland & Daly (1996), one of the challenge lies in the difference in both disciplines to prioritize differing aspects of development. While the development goals are fundamentally important, they are quite different from the goals of environmental sustainability, which is the unimpaired maintenance of human life-support systems (Goodland, 1995) (p. 5). Goodland & Daly (1996) differentiate, at the very least, four kinds of capital, which are human-made capital (financial and economic accounts); natural capital (the stock of environmentally provided assets such as soil, atmosphere, forests, water, wetlands); human capital (investments in education, health and nutrition of individuals); and social capital (the institutional and cultural basis for a society to function).

Goodland & Daly (1996) challenge the notion of throughput growth in the context of finite earth, in which as a subsystem of the finite and non-growing earth, the economy must eventually adapt to the finite earth. Thus, environmental sustainability requires maintaining the natural capital and to understand sustainability must include both the definition of “natural capital” and “maintenance of resources” (or at least “non-declining levels of resources”).

Sustainability means maintaining environmental assets, or at least not depleting them. Goodland & Daly (1996) argue that the limiting factor for much economic development has become natural capital as much as human-made capital. “In some cases, like marine fishing, it has become the limiting factor—fish have become limiting, rather than fishing boats. Timber is limited by remaining forests, not by sawmills; petroleum is limited by geological deposits and atmospheric capacity to absorb CO<sub>2</sub>, not by refining capacity” (Goodland & Daly, 1996) (p. 1005). Goodland & Daly (1996) conclude that eventually, natural capital will limit this cultivated natural capital.

In support to Goodland (1995) and Goodland & Daly (1996), the present study brings forth the dilemma between sustainability science and development studies where they haven't yet reach consensus on the attainable priorities path-ways of whether to reach environmental sustainability or more anthropocentric (social and economic) sustainability. In one polar there is the urgent need to preserve the natural environment for the sake of itself to recuperate (ecocentric). However, on the opposite polar, there are huge challenges of social and economic needs for sustaining human lives (anthropocentric).

Of this ecocentric-anthropocentric polars, similarly, Thompson & Barton (1994) formulate and develop two underlying motives of environmental attitudes, which are ecocentrism—valuing nature for its own sake; and anthropocentrism—valuing nature because of the material or physical benefits it provides; and also, with an additional dimension of general apathy towards the environment (Bjerke & Kaltenborn, 1999). Thompson & Barton (1994) propose that the motives and values which underlie environmental attitudes are of great significance in which the same positive attitude in valuing the importance of conserving the natural environment may come from ecocentric or anthropocentric motives, or even both. This

is especially relevant after Bjerke & Kaltenborn (1999) further riddled this topic when they found that ecocentric motive is scored differently to different job-groups categorization when valuing carnivores animals compared to herbivores. In their study of ecocentric and anthropocentric motives relationship to attitude towards large carnivores, Bjerke & Kaltenborn (1999) highlighted that high ecocentrism and low apathy to the natural environment only specifically resonate to those research biologist and wildlife managers groups who score more positive attitude towards carnivores.

For sustainability and the attitude or concerns to the natural environment, White's (1967) thesis stating that religion hinders concerns for the natural environment highlights the urge for sustainability efforts as a response to industrial and economic development and growth at that time. White (1967) argues that, to some extent, the current ecological crisis is due to the disconnection of nature and spirituality often promoted by religion which gives the human species rights and dominance to exploit nature which in return, forms the basis for exploiting the natural world. Before White (1967), religion wasn't considered as a factor contributing to environmental degradation (Bauman et al., 2010). Many studies after White (1967), show interrelation between religion and ecology. Several studies show that less concern for global warming and the environment relates to religious affiliation (Arbuckle & Konisky, 2015), religious literalism and aspects of religiosity expression (Muñoz-García, 2014) and end of the world belief (end-times theology) (Barker & Bearce, 2013). On the other hand, there are also studies which conclude no association between environmental concerns and religious belief and identification (Boyd, 1999; Hayes & Marangudakis, 2000, 2001). One particular study by Smith and Leiserowitz (2013) further complicates the relationship between religion and the environment. They find that compared to non-evangelist, the evangelicals are



less likely to believe global warming is happening, caused by human activities, and are less worried about it. However, they find that egoistic, altruistic, and biospheric concerns of global warming as the single strongest predictor of evangelical risk assessments and policy support rather than the religious aspects. They add that evangelicals who hold an individualistic worldview are more likely to oppose policies designed to mitigate global warming, and conclude that affect based value orientations, ideologies and worldviews are more important for understanding these divided positions towards global warming than theology per se (N. Smith & Leiserowitz, 2013).

Similarly, in animal welfare studies, the role of religion remains unclear. Negative attitudes and behavior toward animals is not significantly related to religion or religious practice (Meng, 2009b; Nickell & Herzog, 1996), political ideology (Knight, Vrij, Cherryman, & Nunokoosing, 2004) and religious ideology (Templer, Connelly, Bassman, & Hart, 2006). However, increased evidence for the role of religion in the field of animal welfare emerges. Animal treatment studies show that negative attitude towards animals relates to gender, church attendance (Peek et al., 1996; Prokop & Tunnicliffe, 2010) and Christianity as a source of inspiration (Bingtao Su & Martens, 2018). In other study, more negative attitude towards animals and more acceptability for harming animals are more likely adopted by practitioner of any religion (Díaz, 2019) and relate to the value and relevance of specific animals in different religions (Gilhus, 2006); to the types, kinds and species of the said animals (Driscoll, 1992); and to religious affiliation and liberal-conservative theological aspect of the affiliated church (Bowd & Bowd, 1989).

The inconsistent role of religion may originate from differing aspects of religion utilized in the above studies. Some studies address communication framing of religious

messages (N. Smith & Leiserowitz, 2013; Wardekker et al., 2009), while others address the religious scriptures contents and interpretation (Haq, 2001; McFague, 2001; Tirosh-Samuelson, 2001). Regarding the latter, religious followers' interpretation toward their religion, religious scripture and teachings are somewhat unpredictable considering that it is a factor that widely varies depending on a subject's interpretation and context for re-interpretation (Feinberg & Willer, 2013; Wardekker et al., 2009). Using Feinberg & Willer (2013) research as an example, reframing environmental discourse into a specific religious interpretation reduces the gap of environmental concerns between liberals and conservatives. Feinberg & Willer (2013) argue that presenting conservatives with pro-environmental messages couched within a set of particularly conservative moral domain, leads conservatives to adopt more pro-environmental attitudes, comparable to those of liberals. In the study of Christian's public voices in the US public debates, Wardekker et al. (2009) finds three different narratives addressing fundamental ethical questions, which are 'conservational stewardship' (conserving the 'garden of God' as it was created), 'developmental stewardship' (turning the wilderness into a garden as it should become), and 'developmental preservation' (God's creation is good and changing; progress and preservation should be combined). Wardekker et al. suggest that religious framing of climate change to resonate with the electorates of both progressive and conservative politicians can serve as bridging devices for bipartisan climate-policy initiatives (Wardekker et al., 2009).

In addition, from another distant topic, evidence from Indonesia family planning programme shows that between the 1960s and the 1990s, religion played important part in assisting government's family planning programme and policy in Indonesia. By reframing religious scripture, religious influential figures at that time helped to accommodate a more

acceptable interpretation for family planning (Warwick, 1986). Religious teachings were reframed to mediate public acceptance for family planning (Hull, 2007). Indonesia's family planning case study suggests that one of the keys to a change in thinking (and public acceptance in general) is Islamic institutions' joint efforts in reformulating the religious teachings of the shari'a combined with secular sources. These sources ranging from domestic and foreign medical authorities, government ministries, up to the family planning board of coordination, along with experts from the World Health Organization and other international organizations (Menchik, 2014). Furthermore, although religion alone is not always a good indicator of the religious-political culture, there are wide variations of Islamic shari'a interpretation for contraceptive at that time (Cammack & Heaton, 2001). These various interpretations then become both the subjects and entry points for an alternative framing of religious scriptures, on one hand defusing some opposing religious views (e.g. the view that limiting the amount of child in one's own family is opposite to God's will and blessings) while on the other hand, promoting religious views that support family planning (Candland & Nurjanah, 2006; Shiffman, 2004). Thus, framing religious teachings and scriptures into various narratives is one of the main variables of this study.

Observing different definitions for the interchangeably terminology of religiosity, religiousness or religious belief may help to explain various opposing results from abundance of religious studies toward the ecology. Different aspects such as (1) human cognitive, (2) affect, and (3) behavior, such as church attendance, or affiliation (Cornwall, 1989) in formulating definition for religiosity or religiousness may suggest different angle of defining the variable and consequently, producing different results. Gallagher & Tierney (2013) argue that religiosity and religiousness are interchangeable as far as an individual's conviction,

devotion and veneration towards a divinity is concerned. As the continuation of Pasaribu et al. (2021) research, this study also chooses Allport's religious orientation of intrinsic and extrinsic motivation in practicing religious belief. Religious orientation consists of three components. *First*, intrinsic personal (IP) orientation, where religion is personal and people intrinsically motivated and committed to their religious belief and practices in their daily life in trying to follow the moral code of their religion. *Second*, extrinsic personal (EP) religious orientation, where people feel extrinsically motivated by acquiring emotional sense of peace and comfort as the result of doing religious activity. *Lastly*, extrinsic social (ES) orientation in which people perceive social advantages by having a sense of membership from a religious group such as, protection, consolation or social status (Allport & Ross, 1967; Fleck, 1981; Genia & Shaw, 1991; Kahoe & Meadow, 1981; Maltby, 1999). In examining the relation between animal protection issue with ethical ideologies and religious orientation, Pasaribu, Martens & Takwin (Pasaribu et al., 2021) find that participants with higher score of IP are more likely to have lower acceptability for harming animals. However, they also find that participants with higher score of ES tend to also score higher acceptability for harming animals.

This study is the continuation of Pasaribu et al. (2021), to further examine religious orientation roles toward acceptability for harming animals and concerns for the natural environment by adding religious narratives as the representation of various dogmatic teachings (Feinberg & Willer, 2013; Wardekker et al., 2009). Pasaribu et al. (2021) argue that extrinsic social religious orientation closely relates to social identity from Tajfe's theory of social identity in ways that religious group offers a sense of group positioning within which individuals identify themselves vis-à-vis religious outgroups (Blumer, 1958; Tajfel & Turner,

1979). For religious orientation, the present study focuses the attention to ES, to investigate whether it has diminishing or increasing role when considering one other variable that is religious narrative.

On the other hand, focusing on various religious narratives as a treatment variable in a quasi-experimental design, the present study tries to measure attitude towards the natural environment, religious orientation, and animal importance and to examine any differences between narratives groups. This study investigates the influence of religious teachings to the attitude towards the importance of the natural environment and animal by reframing religious scriptures into two priming narratives which are stewardship (SN) and human dominance narrative (DN) as group treatments. In SN, we compile religious scriptures which stress the importance for humans to safeguard nature. In DN, we collect religious texts which stress the notion of human being as the most noble amongst all creation of God. Thus, we expect that respondents assigned to read SN will be more likely to score a lower apathy toward the natural environment and a lower acceptability for harming animals compared to those assigned to DN, leaving the control group (the group without any narrative treatment) somewhere in between. Afterwards, we also investigate general demographic determinants such as gender, age, education, household income, meat consumption, pet ownership, and religious organization affiliation (B Su & Martens, 2017; Bingtao Su & Martens, 2018).

As the continuation of Pasaribu et al. (2021), this study uses the same sample, purposefully selected from the population in East Java province. Other than considering that it represents the oldest, most influential Islamic organizations (e.g., Nahdlatul Ulama and Muhammadiyah), the province of East Java is also one of the provinces with the most diverse Islamic denomination. Also, religion matters in Indonesia's social foundation. For one

instance, looking at Nahdlatul Ulama (NU), not only that it is the largest Islamic organization in Indonesia, it also has political influence from regency-level all the way up to the national level (Anwar, 2019). From Nahdlatul Ulama, Indonesia had Abdurrahman Wahid as the fourth President of Indonesia (1999-2001) and currently, Ma'ruf Amin as the current Indonesian vice president (took office in 2019). Thus, the present study views that Indonesia, especially East Java, as the perfect population where religion matters and strongly influences social and political constellation of Indonesia. However, by taking samples from East Java province, the present study avoids over-generalization of the results.

## **4.2 Materials and Methods**

We confirm that Maastricht University's institutional review board (ethics committee) reviews and approves this article. We have submitted the plan for conducting the study, the time schedule, the questionnaires, and the tools for collecting data and acquired the approval from the Maastricht University's Ethics Review Committee Inner City faculties. This research article conforms ethics for human participant regulated by the General Rules for Information Protection (European Union) 2016/679. We carefully manage all personal information so that personal data is safe from third parties and stored on servers that are not accessible to the public. We replace names and positions with an alphanumeric code to keep participants' identity protected.

The present study targets school teacher and staff in considering that schools are subjects to nation-wide education curriculum (Swirski, 2002). School teachers also have important roles of transformative intellectuals (Leite et al., 2020; Muff & Bekerman, 2019; Tan, 2016), and authoritative figures which may provide insight of moral, political and ethical

issues to their students (Bar-Tal & Harel, 2002; Grubb, 1995). We made written invitations to each school requesting participation. Relevant body of Indonesia government ranging from national, province to districts. Legalized by the invitation letter. There were schools that declined to participate while schools or universities that accept the invitation were surveyed. Before surveying, we request oral consent from each of the participants to re-confirm that they are voluntarily participating in the survey.

We invite sixty-seven schools (ranging from junior to senior high schools) to participate in the survey. The invitation request all participating schools to provide a balanced proportion of male and female teachers or school staff. A total of 37 schools, from ten districts of East Java, replied and agreed to participate, providing 1007 participants. However, only 929 participants were analyzed due to the removal of seventy-eight participants because of incomplete and unengaged answers. Normal distribution, factor analysis and Cronbach alpha's reliability were analyzed using this 929 participants data. However, after cross-checking with priming narratives treatment check questionnaires, we further remove 272 participants who score below the expected mean (*see* section 4.3.2) from both stewardship and human dominance narrative groups, leaving a total of 657 participants for the ANOVA and multiple regression analysis.

The main variable of this research are religious priming narratives (as the representation of religious scripture and teachings), religious orientation, attitude toward the importance and conservation of the natural environment, and the acceptability for harming animals. The present study uses quasi-experimental comparative design to analyze various treatments of religious narrative priming toward religious orientation, attitude towards the importance of the natural environment and attitude towards the importance of animal

protection. With the help from religious leaders in East Java, Indonesia, we develop two distinct narratives. The first narrative synthesizes religious teachings which support environment preservation (stewardship narrative) while the second synthesizes religious teachings which inform the privilege of human beings as the ultimate creation (human dominance narrative). Using these narratives, we implement three different treatment groups. We give one group the stewardship narrative (SN), and the second group the human dominance narratives (DN). The third group is a control group, where respondents directly fill in the survey without reading any priming narrative.

All questionnaires in the survey are originally in English (S2 questionnaires in English) and we translate them to Bahasa Indonesia (S3 questionnaires Bahasa Indonesia adaptation). We use expert judgement for the method of translation, and back translation. We translate the questionnaires to Bahasa Indonesia and sent to experts for evaluation and finalization of the translation. After corrections, three Indonesian academicians from Universitas Indonesia back translate all the questionnaires to English. We retain back-translated items that are similar to the English version and modify or delete those items which lack similarity. The set of questionnaires consists of six sections. In the first section, we asked a variety of important determinants and demographic details such as birth year (age), gender, highest level of education completed, their experience or participation in either animal protection, nature conservation, or human health organization, their household composition (for example, single, married, or widow(er), with children or not), place of residence (rural or urban), type of house (apartment, live with parents, etc.), their opinion regarding the importance of religion/spirituality in their lives, household income, pet ownership, kinds of



pet, their weekly frequency of meat consumption, and the frequency of visiting public zoos or aquariums in a year.

In the second section, we give participants three types of treatment narratives. We develop two types of religious narratives based on religious scriptures. The first is environmental stewardship narrative, in which we collect religious scriptures which stressed the importance for humans to safeguard nature. The second is the human dominance narratives in which we collect religious texts which stressed the notion of human being as the most noble amongst all creation of God. From these two narratives (S1 Treatment narratives), we divide participants into three group treatments namely stewardship narrative (SN), dominance narrative (DN), and control group where participants fill the survey without given any narratives (NN). Except NN group, we oblige participants to read the narrative presented to them before filling the questionnaires.

The third section is a questionnaire we developed as a group treatment check. Not necessarily opposed to each other, each question is a pair of statements of which respondents need to choose one they prefer the most. These questions measure whether the participants read the narratives before filling the survey. Using this, we first examine whether the priming narrative treatment applies to each of the respondent in their treatment group. We develop ten questions as a treatment check to filter unengaged respondents (those participants who may decide to fill the questionnaires without reading the narrative) from those who read the priming narratives before taking the survey. Each question refers to what is written in the narratives using 4-point semantic differential type of response. A mean score above 2.5 suggests that the respondents read the narratives properly and therefore included in analysis. A mean score equal to or below 2.5 suggests that respondents did not read the priming narratives and

therefore removed from the ANOVA and multiple regression analysis. Table 4-1 list all the questions in this section.

Table 4-1 Priming narrative treatment check questions

No	Statement		Statement
01.	Human beings are superior to other beings	○ ○ ○ ○	Environmental damage is high and worrying
02.	Humans are sent to lead	○ ○ ○ ○	natural resources are threatened
03.	Human beings are superior to other beings	○ ○ ○ ○	God sent man to take care of
04.	Humans needs to support their family	○ ○ ○ ○	Humans need to protect and care for nature and the environment
05.	God sent man to lead	○ ○ ○ ○	Wildlife welfare (protecting all living things)
06.	God sent man to take care of	○ ○ ○ ○	Humans are sent to lead
07.	God sent man to lead	○ ○ ○ ○	Animals need a place to live
08.	Humans don't give in and worry too much	○ ○ ○ ○	Wildlife welfare (protecting all living things)
09.	God created humans as noble creatures	○ ○ ○ ○	God sent man to take care of
10.	God sent man to lead	○ ○ ○ ○	Human life depends on nature

In the fourth section, Thompson & Barton’s (1994) Ecocentric-Anthropocentric Scale of Environmental Attitude (EASEA) is used to measure environmental attitudes which consists of three dimensions, namely ecocentrism, anthropocentrism and general environment apathy. Amérigo et al. (2007) argue that ecocentrism seems to include two concepts: the self in nature (egobiosphere) and nature itself (biosphere). In ecocentrism motives, on the one hand, there are items about physical or psychological benefits for the individual, brought about by the mere fact of being in or thinking about nature (e.g., “Being out in nature is a great stress reducer for me”). These are related to the positive emotional effects produced by contact with nature where the protagonist is the self and it is the only direct beneficiary of the goodness of the natural environment which could be considered to be related to an egoistic dimension (Amérigo et al., 2007). On the other hand, the remaining ecocentric items refer to biospheric aspects that emphasize the intrinsic value of Nature (e.g. “Nature is valuable for its own sake”) which may be oriented into two different viewpoints of (a) a psychosocial perspective that

contemplates the human-being-in-nature and in which the environment is valued as an element that procures the individual's physical and psychological well-being, and (b) a strictly biospheric dimension in which the environment is valued intrinsically and that contemplates the nonhuman elements of nature (Amérigo et al., 2007). In short, Amérigo et al. (2007) propose that there are anthropocentric valuation in the Thompson & Barton's (1994) ecocentric scale. Thus, it is exceedingly difficult to differentiate whether environmental concerns stem from ecocentric or anthropocentric motives or both. Therefore, this study only uses the general environmental apathy scale to measure whether a person has apathy disposition towards their natural environment. From total 31 items of Thompson & Barton's (1994) ecocentric-Anthropocentric Scale of Environmental Attitude (EASEA), there are 12 questions measuring ecocentric motive 10 questions measuring anthropocentric motive of nine questions measuring general apathy toward the environment. As explained above, this study only uses the general environment apathy (GEA) scale. Examples of the statements are, 'environmental threats such as deforestation and ozone depletion have been exaggerated,' 'too much emphasis has been placed on conservation,' or 'I don't care about environmental problems.' However, after principal axis factoring factor analysis (S4 Missing case analysis, Factor Analysis and Reliability; Table 10-18), this study reduced the items to only seven items, and found that GEA consists of two factors instead of one. However, after confirming a good Cronbach alpha's reliability in one factor model, the present study decided to retain the environmental apathy dimension as it was originally, a one factor construct (model Two, *see* Table 4-2).

Table 4-2 EASEA-General Environment Apathy Rotated Factor Matrix

Items	Model 1 (using	Model 2
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	eigen value > 1)		(as one factor)
	1	2	
ECCANTH03 Environmental threats such as deforestation and ozone depletion have been exaggerated	.462		.518
ECCANTH07, it seems to me that most conservationists are pessimistic and somewhat paranoid.	.535		.594
ECCANTH09, I do not think the problem of depletion of natural resources is as bad as many people make it out to be	.692		.651
ECCANTH10, I find it hard to get too concerned about environmental issues	.721		.611
ECCANTH14, I do not feel that humans are dependent on nature to survive		.445	.545
ECCANTH17, I don't care about environmental problems		.746	.549
ECCANTH18 I'm opposed to programs to preserve wilderness, reduce pollution, and conserve resources		.683	.591

Extraction Method: Principal Axis Factoring. Rotation Method: Varimax with Kaiser Normalization.

In the fifth section, the Animal Issue Scale (AIS) (Meng, 2009b) is used to measure acceptability toward harming animals. There are forty-three questions in the original AIS, representing eight animal issues: use of animals, animal integrity destruction, killing animals, animal welfare deprivation, experimentation on animals, changes in animals' genotypes, harm animals for environmental reasons, and societal attitudes toward animals [harm animals for social issues]. Respondents rate each question on a five-point scale ranging from one, extremely unacceptable, to five, extremely acceptable. A high score on a question indicates a high level of acceptability for the particular issue (Phillips et al., 2012). Using principal axis factoring factor analysis (S4 Missing case analysis, Factor Analysis and Reliability; Table 3-5), the original 'killing animal' and 'animal deprivation' issues were identified as one factor (Table 4-3). Thus, the present study reduced AIS to only thirty-one items, conveying only seven factors. AIS score is the mean score from all thirty-one items.

Table 4-3 AIS Rotated Factor Matrix

	Factor						
	1	2	3	4	5	6	7
AI01_AnimUse Keeping animals for the production of food or clothing							.490
AI02_AnimUse Keeping animals as pets							.447
AI04_AnimUse Using animals for work							.624
AI05_AnimUse Using animals for entertainment or sports							.654

AI08_Intgrty De-sexing by hormone implants	.542
AI09_Intgrty Removal of a body part, such as tail docking or de-clawing	.662
AI10_Intgrty Marking animals by branding or ear notching	.589
AI11_Intgrty Removal of dead tissue, such as hair/wool removal or foot trimming	.557
AI14_Kill Using animals for products after their natural death	.439
AI16_Kill Euthanizing healthy and unwanted pets because of overpopulation	.556
AI17_Welfare Depriving animals of their needs for food and water	.768
AI18_Welfare Depriving animals of an appropriate environment to rest, including shelter	.765
AI19_Welfare Inflicting pain, injury, or disease on animals	.798
AI20_Welfare Not providing sufficient space, proper facilities and company needed for animals	.701
AI21_Welfare Subjecting animals to conditions and treatment which cause mental suffering	.501
AI24_Xprmnt Medical experiments using animals to improve human health	.553
AI25_Xprmnt Testing cosmetics or household products on animals	.636
AI26_Xprmnt Operating on living animals for the benefits of human medicine research	.755
AI27_Genchng Increasing animals' reproductive or productive capabilities by genetic changes, e.g., cows producing more milk	.633
AI28_Genchng Increasing animals' health or disease resistance by genetic changes	.693
AI29_Genchng Creating farm animals that are more profitable because they feel happy with little stimulation and have little desire to be active	.749
AI30_Genchng Genetic selection of pet animals, such as dogs and cats, to increase their rarity, potential for showing or pedigree value	.600
AI34_Envlss Controlling wildlife populations by killing	.542
AI35_Envlss Controlling animal populations by sterilization	.439
AI36_Envlss Destroying the habitat of endangered animal species	.596
AI37_Envlss Destroying the habitat of non-endangered animal species to develop and promote urbanization or crops to feed humans	.465
AI39_SocAtt Considering some animal species as sacred or good luck symbols or totems	.606
AI40_SocAtt Considering some animal species as evil or bad luck	.765
AI41_SocAtt Parents displaying cruel treatment of animals in front of their children	.591
AI42_SocAtt Inflicting pain or injury on animals as part of cultural traditions	.570
AI43_SocAtt Cloning animals for human benefit	.435

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Extraction Method: Principal Axis Factoring. Rotation Method: Varimax with Kaiser Normalization.

In the sixth and final section, the Religious Orientation Scale (ROS) (Allport, 1966; Allport & Ross, 1967; Leong & Zachar, 1990) was originally used to measure intrinsic and extrinsic religious orientation. We used Maltby's (1999) 15-item version which incorporated

Kirkpatrick’s (1999) analysis expanding ROS into three scales: intrinsic orientation (IP), extrinsic personal—religion as a source of comfort (EP) and extrinsic social—religion as social gain (ES). The 15-item scale therefore consists of nine questions addressing IP, for example, ‘I try hard to live all my life according to my religious beliefs’, ‘My whole approach to life is based on my religion’, ‘It is important to me to spend time in private thought and prayer’); three questions addressing EP, for example ‘Prayer is for peace and happiness’, ‘I pray mainly to gain relief and protection’; and lastly, the remaining three covering the ES dimension, for example, ‘I go to church because it helps me make friends’, ‘I go to church mainly because I enjoy seeing people I know there’. However, after principal axis factoring factor analysis (S4 Missing case analysis, Factor Analysis and Reliability; Table 21-26), the present study found only two dimensions of intrinsic personal (IP) and extrinsic social (ES). After factor analysis, this study considered EP and IP as one factor (Table 4-4).

Table 4-4 ROS Rotated Factor Matrix

	Factor	
	1	2
ROS01 (IP) I try hard to live all my life according to my religious beliefs	.673	
ROS03 (IP) I have often had a strong sense of God’s presence	.608	
ROS04 (IP) My whole approach to life is based on my religion	.705	
ROS05 (IP) Prayers I say when I’m alone are as important as those I say in church	.577	
ROS06 (IP) I attend church once a week or more	.358	
ROS07 (IP) My religion is important because it answers many questions about the meaning of life	.741	
ROS08 (IP) I enjoy reading about my religion	.750	
ROS09 (IP) It is important to me to spend time in private thought and prayer	.630	
ROS10 (EP) What religion offers me most is comfort in times of trouble and sorrow	.665	
ROS11 (EP) Prayer is for peace and happiness	.764	
ROS12 (EP) I pray mainly to gain relief and protection	.622	
ROS13 (ES) I go to church because it helps me make friends		.833
ROS14 (ES) I go to church mainly because I enjoy seeing people, I know there		.894
ROS15 (ES) I go to church mostly to spend time with my friends		.787

Extraction Method: Principal Axis Factoring. Rotation Method: Varimax with Kaiser Normalization.

## Statistical Analysis

Scores of religious orientation and motives toward environmental protection and acceptability for harming animals were analyzed with IBM SPSS 24 Statistical software. We use Analysis of variance (ANOVA, with Bonferroni correction) to measure the various treatments that may affect respondents' concerns toward the natural environment and animal protection. This study also used Pearson's correlation product moment in investigating the relation between general environmental apathy and acceptability for harming animals.

As Pearson correlation procedure is vulnerable from skewed and kurtosis distribution, we made preliminary normal distribution check to avoid inflated correlation. We check each item in the questionnaire for normality (S4 Missing case analysis, Factor Analysis and Reliability; Table 2). In regards to normal distribution assumption, Kim (2013) stressed that the tendency of large samples producing inflated z in consideration to large samples will usually produce a very small standard error for both skewness and kurtosis. Therefore, using skewness and kurtosis reference values for N more than 300, the present study removed items with kurtosis value outside the range between -7 to 7, or skew value outside the range between -2 to 2 (Kim, 2013). Table 4-5 shows that all scales from the collected data is safely within the normal distribution bound.

Table 4-5 Skewness and kurtosis value of main variables

	N	Skewness		Kurtosis	
		Statistic	Std. Error	Statistic	Std. Error
General Environmental Apathy (GEA)	657	.325	.095	-.154	.190
AIS	657	.364	.095	.755	.190
Animal use subscale	657	-.036	.095	.208	.190
Integrity destruction	657	.470	.095	.318	.190
Killing animal and animal welfare deprivation	657	.759	.095	.444	.190
Animal experimentation	657	-.190	.095	-.029	.190
Genotype change	657	-.435	.095	.446	.190
Harm animal for environmental issue	657	.394	.095	-.067	.190

Societal attitude toward animal.	657	.547	.095	.212	.190
ROS Intrinsic Personal (IP)	657	-.620	.095	.427	.190
ROS Extrinsic Social (ES)	657	.162	.095	-.579	.190
Valid N (listwise)	657				

### 4.3 Results

#### 4.3.1 Instrument validity

Table 4-6 provides the descriptive statistics for the variables used in the analysis. All the Cronbach's coefficient are acceptable, ranging from a good internal consistency value of 0.66 for the 'use of animal' subscale to a value of 0.92 for the overall AIS scale.

Table 4-6 *Descriptive statistics and measurement characteristics for variables*

Variable	Scale description	Number of items	Reliability	Mean	SD
ROS-Intrinsic Personal (IP)	5-point Likert-like	11	0.88	4.23	0.53
ROS-Extrinsic social (ES)	5-point Likert-like	3	0.87	2.82	1.01
General Environment Apathy (GEA)	5-point Likert-like	7	0.77	2.55	0.72
Animal Issue Scale (AIS)	5-point Likert-like	31	0.92	2.57	0.53
Animal use	5-point Likert-like	4	0.66	3.13	0.66
Integrity destruction	5-point Likert-like	4	0.78	2.43	0.80
Killing-welfare deprivation	5-point Likert-like	7	0.88	2.12	0.78
Experiment	5-point Likert-like	3	0.82	3.01	0.85
Genetic change	5-point Likert-like	4	0.80	3.30	0.74
Harm for environmental issues	5-point Likert-like	4	0.75	2.40	0.80
Harm for social issues	5-point Likert-like	5	0.84	2.15	0.78

N=657

The mean score for IP was 4.23 (SD=0.53, with maximum score of five) indicating that, overall, the respondents mostly express strong agreement to items that indicate intrinsic motivation and commitment to their personal religious life. The mean score for ES was 2.82 (SD=1.01) indicating that the respondents tend to be undecided to questionnaire statement that indicates religious practices as an instrument for social affiliation. The general environmental apathy mean score was 2.55 (SD = 0.72), indicating that the respondents mostly express disagreement or neutrality to items that indicate environmental apathy. The mean score of overall acceptability toward harming animals (AIS) was 2.57 (SD=0.53), indicating that, in general, respondents find that statements about harming animals are unacceptable for them.



Except for the issues of animal use (mean of 3.13, SD=0.66), animal experimentation (mean of 3.01, SD=0.85) and genetic change (mean of 3.3, SD=0.74), the remaining subscales of animal integrity destruction (mean of 2.43, SD=0.80), killing-welfare deprivation of animal (mean of 2.12, SD=0.78), harm (animals) for environmental issue (mean of 2.40, SD=0.80), and harm (animals) for social issue (mean of 2.15, SD=0.78) most of the respondents answered lower acceptability for harming animals.

#### **4.3.2 Response rates**

Of 1007 total responses obtained, we removed seventy-eight respondents (8%) due to unengaged answers (in other words, these were the respondents who gave the same answer for all the questions in the questionnaire). After the removal, there were still incomplete answers (listwise missing case) in the remaining 929 participants (S4 Missing case analysis, Factor Analysis and Reliability, table 1). We then input these incomplete answers using a linear trend method. Afterwards we check for normal distribution, data cleaning, scoring, factor analysis, and reliability analysis. Lastly, we checked for narratives treatment check total scores and further removed 272 participants (136 participants from SN group and 137 participants from DN group) who scored below expected mean (2.6). We collect and analyze data from a total of 657 respondents. The final amount of respondent assigned to each treatment group are 22% to SN (N=148), 29% to HN (N=188), and 49% to NN control group (N=321).

Respondents' mean age is 36 years old (SD=10) and consists of 51% female (N=334) and 49% male (N=323). This study has a balanced number of participants from rural (60%) and urban (39%) areas. For the completed level of education, 72% hold a bachelor's degree,

13% hold an advanced Master to PhD degree, while the remaining 15% either graduated diploma, middle or senior high school or did not answer. For home ownership, 56% live in their own house, 32% still live with their parents, 10% live in a rented room, and 1% live in an apartment. Additionally, we gathered information about pet ownership, 52% of respondents did not have any pet and the remaining 48% of respondents at the very least adopted one pet. We also gathered data about zoo or aquarium visitation, where 43% of the respondents visited public zoo or aquarium once in every two or more years, 23% never visited, 21% once a year, 8% at least once every six months, and lastly 5% visited a zoo once a month, leaving the remaining 1% respondents without an answer. Lastly, 36% of the respondents ate meat two to three days in a week, 29% ate meat once in a week, 13% four to six days in a week, 13% ate meat every day, 7% did not eat meat, leaving the remaining 1% respondents without an answer.

### 4.3.3 Natural environment preservation attitude (EASE)

In Table 4-7 we find significant correlation between general environment apathy (GEA) with acceptability for harming animals (AIS) ( $r[655]=0.335, p<0.01$ ).

Table 4-7 Correlation Matrix between EASEA components

	GEA	AIS
General Environment Apathy (GEA)		
Acceptability for harming animals (AIS)	.335**	

N=657, \*\*Correlation is significant at the 0.01 level (2-tailed),

\*Correlation is significant at the 0.05 level (2-tailed).

### 4.3.4 The Role of religious narratives to the attitude towards the importance of

#### Natural Environment and acceptability toward harming animal

In Table 4-8, using ANOVA, a closer inspection to the between-subject effects shows significant between-group differences in environment apathy ( $F[2] = 5.71, p = 0.003$ ), overall AIS ( $F[2] = 6.13, p = 0.002$ ), AIS animal integrity destruction issue ( $F[2] = 5.41, p = 0.005$ ), AIS animal killing and welfare ( $F[2] = 3.05, p = 0.048$ ), and AIS harming animal for environment issue ( $F[2] = 4.89, p = 0.008$ ). There is no difference of IP and ES between treatment groups.

Table 4-8 *One-way Anova between subject effects tests*

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Priming narratives	GEA	5.883	2	2.942	5.707	.003
	AIS	3.417	2	1.708	6.132	.002
	AIS-Integrity destruction (AIS-ID)	6.808	2	3.404	5.411	.005
	AIS-Kill animal and welfare deprivation (AIS-KW)	3.724	2	1.862	3.048	.048
	AIS-Harm animal for environment issue (AIS-HEI)	6.252	2	3.126	4.890	.008
	Intrinsic personal religious orientation (IP)	1.218	2	.609	2.145	.118
	Extrinsic social religious orientation (ES)	2.067	2	1.034	1.017	.362

$N_{SN}=148, N_{DN}=188, N_{NN}=321, Total N=657$ , For more detailed results see S5 Manova, table 1-4.

Using Bonferroni for post-hoc test, Table 4-9 showed that there is no significant difference between DN and NN narratives, suggesting that the population represented by the control group has similar apathy for the environment and acceptability for harming animals as DN group. However, compared to the SN group, DN (Mean difference of 0.19,  $p = 0.049$ ) and NN (Mean difference of 0.24,  $p = 0.003$ ) have higher environment apathy; and DN (Mean difference of 0.20,  $p = 0.002$ ) and NN (Mean difference of 0.14,  $p = 0.024$ ) have higher acceptability for harming animals.

Table 4-9 Bonferroni post-hoc test between stewardship and dominance narrative group treatment

Dependent Variable	(I) Priming Narration	(J) Priming Narration	Mean Difference (I-J)	Std. Error	Sig.	95% CI	
						Lower Bound	Upper Bound
GEA	Stewardship (1)	Human domination (2)	-.1902*	.07890	.049	-.3795	-.0008
		No Narration (3)	-.2391*	.07133	.003	-.4103	-.0678
	Human domination (2)	No Narration (3)	-.0489	.06594	1.000	-.2071	.1094
AIS	Stewardship (1)	Human domination (2)	-.1993*	.05801	.002	-.3386	-.0601
		No Narration (3)	-.1393*	.05245	.024	-.2652	-.0134
		Human domination (2)	No Narration (3)	.0600	.04848	.648	-.0563
AIS-ID	Stewardship (1)	Human domination (2)	-.2681*	.08716	.007	-.4773	-.0589
		No Narration (3)	-.2222*	.07880	.015	-.4114	-.0331
		Human domination (2)	No Narration (3)	.0458	.07284	1.000	-.1290
AIS-KW	Stewardship (1)	Human domination (2)	-.1967	.08589	.067	-.4028	.0095
		No Narration (3)	-.1664	.07766	.098	-.3528	.0200
		Human domination (2)	No Narration (3)	.0303	.07178	1.000	-.1420
AIS-HEI	Stewardship (1)	Human domination (2)	-.2729*	.08785	.006	-.4838	-.0621
		No Narration (3)	-.1753	.07943	.083	-.3659	.0154
		Human domination (2)	No Narration (3)	.0976	.07342	.552	-.0786

Based on observed means. The error term is Mean Square (Error) = 1.016. For more detailed results see S5 Manova, table 4. \*. The mean difference is significant at the .05 level.

Specific to each animal issues, compared to the SN group, DN have a higher acceptability for animal integrity destruction issue (Mean difference of 0.27,  $p = 0.007$ ) and for harming animals for environmental issue (Mean difference of 0.28,  $p = 0.006$ ) while NN only have a higher acceptability in the animal integrity destruction issue (Mean difference of 0.22,  $p = 0.015$ ). These results emphasize the influence of stewardship narrative in promoting a lower environmental apathy and acceptability for harming animal to the general population (represented by the control group), which happens to be very similar with the dominance narrative group (Figure 4-1).

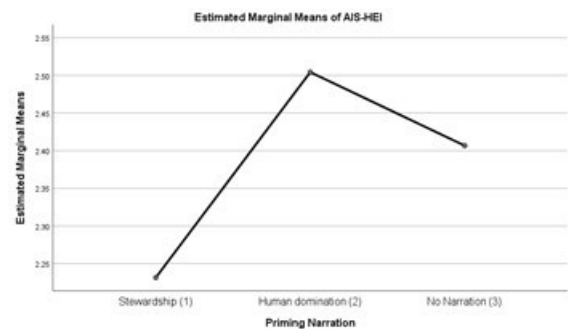
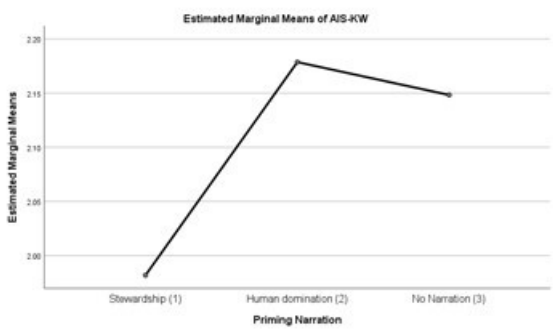
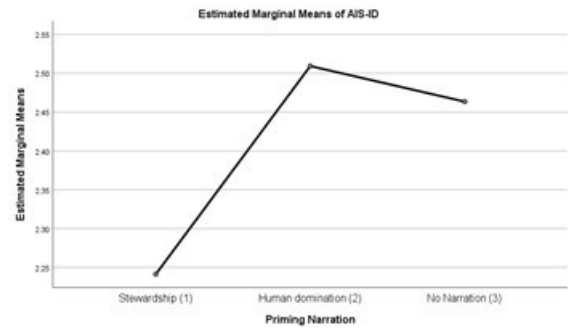
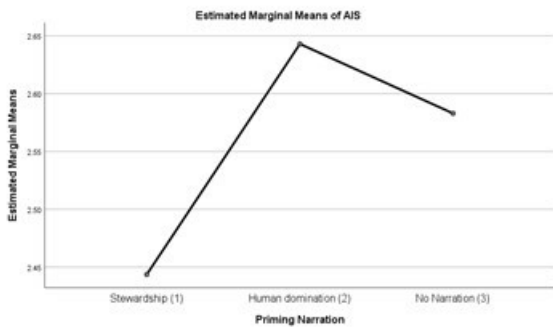
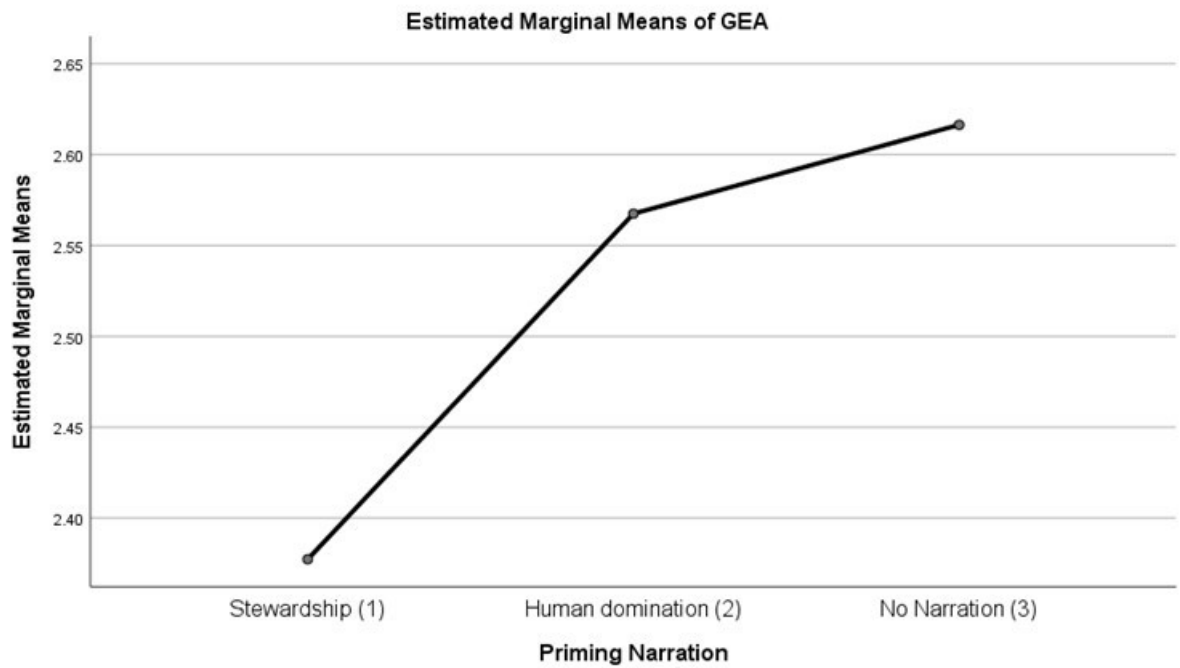


Figure 4-1 Differences between various priming narration group treatment.

### 4.3.5 The Role of religious orientation to the attitude towards the importance of

#### Natural Environment and acceptability toward harming animal

In this section, we develop two models and use the multiple regression method for the analysis (Table 4-10 and Table 4-11). Both models analyze the three main variables relationship to AIS, namely intrinsic personal (IP), extrinsic social (ES) religious orientation, and priming narratives. The only difference is that one of the models investigates all the main variables along with demographic and other determinants taken together as well as independently.

Table 4-10 Main variables with demographic and other important determinants to GEA

		GEA		Effect size	CI (95%)	
		b	Std. B		Lower	Upper
Model 1: Main variables						
R = 0.386	(Constant)	3.55	**		3.12	3.98
R2 = 0.149	Stewardship priming narrative group <sup>1</sup> ? Yes (1) – No (0)	-0.24	-0.14 **	0.33 <sup>D</sup> +	-0.37	-0.11
df =4, 652	ROS Personal	-0.35	-0.26**	0.07 <sup>C</sup> +	-0.44	-0.25
	ROS Social	0.19	0.27**	0.08 <sup>C</sup> +	0.14	0.24
Model 2: Main variables with demographic and other determinants						
R = 0.465	(Constant)	3.14	**		2.33	3.95
R2 = 0.216	ROS Personal	-0.29	-0.21 **	0.04 <sup>C</sup> +	-0.41	-0.16
df =39, 402	ROS Social	0.14	0.21 **	0.04 <sup>C</sup> +	0.08	0.21
	How often do you consume meat in a week <sup>2</sup> ? I don't consume meat: Yes (1) – No (0)	0.39	0.14 **	0.02 <sup>C</sup>	0.12	0.66
	Stewardship priming narrative group <sup>1</sup> ? Yes (1) – No (0)	-0.17	-0.10 *	0.33 <sup>D</sup> +	-0.34	-0.00

Unsignificant result omitted. For full results see S6-Multiple regression Table 1 to 2. \*p<.05; \*\*p<.01; <sup>A</sup>regression using enter method in a stepwise manner; <sup>B</sup>regression using enter method; <sup>C</sup>effect-size calculation using eta squared (F2); <sup>D</sup>effect-size calculation using Hedge's g; +small effect size F2>=0.02 (or in some cases of categorical dummy variable, using Cohen's D/Hedges' g >= 0.2); ++medium effect size F2>=0.15 (or in some cases of categorical dummy variable, using Cohen's D/Hedges' g >=0.5); <sup>1</sup>compared to respondents who fill the survey without having to read any narrative; <sup>2</sup>compared to respondent who eat meat once a week;

Table 4-11 Main variables with demographic and other important determinants to AIS

		AIS		Effect size	CI (95%)	
		b	Std. B		Lower	Upper
Model 1: Main variables						
R = 0.339	(Constant)	3.18	**		2.85	3.50
R2 = 0.115	Stewardship priming narrative group <sup>1</sup> ? Yes (1) – No (0)	-0.14	-0.11 **	0.27 <sup>D</sup> +	-0.24	-0.04
df =4, 652	ROS Personal	-0.22	-0.22**	0.05 <sup>C</sup> +	-0.29	-0.15

	ROS Social	0.12	0.23**	0.05 <sup>C+</sup>	0.08	0.16
Model 2: Main variables with demographic and other determinants						
R = 0.469	(Constant)	2.67	**		2.10	3.25
R2 = 0.22	ROS Personal	-0.22	-0.23**	0.05 <sup>C+</sup>	-0.31	-0.13
df =39, 402	ROS Social	0.09	0.18**	0.03 <sup>C+</sup>	0.04	0.14
	How often do you consume meat in a week <sup>2</sup> ? I don't consume meat: Yes (1) – No (0)	0.35	0.17**	0.02 <sup>C+</sup>	0.15	0.54
	What is the highest level of schooling you have completed <sup>3</sup> ? Diploma: Yes (1) – No (0)	0.43	0.15**	0.02 <sup>C</sup>	0.14	0.71
	In what sort of house do you live <sup>4</sup> ? Apartment: Yes (1) – No (0)	0.58	0.14**	0.01 <sup>C</sup>	0.16	0.99
	What is the highest level of schooling you have completed <sup>3</sup> ? Bachelor's degree: Yes (1) – No (0)	0.18	0.16**	0.01 <sup>C</sup>	0.05	0.32
	What is your gross household expenses per month <sup>5</sup> ? Above 25 million: Yes (1) – No (0)	-0.69	-0.09*	0.01 <sup>C</sup>	-1.35	-0.02

Unsignificant result omitted. For full results see S6-Multiple regression Table 1 to 2. \* $p < .05$ ; \*\* $p < .01$ ; <sup>A</sup>regression using enter method in a stepwise manner; <sup>B</sup>regression using enter method; <sup>C</sup>effect-size calculation using eta squared (F2); <sup>D</sup>effect-size calculation using Hedge's  $g$ ; +small effect size  $F2 \geq 0.02$  (or in some cases of categorical dummy variable, using Cohen's  $D$ /Hedges'  $g \geq 0.2$ ); ++medium effect size  $F2 \geq 0.15$  (or in some cases of categorical dummy variable, using Cohen's  $D$ /Hedges'  $g \geq 0.5$ ); <sup>1</sup>compared to respondents who fill the survey without having to read any narrative; <sup>2</sup>compared to respondent who eat meat once a week; <sup>3</sup>compared to respondent with master/PhD; <sup>4</sup>compared to respondent who is still live with their parents; <sup>5</sup>compared to those respondents whose expenses is below IDR five millions a month.

Higher IP relates to lower environmental apathy ( $b = -0.35$ ,  $p < 0.01$  in the first model, and  $b = -0.29$ ,  $p < 0.01$  in the second model); and to lower AIS ( $b = -0.22$ ,  $p < 0.01$  in both the first and second model). Moreover, IP relatively has small effect-size for both GEA and AIS. Regarding ES, we find that higher ES relates to higher environmental apathy ( $b = 0.19$ ,  $p < 0.01$  in the first model, and  $b = 0.14$ ,  $p < 0.01$  in the second model); and a higher overall acceptability for harming animals ( $b = 0.12$ ,  $p < 0.01$  in the first, and  $b = 0.09$ ,  $p < 0.01$  in the second model). This means that when holding all other variables constant, one point increase in ES is more likely to increase GEA as much as 0.19 point in the first, and 0.14 in the second model; while also, decrease 0.12 point of AIS score in the first, and 0.09 in the second model. Moreover, ES has small effect-size to both GEA and AIS in both regression models.

Multiple regression results also re-confirm and therefore strengthen the significance of priming narrative treatment groups previously found using ANOVA. Like all categorical

variables, for priming narratives treatment variable, we use dummy variables in which each participant scored with either one or zero for both stewardship narrative (SN) and human dominance narrative (DN). In short, in SN dummy variable, we give score one for all participants in the SN group and zero to DN and NN (control) participants. Likewise, in DN and NN dummy variable., we give score one for all participants in the DN group, and zero to SN and NN (control) participants. It is important to note that there is an inherent limitation in using dummy variable method in regression. However, to investigate the relation of all the main variables towards the outcome variables while still taking demographic and other important determinants as well as independently, the dummy variable method is sufficient. Additionally, in measuring the effect-size of any significant categorical dummy variable, we use Hedge  $g$ 's formula.

In model one, the multiple regression shows that stewardship narrative relates with GEA ( $b=-0.17$ ,  $p<0.05$ ) and AIS ( $b=-0.17$ ,  $p<0.05$ ). SN group participants are more likely to have a lower GEA and AIS score compared to NN group. However, in the second model, multiple regression only finds the relation between SN and GEA ( $b=-0.17$ ,  $p<0.05$ ), whereby SN group participants are more likely have a lower GEA score compared to NN group.

#### **4.3.6 Demographic and other determinants**

Age, gender, education, and income are often found as significant demographic determinants in most study of religion (Arbuckle & Konisky, 2015; Barker & Bearce, 2013; N. Smith & Leiserowitz, 2013) and environment (Boyd, 1999; Hayes & Marangudakis, 2000; Ignatow, 2006; Wolkomir et al., 1997). In the second regression model (Table 4-10 and Table 4-11), this study informs some demographic and other determinants that closely related to



outcome variables, namely weekly meat consumption, level of education, home ownership, and monthly household expenses.

#### **4.4 Discussion**

The present study supports one conclusion of White's (1967) thesis whereby religion influences concerns to the natural environment through the religious teaching narrative influences towards and the relation between extrinsic social religious orientation with general environmental apathy and acceptability for harming animals. However, with intrinsic personal religious orientation, this study clearly rejects White's (1967) thesis whereby we found that higher IP is more likely relates to lower GEA and acceptability for harming animals.

After examining the results, we draw several conclusions. Regarding priming narratives group treatment, this study finds only SN group significantly different from the others. The stewardship narrative group has the lowest environmental apathy and acceptability for harming animals. This highlights the significance of the stewardship narrative to influence participants' apathy and acceptability for harming animals. *Second*, the working hypothesis of this study expects the non-narrative control group to have GEA and AIS scores somewhere in the middle between the lowest (SN) and the highest (DN). The result is true in AIS but not in GEA. The non-narrative control group have the highest apathy when compared to SN and DN. Lastly, the consistent non-significant differences between the dominance narrative and the control group show that teacher and school staff population in east java (represented by control group) seem to adopt religious teaching that is more similar to the dominance narrative type of religious ideology.

For religious orientation, both IP and ES religious orientation relate to general environmental apathy and acceptability for harming animals. Lower scores of environmental apathy and acceptability for harming animals consistently relate to higher scores of intrinsic personal and lower scores of extrinsic social religious orientations.

#### **4.4.1 Religious narratives and environmental concerns**

On the attempt to provide evidence for White's (1967) thesis, the present study finds partial support. Through its narratives, religion may positively or negatively influence its follower's attitude toward the natural environment. This study's results stress the importance of communication framing to influence religious followers' interpretation towards religious scripture (Feinberg & Willer, 2013; Wardekker et al., 2009). Consequently, respondents' interpretation toward a religious script may or may not influence them to adopt a specific views and attitude toward the ecology. Table 10 and table 11 show how various religious narratives influence participants' environmental concerns which is represented by general environmental apathy and acceptability for harming animals. This study finds no significant difference between human dominance narratives (DN) with non-narratives control group (NN). However, results show consistent differences between stewardship narratives (SN) with either DN or NN. In SN group, participants consistently score the lowest GEA and AIS.

Wardekker et al. (2009) argue that religious framings of climate change resonate with the electorates of both progressive and conservative politicians and could serve as bridging devices for bipartisan climate-policy initiatives. In similar studies, Feinberg & Willer (2013) establish the importance of moralization as a cause of polarization on environmental attitudes and suggest that reframing environmental discourse in different moral terms can reduce the

gap between liberals and conservatives in environmental concern. This study strengthens those results whereby interpretation of religious scripture influences individual's environmental concerns. Even when taking all the main variables with all the demographic and other important determinants (the second regression model), religious stewardship narrative remains a significant influence in reducing participants' apathy towards environmental concerns. Reframing religious narratives to a more responsive and considerate ideology for environmental crises reduces apathy for the natural environment and acceptability for harming animals.

#### **4.4.2 Religious orientation to environmental concerns**

White (1967) marked a milestone in which research on religious allegiance toward environmental sustainability started. Ever since, more and more evidences show that religion hinders concerns for the environment (Arbuckle & Konisky, 2015; Muñoz-García, 2014) whereby religious believers relatively show lack of urgency for environmental issues. One study shows that belief in the bible consistently and independently relates to a more acceptability for exploiting the environment for economy, and to lesser concerns for air, water, and waste (Eckberg & Blocker, 1989). In other studies, end-times theology, or the belief in an afterlife, significantly relates to a lower concern for the environment (Barker & Bearce, 2013), while lack of belief of the afterlife or of divine intervention leads people to focus on human responsibility and the need for action, and to bolster the perceived necessities for improving the condition of the natural environment (Hope & Jones, 2014). Through Allport's intrinsic personal and extrinsic social religious orientation the present study supports and rejects White's (1967) thesis. On the one hand, when people intrinsically committed and view religion

as their moral code, rather than hindering, religion is more likely related to a higher concern for the natural environmental and animal protection. On the other hand, however, through extrinsic social religious orientation (ES) this study finds that religion is more likely related to lower concerns for the environment. People with high scores on ES are more likely to have higher acceptability for harming animals and environmental apathy. We find that ES is very close to Tajfel's (1974) social identity theory in the sense that ES relates to the social identity aspects of religion (e.g. religious participation, group affiliation, etc.) (Barnett et al., 1996). Although at first ES may originate from religious belief and intrinsic commitment, it describes people motivation for social group membership of practicing religion. By affiliating to a religious group, people may gain consolation, protection and social status which in turn enable their religious participation (Allport & Ross, 1967; Fleck, 1981; Genia & Shaw, 1991; Kahoe & Meadow, 1981; Maltby, 1999).

Lastly through the second regression model, the present study stresses the consistent roles of religious orientation (both IP and ES) with general environment apathy and acceptability for harming animals. Even when taking all the main variables with all demographic and other important determinants as well as independently, IP and ES remain consistent in predicting the natural environment apathy and acceptability for harming animals.

#### **4.4.3 Demographics and other Determinants**

In the second regression model, the present study finds that weekly meat consumption, level of education, home ownership, and monthly household expenses have significant relation to GEA and AIS (*see* Table 4-10 and Table 4-11). However, after

examining each of the effect-size, we need to underline that none of these relation warrant satisfying explanation.

For meat consumption, results show that participants who never consume meat in their daily diet have higher environmental apathy and acceptability for harming animals compared to those participants who only consume meat once a week. We propose to explain this result through the respondents' socio-economic status which is often represented by monthly income and expenses. Respondent who answers no meat consumption in their daily intake may describe a healthy life of their choosing; an awareness for animal rights and the environment; or may intangibly describe socio-economic factors of low monthly income and expenses. Regarding the latter, only on monthly expenses we find that participants whose expenses above IDR 25 million in a month are more likely to have lower acceptability for harming animals compared to participants whose expenses below IDR 5 million ( $b=-0.69$ ,  $p<0.05$ ). With this finding, it is tempting to conclude that the richer the participants the more likely they will have a lower acceptability for harming animals. However, we find no relation of AIS to other classes of monthly expenses category. One limitation in interpreting the data may derive from how the questionnaire provides 'refuse to answer' option in the monthly income and expenses question. Answering 'refuse to answer' to question about monthly income and expenses blurs all group difference that may be found otherwise. Therefore, this study is very limited in providing explanation about monthly income and expenses, and therefore carefully proposes further investigation to examine the relationship between monthly income and expenses with meat consumption.

For the level of education, this study finds that respondents with a Master/PhD degree have less acceptability for harming animals than respondents with a diploma degree. Higher

education may provide more opportunities to acquire information about animal welfare and environmental preservation. Diploma education in Indonesia usually revolves around pragmatic and technical hard skills (e.g., mechanic, lab instrumentation, pharmacist, etc.) which is different from Indonesia's government education curriculum from junior high to college degree. However, this result is not consistent with other education level categories.

Lastly, for respondent's type of residence, this study finds that compared to respondents who live with their parents, those respondents who live on their own have higher acceptability for harming animals. It may be that respondents who live in their own apartment are those who live in urban settings which consequently have less interaction with animals and the natural environment in their everyday life. However, this study finds no relation between rural-urban area residence with AIS. Also, there are only eight participants in this category which clearly is not enough to warrant satisfying parametric assumption.

#### **4.5 Conclusion**

In summary, this study strongly presents religion as an important key to both promote and depress environmental concerns. Contrary to White (1967) thesis, this study demonstrates how intrinsic religious orientation relates strongly to a higher environmental concern. Inherently, one aspect that religion is deeply personal and that the commitment to a religious life and living out his/her religion, is not necessarily inhibits a person's concerns for the importance of the natural environment. However, specifically in extrinsic social religious orientation, a person's motives to belong to a group or community, in the perspective of in-group membership, affiliation, providing status and consolation in context of social identity

(Tajfel, 1974, 1981; Tajfel & Turner, 1979; Turner, 1975), are more likely relate to a higher environmental apathy and acceptability for harming animals.

One contribution from the present study is the compelling evidence of how religion may support or depress environmental concerns through its religious teachings. In this sense, despite the intrinsic personal and extrinsic social components of religious belief, religion's teachings and narratives influence the tendency for a person to care for animals and their natural environment.

#### **4.6 Acknowledgements**

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**Chapter 5**  
**General Discussion**



The last chapter of the thesis is a concluding chapter which contains the following sections: (1) introduction, which lays out a brief overview of the research context, theoretical framework, and methods employed, (2) summary of main findings, (3) limitations and implications, and (4) a general conclusion.

## **5.1 Overview of the studies**

White (1967) introduce religion as an important determinant in ecological crisis. Recent studies demonstrate the importance of religion and culture in explaining and controlling climate change (Klein R.J.T. et al., 2014; see further Artur & Hilhorst, 2012; Byg & Salick, 2009; Mustelin et al., 2010). Especially for religion, two opposing views of it capture the scholars' attention to explore its role in individuals' environmental awareness and hence, their behaviors towards environmental sustainability. One avenue of studies demonstrates that religion is a driving factor that allows individuals to mitigate increasing environmental problems more effectively (see Klein R.J.T. et al., 2014; Lovekamp, 2008). While the other avenue shows that some religious worldviews and values may promote skepticism and inactivity to the same environmental degradation and thus, hindering the mitigation (see Artur & Hilhorst, 2012; Haluza-Delay, 2014; Roscoe, 2016). Despite these avenues, the investigation on the role of religion is still limited. Some studies took religion as far as mere background variable (see Avelino and Wittmayer, 2016; Kates and Parris, 2003; Murphy and Smith, 2013; Ouedraogo, 2006; Sengers et al., 2016; Wittmayer et al., 2016; in Koehrsen, 2017).

As Selinger (2004) argues that religion should not only be seen as faith-based cultures, but also as a governing worldview that affects many life domains, the IPCC's 5<sup>th</sup> assessment reports suggest for further investigation on religion. The idea of Selinger (2004) echoes the notion of social identity theory (SIT) in how people demonstrate certain social attitudes towards sustainability (Tajfel, 1974). The theory posits that individuals inherently identify themselves with important social identities to help them understand their social world. Religion is the important social identity which socialized from the early age and strengthened as the individuals grow older. Religious identity provides individuals with moral compass and authority in daily-life matters. Further, SIT claims that individuals will maintain their religious identity as long as they gain psychological distinctiveness when compared to relevant religious outgroups (Tajfel & Turner, 1979). In other words, striving for psychological distinctiveness encourages individuals to show similar attitudes and/ behavior with their religious community towards certain issues. Based on this, SIT paves the way for this study to see how identifying with certain religious tradition, along with its community, shapes the way people see the issue of environmental sustainability.

In this thesis, we aim at investigating the role of religion on individuals' attitudes towards environmental sustainability and animal protection. It is important to reiterate that this study is not theological in nature. Rather, it is a socio-cultural study that emphasizes religion as individuals' social identity internalized through institutional group dynamics along with their framings of religious narratives which embedded in the worldviews of individuals. Specifically, we look at the relation between religious teachings and narratives conveyed by religious institutions on one hand, and individuals' behavioral attitudes towards preserving

natural environment and acceptability for animal harming on the other hand. The study was conducted in Indonesia due to its consistent hold of religious identity in the making and developing the nation. During the family planning program between 1960s and 1990s, Indonesia's government utilized religious leaders from various religions to spread the national policy of birth control through their religious narratives (Warwick, 1986). This practice resulted in gradual success in maintaining the number of the national population. Not only total fertility rates decreased significantly from 5.6 births per woman in 1971 to 2.8 births per women in 1997 (Wilopo, Sigit, Hatmaji & Mohammad, 1999 in Candland & Nurjanah, 2006), but also such practice convinces stakeholders to include religious identity not only in their policy making process but also in its implementation. By engaging relevant religious institutions, the central government allowed Indonesians, on average, to voluntarily accept contraceptives use without compromising their religious beliefs (Shiffman, 2004). Using the perspectives of SIT, this study assumes that individuals' religious orientation, ethical ideologies, and their perceptions towards religious values are a result of the extent to which they identify themselves with their religious identity. Therefore, this study aims to dissect the role of religion in promoting individuals' environmental awareness and thus, predicting their behavior towards protecting natural environment as well as animal protection. Thus, the overarching research question of this study is *to what extent religion, as social identity, is related to environmental sustainability-related behaviors in Indonesia.*

To answer the aforementioned research question, we purposefully selected the province of East Java as the research location. Being the birthplace of Nahdlatul Ulama (NU), the largest Islamic mass organization in Indonesia, we assume that the location is the best approximation of the everyday major religious worldview in Indonesia. However, we also

acknowledge our limitation in generalizing the present study to the whole archipelago. This study employed school teacher and staff mainly due to the fact that both public and private schools are subjects to nation-wide education curriculum and thus, helps capture a nation-wide curriculum's learning goals relevant to natural environment protection (Swirski, 2002). In addition, teacher is also considered as an important person involved in the socialization of moral and religious values for their students (Grubb, 1995)

Initially, we obtained 1,007 respondents. However, due to various reasons we had to remove several cases and ended with 929 respondents. To serve the purpose of this study, we employed a set of questionnaires consisting of four sections in Study 1. The first section asks carefully selected important determinants (e.g., their participation in animal protection) and demographic details (e.g., age, gender, etc.). The second section consists of the AIS measure (Meng, 2009a) to look at the individuals' degree of acceptability towards harming animals. The third section is the ROS measure originally inspired by Allport (1966) in measuring individuals' religious orientation. This study used an improved version by Maltby (1999). Finally, the fourth section asks personal moral philosophy using EPQ measure to obtain differences in individuals' idealism dimension and ethical relativism. In Study 2, we employed a similar set of questionnaires with some modification to serve the purpose. Study 2 employed EASEA measure to investigate environmental motives and apathy and removed AIS measure. Finally, in Study 3, we employed two types of religious narratives based on religious scriptures to randomly allocate participants into three group treatments, i.e., stewardship (SN), human dominance (DN), and a control group. An additional section consisting of a group treatment check was developed to ensure that the narratives were read before taking part in the survey. The remaining sections consist of EASEA, AIS, and ROS.

By applying the aforementioned theoretical framework in the analysis, this thesis contributes in the following ways. *First*, investigating the role of religion on environmental sustainability through social identity lens by considering religious orientation - obtained from the relevant ingroup members at the micro level, without neglecting the role of socialization through religious institutions at the macro level. Lastly, demonstrating the viability of experimental design in such study without losing too much credibility in generalization to the relevant population. Most importantly, the measures employed in this study were tested rigorously in the best approximate population of major religious worldview of Indonesia. Thus, overall, adding degree of generalizability of the study.

## **5.2 Research questions and main findings**

This section lays out research questions posed in the studies involved and their main findings. We do this in order starting from Study 1.

*To what extent ethical ideologies and religious orientation are related with individual acceptability towards harming animals among Muslim teachers and school staff in East Java, Indonesia?*

In this study, ethical ideologies are categorized into two domains, relativism, and idealism with each of them having their own spectrum. For religious orientation, following Kirkpatrick's (1999; in Maltby, 1999) notion, we classify them into intrinsic personal (IP), and extrinsic social orientations (ES). For Study 1, we find that there is a positive relation between idealism and IP, but no relation found between types of religious orientation and

relativism. Further, we find that idealism is negatively related to acceptability for killing animals and animal welfare deprivation (AIS) while relativism positively related to AIS. As for religious orientation, we find that IP is negatively related to AIS, which confirms our hypothesis. Similarly, we confirm that ES is positively related to AIS.

Our results suggest that individuals who are highly idealistic in their ethical worldviews, i.e., belief that ethical action will always lead to desired consequences, tend to display negative attitudes towards harming animals. As B Su & Martens (2017) proposed, this tendency is due to the idealist's empathy towards animal harming and their reluctance to undermine animal suffering (see Wuensch & Poteat, 1998). This condition is assumed, to a large extent, mimics the way people who are intrinsically religious in viewing animal harming. In contrast, those who are socially extrinsic in their religious commitments are more likely to conform with the general norms to animal harming in the research location, which is higher acceptability towards it.

*To what extent are ethical ideologies and religious orientation, on one hand, related to individual attitudes towards natural environment preservation on the other among Muslim teachers and school staff in East Java, Indonesia?*

For this study, attitudes towards natural environment preservation was measured using Thompson & Barton's (1994) ecocentric-anthropocentric scale of environmental attitude (EASEA). This measure employs three dimensions, which are ecocentric motive (EM), anthropocentric motive (AM), and general apathy to the natural environment (GEA). Based on the analysis, we find interesting yet opposing findings from previous studies. IP and ethical idealism, which are assumed to serve as moral guiding principles, are found to be non-related

to EM and AM dimensions of environmental concerns. At the same time, ethical relativism is positively related to GEA and AM. Further, IP and ES are found to be related to GEA in a different manner. Individuals with high score of IP are more likely to show lower apathy toward the natural environment, while those high on ES tend to show higher environmental apathy.

The findings provide insights into the dynamic role of religious orientation in shaping individuals' attitudes towards environmental sustainability. One, religious orientation is often overlooked merely as a matter of commitment to faith without embedding the social context that surrounds it. In this study, although IP is seen as a religious measure that governs people daily, we find that social context where individuals live can be a stronger predictor to support environmental sustainability and thus, enabling ES to play a more significant role. Two, the study shows the relevance of religion as an important social identity in Indonesia which relates to individuals' judgement and decision-making. At the same time, we also acknowledge the need for further evidence on the importance of social context in relation to religious identity. Therefore, in the following study we conducted an experimental study involving religious narratives to serve the purpose of testing specific social context in affecting individuals' environmental sustainability and animal protection.

*To what extent are different religious narratives related to individuals' attitude towards the importance of natural environment and animal protection among Muslim teachers and school staff in East Java, Indonesia?*

For this study, we used specific religious scriptures and reframed them into two priming narratives, stewardship (SN) and human dominance narratives (DN). To ensure that

these narratives work as they are intended, we added a control group (no treatment) in the experiment. This control group can also be seen as a reflection of the general population in East Java, who is coming into the experiment with their own socialized religious narrative towards the issue of interest. In SN group, we used religious scriptures that emphasize the importance of human beings to protect nature. As for DN group, we used religious scriptures that emphasize on the idea of humankind being the most noble among all creation of God. Individuals in the former group were expected to show lower GEA and acceptability for animal harming when compared to the latter group.

We find that individuals in SN group have lower environmental apathy and acceptability for animal harming when compared to DN as well as control group. This finding suggests that stewardship religious narrative has the potential to foster more supportive attitudes towards environmental sustainability and animal protection. Interestingly, we also find that those who were in a control group, on average, scored the highest in GEA. All this suggests the following points. One, religious community and its institution are important in shaping individuals' religious identity through their narratives. Specifically, both the stewardship and the human dominance narratives provide individuals with a sense of importance of the natural environment. Two, learning from the control group we can safely conclude that individuals in East Java, on average, are more likely to have high level of apathy for natural environment preservation and acceptability for animal harming. Hence, making religion a more relevant contextual factor in fostering environmental sustainability in East Java, Indonesia.

Altogether, findings from the three studies provide new a perspective in looking at religion as a driving factor to shape positive attitudes towards environmental sustainability in



Indonesia. Intertwines with religious identity manifested in religious orientation, religious narrative influences religious members' attitude towards natural environmental preservation and animal protection.

### **5.3 Limitations and implications**

Previously, we have provided limitations from each study (see Chapter 2 to 4). In this section, we add several limitations that can be taken into consideration for further improvement in future studies.

#### **5.3.1 Limitations and future research**

First, we acknowledge that there is an age discrepancy in terms of acceptability in animal harming (see Chapter 3). Younger respondents are shown to be more acceptable in animal harming than the older ones. This brings us to the issue of family or parental influence inside the household in the context. Using the paradigm of social identity theory, family and parental influence is an important factor in socializing certain norms inside the house (Allport, 1958; Tajfel, 1974). Future studies then should explore the possibility of proximal influence to respondents in terms of environmental sustainability issues. We expect that parents who discuss environmental issues with their children are more likely to have positive attitudes towards environment preservation and animal protection. Second, learning from all three studies that social motives in shaping religious identity play an important role in predicting individuals' attitudes towards environmental preservation and animal protection, it is of great addition to dig deeper in the role of religious membership activities. Previous studies have shown that religious activities performed along with other religious ingroup members may

form a coalitional commitment, which encourages ingroup members to behave in a similar manner towards certain issue (Ginges et al., 2009; Setiawan, et al., 2020). Third, following coalitional commitment, it is of great interest to investigate religious ingroups' collective efficacy, whether the religious ingroup believes that their collective effort will bring about the desired changes, in preserving natural environment and protecting animals. A topic of collective/group efficacy has been shown to play a great role in bringing desired changes mostly to disadvantaged groups (see Setiawan et al., 2020; van Zomeren et al., 2008). However, collective efficacy can be applied to a broad range of contexts, including environment sustainability. Knowing that the link between attitude and actual behavior is strengthened by the presence of individuals' belief (Ajzen, 2011), identifying group efficacy allows researchers to provide a more comprehensive link between religious identity and individuals' behavioral tendency towards environmental sustainability.

Based on the limitations mentioned above, we suggest future studies take the following directions. One, adding individual micro-level constructs to cover the potential roles of family influence and religious membership activities. Measures such as frequency of direct interaction of environmental issues with close-knit family members and public religious attendance can be of valuable additions to the overall theoretical model. Two, adding macro-level constructs to include macro-level understanding of how religion affects religious adherents as a group. Measures such as group-based efficacy, by calculating the aggregate of the individual's collective efficacy score, enables researchers to see a clearer link between individuals' religious orientation and ethical ideologies and attitudes towards environmental sustainability and hence, their actual behavior. By doing so, future studies can perform cross-

group or even cross-province comparison and thus, enabling them to draw a conclusion on the efficacy of religious institution as an agent of change in the issue of interest.

### **5.3.2 Research implication**

In general, through ethical ideologies, religious orientation and religious narrative framing, our study shows the vital role of religion on individual's environmental concerns and demonstrates by which the relations operate. Our study shows that acceptability for harming animals and general environment apathy are negatively correlated with idealism, and at the same time, are positively correlated with relativism. Next to this, we ultimately addressed Allport's religious orientation and religious framing narrative as predictors towards environmental concerns. Our results show that Allport's religious orientations are much stable and consistent in relating to general environment apathy and acceptability for harming animals, whereby independently, both acceptability for harming animals and general environment apathy have negative correlation with IP and positive correlations with ES. Through a quasi-experimental design, we were able to introduce religious framing narratives (vignettes) as the conditions and found them to have a noteworthy influence on environmental concerns.

In one of our studies, we framed religious narrative into two different—but not opposing—sets of biblical interpretation to limit and measured the influence of the narratives in comparison to the control group. Given that relativism is not a measurement of Boyd's (1999) fundamentalist tradition and belief of God as religious narrative framing is not a measurement of biblical literalism, we are certain that relativism and religious narrative framing are variables that cover an individual's belief of God, the extent of their biblical literalism, and religious

affiliation. In this specific study, religious narratives are of importance to provide a context for either universal (low relativism) or situational-based analysis moral principle (high relativism) and for any religious denomination affiliation. Especially regarding the later, we argue that irrespective of a person's religious affiliation, whether participants may agree or disagree to the narrative being presented, each of stewardship, dominion and no narrative framing group, provides a context where participant can evaluate the environmental concerns they are being presented with.

In light of the current literature, several theoretical contributions can be outlined. First, we argue that previous studies may quantify elements of religion in a such way that inevitably concludes weak relation. On the one hand, Hayes and Marangudakis (2000, 2001) focus towards religious affiliation, denomination and typology to refute White's (1967) singular Judeo-Christian model may belittle the significant difference between Liberal Protestant and Non-Christian found in three out of four nations. On the other hand, Boyd's (1999) religion model (consists of total six elements) and environmental model (consists of three aspects) may diminish the significance of fundamentalist tradition and frequency of prayer which correlate to frequency of environmental behavior as weak evidence. We argue that Hayes and Marangudakis' (2000, 2001) result is a significant evidence of the influence of religion, similar to Boyd's (1999) two significant variables that are still part of the defined religion construct. Rather than dismissing two significant components which make up only a third of Boyd's (1999) religion construct, we argue that each of these variables is important on their own, representing important aspects of religion.

*Second*, the present study may have defined religion in ways that are very different from previous studies. We argue that Hayes and Marangudakis' (2000, 2001) religious identification and Boyd's (1999) religion's components may appear as the consequence of a more latent and fundamental variable of ethical ideologies and religious orientation. Relativism and religious narrative framing may address Hayes and Marangudakis' (2000, 2001) religious identification and may also solve its inherently challenges of culturally specific limitation and of crude denominational measurement. By providing a more general variable evident in all religions, relativism and religious narrative framing unshackle any cultural specifics and unburden the hassle to measure the strength of denomination identification found in almost all study of religious identification. On the other hand, ethical ideologies, and religious orientation address most of Boyd's (1999) variables of religion. As relativism and religious narrative framing may address Boyd's fundamentalist tradition and biblical literalism, as intrinsic personal religious orientation covers the Belief in God, Graceful image of God, and frequency of prayers, leaving the church attendance variable as the combined manifestation of intrinsic personal and extrinsic social religious orientation.

*Third*, while most of other studies focus on a person's religiosity or religiousness such as church attendance, frequency of prayers, religious orthodoxy (Fullerton & Hunsberger, 1982; Hunsberger, 1989), typology (Glock & Stark, 1965), fundamentalism (Kellstedt & Smidt, 1991; McFarland, 1989), end-times theology (Barker & Bearce, 2013), etc.; we propose that greater attention should also be directed to account for social aspect of religion, especially toward Allport's (1966) extrinsic social religious orientation and religious identity through Tajfel's (1974) social identity theory. From our studies, it is evident that religion has influence on shaping people's environmental concerns, but contrary to White's (1967) thesis, through

religious narrative framing of stewardship we show that this influence does not necessarily only suppress concerns for the natural environment. Moreover, our findings show a considerable amount of evidence of the relation between extrinsic social religious orientation towards acceptability for harming animals and general environment apathy. Allport's (1966) extrinsic social religious orientation discusses another element of religiousness, in which an individual is socially motivated to affiliate him or herself to their religious groups for gaining social advantages such as ingroup membership, protection and consolation. In line with this, our results show that the more a person view that his or her religion important for attaining membership and identifying with a religious group or religious organization, the more likely they will have higher general environment apathy and acceptability for harming animals. In contrast, Allport's intrinsic personal religious identification relate more to lower apathy and acceptability for harming animals and both intrinsic personal and extrinsic social religious orientation is independent toward one another in which an individual may have both high IP and ES, or low IP and ES. These relations have been shown to be stable, even after considering several complex demographic variables. Thus, we argue that there may be another form of relation between predictors, such as mediational or conditional, which should be further studied.

*Fourth*, despite the significance of ethical ideologies, evidently, religious orientations are more stable and consistent predictors towards acceptability for harming animals (see section 2.4.3). While it is intuitively easy to see the connection between idealism and intrinsic personal religious orientation, the bridge between relativism and extrinsic personal religious orientation is rather intricate. We argue that a person with high extrinsic social religious orientation will have more motivation to conform to his or her religious groups in order to gain group membership. The basis of this proposition can be found in a social identity theory of

Tajfel (1974) (see section 5.3.1). The notion claims that, by nature, individuals are prone to identifying themselves with a certain social identity, in this case their religious group, because social identification is strongly related to their self-concept. Irrespective of their own personal relativism level, other than their own existing personal moral principle, they will encounter their religious groups' moral value and reference that they need to account for. This suggests the importance of religious narratives framing in this specific context. In detail, religious narrative framing provides a point of reference which triggers moral context to both high and low relativist and also to both high and low extrinsic social religious orientation. For low relativist, the religious narrative may or may not conform to their universal moral principle which in turn will trigger inner debate to decide specific environmental concerns. Intuitively, for high relativists, we propose that they will have a more open perspective in adopting the narrative. For the high relativist, the religious narrative may trigger and provide context for their moral guidance situational analysis, which in turn induce appropriate environmental concerns according to the narratives they are being presented with, should they adopt the narratives as their moral framework for moral decision. Further, people with high extrinsic social religious orientation will be more open to the religious narrative suggestion especially when they perceive such narrative as their groups' value and moral framework. They will be more open to conform to their group's value, considering that they are highly motivated for attaining membership and identifying with their religious group or religious organization. In short, we argue that religious narrative framing serves as a situational context for those who have high relativism and high extrinsic social religious orientation.

*Lastly*, by employing a quasi-experimental design and testing it by regression model, we offer novel ways in investigating the influence of religion on environmental concerns.

Although a quasi-experimental design in religion and environmental studies is not new (see Feinberg & Willer, 2013) for an experimental study on pro-environmental messages), the current study advanced the method by integrating it into regression models to test the different conditions along with other predictors and complex demographic determinants. Our results show that our main variables of religious framing narrative (vignettes) and religious orientation show stable and consistent relations with environmental concern. Thus, we argue that our study has paved the way to infer causality of the variables under study. In addition, by integrating quasi-experimental design of religious narratives as dummy variables with other predictors in the regression models, we open up possibilities of investigating mediation or moderating effect of certain predictors in future research.

#### **5.4 General conclusion**

In summary, this thesis displays the way a religion works in determining individuals' attitudes towards environmental sustainability. We do this by employing data collected from 929 respondents from schools in East Java, Indonesia. The study took place in Indonesia because religion is considered part and parcel of the life of individual, in general, and society as a whole. Our findings suggest that both ethical ideologies and religious orientation are reliable indicators to predict individuals' acceptability for animal harming. Specifically, idealism and relativism are distinctly related to acceptability for animal harming. While ethical idealism encourages people to refuse animal harming, ethical relativism provides people with multiple worldviews which puts them prone to accept animal harming, depending on the purpose of animal harming. Furthermore, people with intrinsic religious orientation, those who value the golden rule more over social norms among religious communities, are more likely



to refute animal harming. In line with this, individuals who cling to extrinsic social religious orientation are more inclined to accept animal harming, be it for personal gain or for social purpose. In addition, when it comes to natural environment preservation, religious orientation is found to be a stronger predictor than ethical ideologies to predict individuals' attitudes towards the issue of interest. Intrinsic personal religious orientation is related to higher concerns for general environmental issues. Meanwhile, people with extrinsic social religious orientation are more influenced by the norms among their ingroup members and for now, they are more likely to show less concern for general environmental issues. Although saddening, this only indicates a high relevance of religion in this thesis. It shows that, on average, individuals with extrinsic social religious orientation can potentially be swayed to care more for their environment by involving the influence of religious communities. To back this argument, our findings suggest that religious narratives hold an important role in advocating both natural environment preservation and animal protection. In detail, religious narratives that are dominantly focused on stewardship encourage higher responsibility of natural environment compared to those that are focused on human dominance.

Furthermore, some previous studies find no relation between religion and environmental behavior (Boyd, 1999; Hayes & Marangudakis, 2000, 2001). Boyd (1999) found a relationship between frequency of environmental behaviors with two out of six elements of religiosity, namely fundamentalist tradition, and frequency of prayer. We are confident that while frequency of prayer is a manifestation of having intrinsic religious orientation whereby individuals gain sense of satisfaction and intrinsically motivated in pursuing their religion (e.g., prayer, tradition, rituals, belief, conviction, etc.), Boyd's (1999) fundamentalist tradition religious affiliation is a complex component that requires a more elaborate investigation. Boyd

(1999) argued that fundamentalist tradition concerns more for end-times, eternal life in heaven and suspicion to both liberal and secular movement and thus, may lend itself to a lack of concern for the environment. However, regarding religious affiliation Hayes and Marangudakis (2000, 2001) concluded no significant relation between religious affiliation with environmental attitudes. Through religious identification Hayes and Marangudakis (2000, 2001) offered a denominational diversity model as a better way to understand attitudes towards the environment rather than White's (1967) emphasis of singular Judeo-Christian model and warn about the limitation of denominational measurement and culturally specific limitation of their study. In our studies, we proposed to view fundamentalist tradition and religious identification as the manifestation of relativism, extrinsic social religious orientation, and religious narrative framing. Rather than categorizing religious affiliation into specific denominations (e.g., Boyd's fundamentalist tradition, Hayes & Marangudakis' liberal, conservative, non-christian, etc.), we regressed to general variables which are usually evident in most of religion and investigate them for any relationship with environmental concerns. While Forsyth's ethical ideology is certainly not a religious component, we argue that idealism and relativism are significant overlapping indicators of a religious person. The belief that ethical action will always lead to desirable consequences (idealism) is some form of manifestation of having intrinsic religious orientation in which they try to do the right thing and to abide by the rules of the book. On the other hand, we view that individual belief in either adopting one universal governing moral principle (low relativism) or choosing one of several moral principles depending on the situational analysis (high relativism), is an indicator of a person's conviction of their own ideology.

In relation to Boyd's (1999) notions of fundamentalist tradition, belief in God and biblical literalism, we propose to understand them through the lens of relativism and religious

narrative framing variables. Low relativism individuals believe that there is one universal governing moral principle which guides individuals' ethical action. While Boyd's (1999) fundamentalist tradition and belief in God does not necessarily signify as to whether individuals convinced that their belief is the universal principle for their moral decision, we argue that religious fundamentalism and the belief in God are a good starting point of low relativism, especially when considering that usually in religion God is the creator and therefore commands their followers to follow sets of rules and moral guidance in living their lives. Furthermore, the fundamentalist tradition suspicion to both liberal and secular movement may sign its rigid reluctance to adopt alternate moral principles other than its own. For low relativism individuals, the governing set of rules embedded in their universal moral principle are usually religious teachings written in religious holy books (e.g., Bible, Qur'an, etc.) which heavily depend on individuals' preference to understand their religion literally or non-literally as stated in their holy book (biblical literalism).

Despite the aforementioned contribution of our findings to the extant literature, we acknowledge one limitation of our study. Our participants were gathered from a country that still considers religion a very important aspect of society. This is somewhat very different from Boyd's (1999) and Hayes & Marangudakis' (2000, 2001) samples which were gathered from developed countries (e.g., US, Canada, Britain, and New Zealand) that are renowned for their advance technology, industry and scientific knowledge. Expectedly, regarding the later, our study partly reconciles with a study of Hayes and Marangudakis (2000, 2001), in which we corroborate the notion that people with higher education and are scientifically more knowledgeable are more likely to express a pro-Dominion stance, but only to diploma degree.

We suggest that diploma is more to the domain of practical knowledge (e.g., pharmacist, mechanic, etc.) which focuses to produce skilled labor for industrial domain.

Based on all of this, the thesis corroborates previous claims that suggest religion should be looked not only through the lens of faith but also at how it is identified as an important social identity that determines how individuals conform their attitudes and behaviors in accordance with their relevant ingroup members. In other words, the thesis has given further nudge to the extant literature into the relation between religious identity and individuals' attitudes towards environmental sustainability and animal protection. In a bigger theoretical outlook, religious identity is held as an important social identity which manifests itself in how individuals perceive their religious teachings in relation to important decision-making process in their daily life, e.g., making a social connection, preserving natural resources, etc., and also in the perceptions towards the religious narratives conveyed by their religious institutions, e.g., Indonesian Ulema Council (Majelis Ulama Indonesia [MUI]), Bishops' Conference of Indonesia (Konferensi Waligereja Indonesia [KWI]), Communion of Churches in Indonesia (Persekutuan Gereja-gereja di Indonesia [PGI]), etc. The former form of manifestation is expectedly related to individuals' attitudes towards preserving their environment and animal protection. Through the framework of planned behavior (Ajzen & Fishbein, 2000; Armitage & Christian, 2003), individuals attitudes are more likely to show up in their behaviors given the appropriate circumstances and control. Although in this thesis we did not directly investigate the relation between religious identity and individuals' behaviors towards environmental sustainability, from our findings, we can assume that individuals will be more likely to behave in accordance with their social attitudes when their surroundings support such attitudes. To fill in the lacunae of the theoretical (and practical) proposition, our

finding on religious narratives controlled by relevant religious institutions provides strong evidence that these institutions can provide appropriate circumstances for sustainable behaviors to flourish.

Overall, the study on the role of religion in promoting environmental sustainability looks bright. From this thesis, we can learn three vital lessons pertaining to the role of religion. One, religion holds an important role both at micro-individual level as well as macro-government level. At micro level, religion transforms into an important social identity which influences individuals' daily life. At macro level, government should take advantage of the importance of religion held among people and incorporate it in their national environmental sustainability agenda. The latter, of course, should be conducted carefully as it hints at a potential bias of either the religious teachings or the policy (or even both) and the fragility of religion being politically used. Two, the topic of socialization should be included when considering religious identity in the environmental sustainability equation. As religious teachings are mainly conducted since the early years of life for Indonesians, so should socialization of environmental sustainability be (French, Eisenberg, Vaughan, Purwono, & Suryanti, 2008). Now that we have shown the success of inclusion of religious identity in promoting environmental sustainability attitudes, this evidence suggests policy makers, teachers, and other stakeholders in this matter to incorporate the topic of sustainability into religious teachings from early onset of individuals' development. Third, enthusiast scholars should widen their methodology options in studying religion. Now that religion has taken more central stage in developmental studies, many studies have relied heavily on survey methods or non-experimental study. Thus, we are not able to conclude causal relationship conveniently. We have shown that experimental design, at least quasi-experimental, is suitable for the matter

of interest without having to sacrifice much of the ecological validity. Through careful planning, experimental design was able to be carried out so that not only are we able to draw causal relationship between religious narrative and attitudes towards environmental sustainability and animal protection, but also, we are able to generalize the finding to a specific set of population. Most importantly, this adds new theoretical insights into how religion should be used in promoting responsibility of natural environment preservation and animal protection among individuals as well as policymakers in Indonesian context.

## **5.5 Impact Paragraph: a reflection on the scientific and societal impact of this dissertation**

This dissertation contributes to the identification of religion as cultural factors which may promote and inhibit concerns for the natural environment. The motivation behind this topic is to provide evidence on how religion, and religious community play important parts in promoting concerns for the environment through carefully observing religious orientation, ethical ideologies, and religious narrative framing. In this impact chapter, we discuss the scientific and societal impact of the present dissertation and to what extent the findings may contribute to society.

### **5.5.1 A personal perspective on this dissertation**

As a person who was born and raised in Indonesia, religion is part and parcel of daily life for the majority of Indonesian. Since 2004 Aceh tsunami until now, Indonesia had gone through, approximately, a total of 733 major and minor natural disasters. Through my previous career in disaster management sector, I have seen how most disasters affected communities in Indonesia in struggling with the hurdles of rebuilding back their lives amidst the loss of their

loved ones. I personally see how religion helped most of the survivors to cope with the stress and hardship of reclaiming back whatever they have left in their lives. After disaster, it is very common to hear consolation sermons in mosques or churches motivating survivors to get back on their feet, suggesting that those who died are the ones without sin while the remaining survivors are those who were given enough time to cleanse their sin before they can rejoin their loved ones again. In extreme challenging times, religion often plays a significant role in helping people to cope with their stress. Similar findings are also often found in studies about coping with trauma, illness recovery, and poverty. However, religion may also encourage a darker aspect of human behaviors such as terrorism, extremism, identity politics, interreligious conflicts, and violence. For me, this dissertation serves as my scientific endeavor to search for evidence of how religion, which is embedded deeply in daily lives of Indonesian people, operates in a specific context. Aside from providing moral guidance, it is very clear that religion provides a way of interpreting what is considered truth to its followers. Such truth may or may not be backed by facts and evidence, but nonetheless, it inspires actual behaviors of those who believe it.

Therefore, in this research, I, together with my research team at Maastricht University, Universitas Indonesia, and Universitas Brawijaya, want to explore how religion resonates with concerns for the environment. On a special note, Indonesia puts religion in the highest regards by officially delegating its formal education curriculum to two ministries, namely, the ministry of education (for formal national public school) and ministry of religious affairs (for formal national public religious-based Islamic school). By examining how teachers and workers in both public secular and religious schools perceive religious beliefs and scripture in context of environmental concerns, we aim to gain some insights about religion's influence on

animal welfare and environmental concerns. We obtained abundant data regarding the relation of ethical ideologies and religious orientation with, and the influence of religious narratives framing towards animal welfare and general environmental apathy. Not only are the findings insightful for the academic communities, but also, they are beneficial for various actors in government and society to carry out decision-making and policy formulation.

### **5.5.2 Contribution and relevance to the scientific community**

Three important aspects of our research findings are the following. *First*, more often, research samples for academic studies acquired from college students' population from educated, rich and industrialized western countries which may lack generalizability. Despite only being limited to those population from education sector, the present study surveyed professionals rather than college students. Interestingly, the present study confirms some of the findings from those western countries population and even adds more clarity by showing how religion may both hinder and facilitate concerns for the environment depending on extrinsic social religious orientation and religious narrative content framing. Therefore, this thesis improves generalizability of previous studies, adds more insights and proposes applicable proposition in context of religion and environmental concerns.

*Second*, considering the sample characteristics, the effect size of the present study's predictors may be greater among the general population. Slightly different from most studies using samples from college students, this study surveys specific professionals from the education sector (e.g., teachers, school administrators, staffs, etc.) that have higher education level (bachelor's degree at the very least). Choosing this specific sample provides more possibilities of acquiring participants that are well versed in scientific endeavors, and



consequently, well-equipped in critical thinking and reasoning. These two qualities are more of a hampering condition for dogmatic belief to flourish. Participants in this study are more likely to convey critical thinking of their religiosity compared to common population. Lastly, in context of Indonesia, this study confirms a firm presence of religion in Indonesia's academic sector. While this study surveys specific samples of participants who have higher education, compared to the developed industrialized and modernized western countries which may have already discard religion in favor of scientific endeavors, Indonesian hold religion important in all aspect of their daily lives. Altogether, this brings the third important aspect of this dissertation, that, this study investigates the influence of religion where religion actually matters. This dissertation merits both communities that value religion and non-religious communities to fathom how religious orientation and narratives are important to their religious fellows.

### **5.5.3 Contribution and relevance to the community and influential actors**

As we briefly mentioned above, Indonesia puts religion in the highest regards. The government of Indonesia officially established formal national religious-based (Islamic) public schools (Madrasah) handled by the Ministry of Religious Affairs side by side with formal national public school handled by the Ministry of Cultural and Education. Based on the formal systemic role of religion on education, we strongly think that this dissertation strongly fits within the Indonesian context.

Government and policymakers in Indonesia can involve all stakeholders to take part in protecting the environment and animals in general. In reference to our findings, to enhance policy coherence for sustainable development as one of the indicators for strategic partnership,

policymakers can consider to create a national agenda incorporating specific environmental-imbued religious narratives released by relevant national ministry (in this case, the Ministry of Religious Affairs) to encourage and promote effective public awareness, which in the future will flourish sustainability-conscious generation necessary for a fruitful atmosphere of public-private and civil society partnerships. Aside from the educational sector, policymakers can invite and encourage some of the biggest religious organizations across the archipelago, if not all, to discuss environmental concerns. This can be done from the neighborhood community or smallest form of government level, i.e., neighborhood communities known as *Rukun Warga* (RW), up to the national level.

In a more practical sense, this study investigates the important role of religion as religious identity which shapes the way people perceive and behave towards environmental concerns. The study, therefore, is important for practitioners who are actively engaged in sustainability topics. Although environmental sustainability in practice is mostly discussed from the lens of more efficient and cost-effective energy-saving engineering and technology, pushing the message for adopting sustainability to all people inhabiting our earth is the work of all parties.

Before knowing that religious orientation and narratives play a significant role among people living in countries where religious identity is acknowledged as an important identity, e.g., Indonesia (Hadiz, 2018), the effort to involve religious communities and institutions has always been and will always be critical and urgent should sustainable development goals still admit that strategic partnership is one of its goals. Learning from the present study's finding that religious narratives play a vital role in shaping the individuals' attitudes towards environmental issues, we suggest that practitioners start to actively strengthen the bond of

partnership and to collaborate with religious community leaders to encourage the inclusion of environmental issues in religious activities. All this provides practitioners with a comprehensive view of micro-macro function of religion to advocate environmental sustainability agenda.

Specifically on environmental sustainability's pillar of the sustainable development goals, this study highlights the importance of religious communities to be considered as strategic stakeholders. While most of the 17<sup>th</sup> goal of strategic partnership revolves around economic, financial, science and technology sharing, this study may bring forth a new avenue on how to understand the significance of cultures, religions, and religious institutions. At the very least, on the aim to enhance availability of reliable data, aside from income, gender, age, race, ethnicity, migratory status, disability, and geographic location, we propose to include religiosity and religious institutions as relevant determinants for data representation in the national context.

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