

# The Role of Religious Orientation and Ethical Ideologies in Environmental Concerns amongst Teachers and School Staff in East Java, Indonesia

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**Keywords:** Religious Orientation, Ethical Ideology, Environmental Apathy, Environmental Concerns.

**Abstract:** Several studies show that more often than not, religion hinders the preservation awareness and efforts towards the 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 survey a total of 929 school teachers and staff from 37 schools in East Java. Multiple regression is applied to analyse 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 relates 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.

## 1 INTRODUCTION

Religion has barely been featured amongst key anthropogenic factors causing environmental degradation (Bauman, Bohannon, & O'Brien, 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; Tiros-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; Watson, Morris, Hood, Milliron, & Stutz, 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, Bass, & Brown, 1996; 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 convergence 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 antirelativism 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 to the concerns for ecology is as yet still unclear. Studies on ethical ideologies provide clear evidence where religiosity significantly correlates with idealism and anti-relativism (Barnett et al., 1996; 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 orientations 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, a 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 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). 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 pathways 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, Jenkins, & Poteat, 2002). Studies of ethical ideologies and attitudes towards

animals and animal protection demonstrate that 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 relates to people's attitude towards and acceptability for harming animal. 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 value 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 a 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 individual 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 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; 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 (Henri 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 corresponds to the concept of ethical idealism where ethical behaviour 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 believe 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 (Henri 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; Henry Tajfel & Turner, 1979). Individuals who identify themselves as Muslims are more likely to behave in accordance with the typical behaviours 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, 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 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, more or less, are the dynamics reflected in classroom discourses. Teachers attitudes to the preservation and protection to 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 demographic or other determinants in our analysis.

## 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. Total of 37 schools, from 10 districts of East Java, replied and agreed to participate, providing 1007 participants. However, only 929 participants were analysed due to removing 78 participants because of incomplete and unengaged answers (*see section 3.2*).

All the questionnaires in the survey were originally in English. We then translated them to Indonesian. 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 consist 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. In order 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 consist 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

Table 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.

Table 2: EASEA-anthropocentric rotated factor matrix.

Items	Model 1 (using eigen value > 1)		Model 2 (as one factor)
	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 human kind		.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.

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, this study not only reduced the items to only seven items, but also found that the ecocentric dimension consists of two factors (Table 1). The two-factors findings of this study may confirm Amérgo 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 (Amérgo 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 (Amérgo 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.

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,'

Table 3: EASEA-general environment apathy rotated factor matrix.

Items	Model 1 (using eigen value > 1)		Model 2 (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 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.

‘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, this study not only reduced the items to only seven items, but also found that the anthropocentric motives dimension consisted of two factors (Table 2). The outcome of two-factors anthropocentric motives are unexpected considering that item 5 was not an original item rather than a new one created in order 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).

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, 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*).

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, 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 4), and thus, will be considered as the same as IP.

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 consist of two sub-scales.



Table 4: ROS rotated factor matrix

Items	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.

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 the 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, 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 5).

*Statistical analysis*

Religious orientation, ethical ideologies and EASEA were analysed 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 provides 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) (Figure 1). 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 a more detailed data. Thus, multiple regression is our selected statistical procedure for the given data.

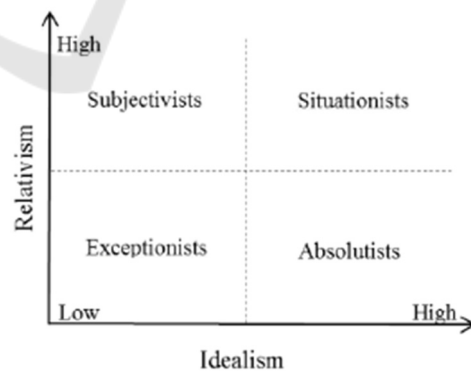


Figure 1: Ethical positions according idealism and relativism.

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

Table 5: EPQ pattern matrix.

	Model 1 (using eigen value > 1)			Model 2 (forced as 2 factor loadings)	
	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.

Table 6: Skewness and kurtosis value of main variables.

	N	Skewness		Kurtosis	
		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				

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 were checked for normal distribution assumption. 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 6 shows that all scales from the collected data is safely within the normal distribution bound. Thus, no transformation for normalization is needed.

### 3 RESULTS

#### 3.1 Instrument Validity

Table 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 behaviour will always lead to positive consequences. The mean relativism score was 6.29 (SD=1.46), indicating that on the whole, the respondents believe that moral decision-making should be situational, rather than based on universal principles.

The ecocentric for egobiosphere values mean score was 3.9 (SD = 0.64, maximum score of five), indicating that as a whole, 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 as a whole, 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.

Table 7: 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
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.

Table 8: Multiple regression towards egobiosphere value in ecocentric motive (EEM).

Model	EEM		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)	1.70		**	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
<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)	2.62		**	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 month: 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; <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.

### 3.2 Response Rates

From 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. Those missing cases were imputed using a linear trend method. In total, this research collected and analysed 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 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 of 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

Table 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> (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 high: Yes (1) – No (0)	-0.26	-0.11 *	0.49 <sup>D</sup> ++	-0.509	-0.137

\*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; <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.

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.

### 3.3 Ethical Ideologies, Religious Orientation and the Attitude towards Natural Environment Preservation

There are two models developed and analysed 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 8), ecocentric biosphere (EBM, Table 9), anthropocentric motive (AM, Table 10) and general environment apathy (GEA, Table 11).

For EEM (Table 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).

For EBM (Table 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 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).

For GEA (Table 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).

Table 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> (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; <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 11: Multiple regression towards general environmental apathy (GEA).

Model	GEA		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)	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; <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 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.

In summary, there are 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 scorer of IP, however, will likely relates to a higher EEM, EBM and AM. The higher the intrinsic religious orientation, the more a person believes in the importance for 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. 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.

### 3.4 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 with 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 12). Moreover, in Table 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.

### 3.5 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 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 (*section 3.4*).

Table 12: Correlation Matrix between ROS and EPQ.

	IP			ES			EPQ Idealism		
	r	CI 95%		r	CI 95%		r	CI 95%	
		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).

Table 13: Correlation Matrix between EASEA components.

	EEM			EBM			AM		
	r	CI 95%		r	CI 95%		r	CI 95%	
		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).

### 3.6 Natural Environment Preservation Attitude (Ease)

The working hypothesis presented in this section is general environmental apathy scale will negatively correlated with ecocentric and anthropocentric motives. Table 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) ( $r[927]=-0.04, p<0.05$ ).

### 3.7 Demographic and Other Determinants

For all the second regression model (see Table 8 to Table 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 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 method. 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.

## 4 DISCUSSION

The present study considers that other than to 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 more or less 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 way to determine whether a person's environmental concerns stemmed 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 hypothesised direction. A person with high extrinsic social religious orientation is more likely has 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 demographical and other determinants compete with the main variables in the multiple regression computation.

#### **4.1 Ethical Ideologies and Attitudes towards the Importance of Natural Environment**

Results for ecocentric and anthropocentric motives shows 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 relates to a higher environmental apathy. The more the respondents view that there is no absolute universal moral principles undergirding their moral judgement and decision-making, they are more likely 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 compared to other competing factors. 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.

#### **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) relates 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 the 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 defence (Allport & Ross, 1967; Fleck, 1981; Genia & Shaw, 1991; Kahoe & Meadow, 1981; Maltby, 1999). Thus, ES properties appear to more closely resemble the embodiment of social identity theory, rather than that of religious belief and commitment. Therefore, the present study may actually 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 taking into account all other variables including demographic and other important determinants, religious orientation remained consistent in predicting the concerns for the natural environment preservation.

#### **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 examines also 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, 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 relate more to a principle with which individuals portray and justify their actions as correct, in order 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 particular 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 taking into account of all the main variables with demographic and other important determinants, the results stress the importance of ethical relativism, and religious orientation as the main variables that relates to environmental concerns. However, only intrinsic personal religious orientation strongly relates to all measurement component 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.

#### 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 8 to Table 11).

Results shows 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 difference using ANOVA. This study finds significant difference between income categorical groups ( $F[5]=3.24, p=0.007$ ). Post-hoc tests using Bonferroni method shows only one significant 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 post-hoc Bonferroni test fails to show any significance 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 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 degree. All of the teacher 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 assistant and farmers which 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 degree which usually revolves more around general knowledge.

#### 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, it is clear that a number of 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 is 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 introduce religious orientation as

contributing cultural factors that warrants further investigation.

## ACKNOWLEDGEMENT

We acknowledge the significance of Indonesia Endowment Fund (Lembaga Pengelola Dana Pendidikan Indonesia), the Faculty of Psychology Universitas Indonesia, Rakata Adventure, Universitas Islam Malang, Faculty of Psychology Universitas Brawijaya, Yeka Kusumajaya, Setyo Ramadi and KH. Ahmad Zubaidah (Gus Ida), for their enduring support in various aspects of this research. We thank all the respondents for their participation in this survey. Also, the work by D. Pasaribu and P. Martens has partly been made possible by the fellowship 'Ethics of the Anthropocene', Free University Amsterdam.

## FUNDING

This study has been made possible by Government of Indonesia Ministry of Finance's Endowment Fund for Education Institution's (LPDP) (Grant no 201702221010339) scholarship and funding, <https://www.lpd.kemenkeu.go.id>. The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

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