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Humans and Nature: Does Religion Make a Difference in Indonesia?

Frans Wijsen

Radboud University, Netherlands
frans.wijsen@ru.nl

Zainal Abidin Bagir

Gadjah Mada University, Yogyakarta, Indonesia
zainalbagir@ugm.ac.id

Mohamad Yusuf

Gadjah Mada University, Yogyakarta, Indonesia
myusuf@ugm.ac.id

Samsul Ma'arif

Gadjah Mada University, Yogyakarta, Indonesia
samsul.maarif75@ugm.ac.id

Any Marsiyanti

Indonesian Consortium for Religious Studies
any.marsiyanti@gmail.com

Abstract

The Human and Nature scale (HaN scale) was developed in the Western context to investigate the relationship between ideas about nature and landscape planning. This pilot study expands the HaN scale and includes religion as an independent variable to investigate perceptions of human-nature relations in Indonesia. It examines how religious affiliation and religious practices influence visions of human-nature relations. This study shows that religious affiliation makes no difference. Muslims, Catholics,

Protestants, and Hindus share their acceptance of the stewardship, partnership, and participation models while rejecting the master model. However, religious practice does make a difference. Those who practice religion to a lesser extent tend to agree more with the mastery vision than those who practice religion to a greater extent. This study suggests that religion makes a difference, not in terms of what religion respondents affiliate with, but in how religious they are.

Keywords

Human-nature relationship, HaN scale, religious affiliation, factor analysis, Indonesia

Introduction

Indonesia is a major player in the world when it comes to environmental degradation (Jotzo 2012). In absolute terms, it is the third largest polluter, the second biggest contributor to waste, the second highest emitter of greenhouse gases, and the second biggest deforester in the world. Jakarta alone produces six thousand tons of waste every day, and rivers such as the Ciliwung and the Citarum in Jakarta and West Java are heavily polluted by micro plastics, chemicals, metals, and antibiotics, which create health problems. On the other hand, Indonesia is also one of the major players in international summits on climate change. For example, it was the first OPEC country to sign the Kyoto protocol in 2004, and it hosted the United Nations Climate Conference in Bali in 2007, which produced the Bali Road Map that continues to play a role in climate change policy debates today.

Governmental and non-governmental organisations in Indonesia have recognised the role of both religion and faith-based organisations in raising environmental awareness and promoting behavioural change. Various fatwas (e.g., on the use of plastics) have been pronounced and various campaigns (e.g., garbage donation) have been organised by faith-based organisations such as Nadhlatul Ulama and Muhammadiyah, and the environmental awareness of such organisations is evident in slogans such as 'cleanliness is part of faith' and 'religion is built on cleanliness'. Other major religious communities, such as Christians, Hindus, and Buddhists, as represented in a large number of organizations and religious councils, have also been actively involved in similar endeavours.

Scholars of religion tend to see a relationship between religious thought and ecology and tend to think that religion makes a difference in how people think about and behave toward their natural environment. Yet, there is no robust evidence for religion as an independent

variable in large-scale research (Hofstede et al. 2010). This partly has to do with the fact that, as a concept, religion is difficult to define and operationalize (e.g., in relation to culture), and partly because of the fact that there is a huge variety within religions.

In order to acquire deeper insight into the relationship between religion and environmentalism, the authors have elaborated on the Humans and Nature (HaN) scale. The HaN scale was developed in the Netherlands in 1999 to explore the relationship between ideas about nature and landscape planning (De Groot and Van den Born 2003). It is a validated research instrument based on a basic set of statements that people can respond to, which explore how closely they relate to/agree with particular images of human beings in relationship to their natural environments. It was expanded for a study on river flooding policies in Western Europe (De Groot 2012) and similar studies in Canada (De Groot and Van den Born 2007) and Vietnam (Duong and Van den Born 2019). In order to assess whether this scale could be made applicable for a large-scale survey in the Indonesian context, we conducted a pilot study among one hundred people in ten locations. In this paper we present the background and the conceptual framework of our pilot study, the research instrument, the selected sample and research activities, the preliminary findings and our conclusions on whether and how the revised research instrument can be used in further research.

Theoretical Framework

When it was first developed, the HaN scale engaged with a scholarly debate on the exploitative nature of humans in the West, based on worldviews derived from Enlightenment-era thought and Christianity, as was theorised by Lynn White (1967: 1205–06; see also De Groot and Van den Born 2007: 325). White argued that it was the Biblical image of man who dominates nature that caused the scientific exploitation of natural resources. What humans do with nature depends on what they think about themselves in relation to nature (White 1967: 1204).

The HaN scale was not the first to measure human—nature relationships. The New Environmental Paradigm (NEP) scale, for example, measures humans' cognitive awareness of ego-centric harming of the natural environment (Dunlap and Van Liere 1978). In Dunlap and Van Liere's study, respondents could only agree or disagree with a variety of ego-centric statements without eco-centric alternatives. This is a limitation (De Groot 2012: 2). Developed in 2004, the Connectedness to Nature Scale (CNS) (Mayer and Frantz 2004) focused on the affective dimension of eco-centric models and, as such, made up for what the NEP scale overlooked. However, neither scale

distinguishes between different types of human—nature interaction. The same applies to the Inclusion of Nature in the Self (INS) scale (Schulz 2002) which is a single-item scale. More recently, scholars have created an expanded version of the INS, which covers more items (Martin and Czellar 2016; Kleespies et al. 2021) and comes close to the HaN scale. But, among the various instruments, the HaN scale claims to capture the full range of human—nature relationships.

As introduced above, the HaN scale was developed in the Netherlands in 1999, in response to growing awareness of environmental challenges, and the need to address these in new styles of landscape planning and river management. The researchers acknowledged that environmental challenges such as pollution and flooding required dramatic interventions that could not be enforced from-above, by the government, but needed the support of the people. So, they wanted to know: how do people perceive of their relationships to nature and do they support policies that no longer fight against nature (e.g., building higher dikes, something that the Dutch have been good at) but work with nature (e.g., give more space to rivers, even at the cost of housing and industry). For this purpose, the HaN scale was developed. It was later used for comparative research in France, Germany, and the Netherlands, when Radboud University at Nijmegen lead the large-scale Freude am Fluss project. This project focused on pollution and flooding of the Rhine River and resulted in a number of doctoral dissertations (Van den Born 2007; De Groot 2010; Scholten 2011; Fliervoet 2011; Winnubst 2011).

The social environmental scientists at Radboud University who constructed the HaN sought a means of addressing social-environmental challenges in a practical fashion. They first studied philosophical classifications of people's views of relationships to nature and then translated these into an empirical instrument to measure images of human—nature interaction. They acknowledged that people's views were not necessarily well-developed philosophies but could also be a set of assumptions about human beings and nature that they hardly thought about (De Groot 2012: 2). Based on their literature review they came up with four models of human—nature interaction: humans as masters of nature, humans as stewards of nature, humans as partners of nature, and humans as participants in nature. Each of these models was translated into operational terms by using four to six statements to which people could respond on a scale from 1 (totally disagree) to 5 (fully agree). In Table 1, the unitalicized statements are taken from the original HaN scale (De Groot and Van den Born 2003).

The HaN scale was developed in a modern, Western context, in which people have the technological means and economic resources

to control nature. In an ongoing doctoral research project in Indonesia, conducted by Zaimatus Sa'diyah and Afnan Anshori, on which we have collaborated, the present authors identified a fifth model: human dependency on nature. As one of the interviewees of Sa'diyah and Anshori's research said: 'nature can live without human beings; human beings cannot live without nature'. Referring to the notion of Mother Earth, this interviewee added: 'Nature is like a mother that looks after her children'. Furthermore, in many parts of Indonesia, people's experience of nature is shaped by natural disasters such as volcanic eruptions, flooding, and tsunamis. As such, nature appears as something that can harm human lives. Thus, we assumed that a sixth model existed: nature as a threat for humans. As a sub-aim, we wanted to probe the extent of people's adherence to these additional models, and whether the HaN scale really measures the 'full range' of human—nature relationships, as it claims.

In the original HaN scale, religion was not considered as a factor that might shape visions of human and nature relationships. In 2007, religion was included in a study in Canada, which, for the first time, used the HaN scale outside the Netherlands (De Groot and Van den Born 2007: 326). Religion was also included in a study conducted in Vietnam in 2018. This study concluded that there was no correlation between people's religious views and their views on human—nature relationships (Duong and Van den Born 2019: 19). Besides this, it showed that most respondents adhered to the notion of stewardship. This view of human—nature relationships is usually associated with monotheistic religions that give a special place to human beings in their creation stories; however, Vietnam is traditionally considered a Buddhist country. An explanation for the prevalence of the stewardship model in the Vietnamese study could be that the HaN scale tends to focus on fundamental or universal responses, independent of how these responses are taken up in culture- or country-specific constructs (Duong and Van den Born 2019: 19). In the research conducted in Canada, the quantitative part of the study suggested that there was no correlation between God images and images of human—nature interaction, yet the qualitative part suggested that there was (De Groot and Van den Born 2007: 347), which may be because of the preponderance of religious leaders among the interviewees.

Selection of the Sample

In order to adapt the HaN scale to the Indonesian context, a survey was conducted in March 2020, when the COVID-19 pandemic was just beginning to affect Indonesia. We distributed a questionnaire to 100

people in ten locations in Indonesia. We received back 64 completed questionnaires that were broadly representative of the religious demographics of the different locations. The ten locations were chosen for their political significance, religious demography, and their engagement in environmental issues (see Figure 1). Five of them were situated on Java, Indonesia's most populated island. These included Jakarta, the capital city of Indonesia, Bandung, the capital city of West Java, Semarang, the capital city of Central Java, Surabaya, the capital of East Java, and the Special Region of Yogyakarta. These locations are all mostly populated by Muslims, but Christians and other religious followers constitute significant minorities. Natural disasters in these areas include flooding, landslides, and, particularly in Yogyakarta, earthquakes, and volcanic eruptions.

The five other locations are situated in the western part (the special regions of Aceh and Jambi), the central part (Samarinda in East Kalimantan), the small island east of Java (Bali), and the eastern part of Indonesia (Kupang in East Nusa Tenggara). Aceh is populated by a Muslim majority and was hit by a tsunami in 2004. The tsunami's multi-dimensional effects are still felt by the people to this day. Jambi is also populated by a Muslim majority but includes a significant number of indigenous people who have been involved in agrarian conflicts due to deforestation by palm oil corporations. Furthermore, these conflicts have contributed to public debates on environmental issues. Bali province is predominantly populated by Hindus, but Muslims and Christians constitute significant minorities. It is a globally significant tourist destination and, as such, the people have had to deal with environmental issues. Among the well-known development projects to spark controversy was the proposed reclamation of Benoa Bay. The project was not realized due to strong opposition by Hindu groups (see e.g., Erviani 2016). For them, the plan of reclamation, if implemented, would destroy many sacred sites. Samarinda in East Kalimantan is an industrial area where a lot of mining and deforestation takes place; it is dominated by Muslims and migrants, but also includes significant numbers of native (indigenous) people who have been displaced from their territories. Kupang in East Nusa Tenggara is dominated by Christians and has experienced several natural disasters such as flooding, landslides, and earthquakes.

We expected that those ten locations would provide us with an initial insight into the variety of Indonesian images of human—nature interaction across differences based on age, gender, education, occupation, income, domicile, religious affiliation, and practice. We intended to make a generalisation concerning Indonesian environmental attitudes and dispositions to behaviour, taking into account that each

area had its own uniqueness. Moreover, as a pilot study we hoped that distributing the survey in these ten areas would help us to enhance the research instrument for a large-scale study of people's views on human—nature interaction in Indonesia later on.

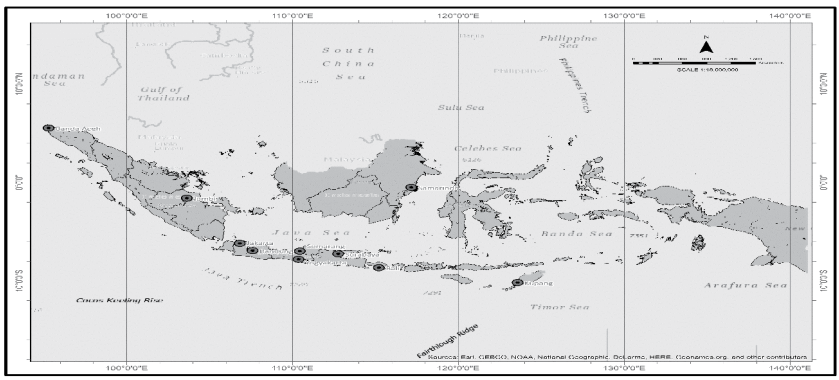

Figure 1: Research Locations

For getting potential respondents we approached fellow-researchers in the ten locations inviting them to distribute the questionnaire to a minimum of five respondents, using the following criteria. The first was related to their religious affiliation. In Indonesia, citizens fill in the religion column of their national identity card with the name of one of six religions (Islam, Protestantism, Catholicism, Hinduism, Buddhism and Confucianism). The history is rather complicated, but to put it in simple terms, followers of religions other than the six or members of indigenous religions in the past had to choose one of the six religions, until 2006, when a new Civil Administration Law was issued, which opened the possibility to leave the religion column blank. Since 2017, due to a decision by the Constitutional Court in the judicial review of the Civil Administration Law, practitioners of indigenous religions can fill in the column with "belief", which basically means any belief system, including indigenous religions, other than the six (Fachrudin 2017). We therefore expected to find followers of indigenous religions among the respondents, which would enrich our understanding of the perceptions of human—nature interactions in Indonesia's pluralistic society. As already noted, Muslims overwhelmingly dominate the archipelago, but in a few areas, such as Bali and Kupang, they are the minorities. In addition to their religious affiliation, our respondents were asked to what extent religion matters to them. This was done to understand how their religiosity affected their perception of human—nature relations.

The second criterion was age, which was limited to 17 years old and above. This criterion was not intended to discriminate against children or youngsters by disregarding their perceptions. Childhood experiences with the natural world are significant in some countries (Palmer et al. 1998), but in previous studies those experiences were articulated by adults. We expected that our adult respondents would reflect their childhood experiences in their answers, through which we would accommodate children's perceptions. The third criterion pertained to respondents' domiciles, or where they lived: in rural or urban areas. All ten locations we covered in this study were actually cities, but all had both rural and urban areas. In Indonesia, like in other countries, people living in rural and urban areas tend to have different lifestyles, including the way they interact with nature. Those who lived in rural areas were assumed to have direct experiences with nature, more than those who lived in urban areas. According to research by Palmer et al. (1998), direct experiences with the natural world are determinants of environmental awareness and attitudes. We therefore expected our respondents to offer different perceptions on human—nature relations based on where they lived.

The fourth criterion was related to gender identity. Our questionnaire was open to respondents of any gender identity. Additionally, we attempted to distribute the questionnaires equally among men and women, so as to achieve gender balance. Gender has been among the important subjects of discussion in Indonesia, especially in relation to environmental issues (Morgan 2017). The fifth pertained to education level, which ranged from high school to university education. Based on the literature, we assumed that education level (especially with regard to environmental knowledge) correlated with environmental awareness, attitudes, and commitment (Aminrad et al. 2011; Özden 2008; Dunlap and Van Liere 1978; Dunlap et al. 2000). We expected that this criterion would intersect significantly with other criteria. The sixth criterion was connected to occupation and the seventh was related to monthly income. Like education, occupation—which is necessarily related to monthly income—contributes to environmental attitudes (Ogunbode and Arnold 2012).

Methods

The questionnaire was divided into two parts. In the first part, we asked respondents about their demographic background, consisting of age, gender, education, place of origin, and employment. The second part of the survey asked the respondents about their perceptions about the relation between humans and nature. For the second part, we

employed the HaN scale as introduced above. This scale has been validated by research in the Netherlands, France, and Germany (De Groot et al. 2011: 31). Situating the survey in the context of Indonesia, we added additional factors, as well as additional items in each factor. In statistical terms, an item is a statement that respondents can agree or disagree with to a greater or lesser extent (variable). A factor is a group of statements that are kept together. Respondents who agree with one statement tend to agree with other statements in that group, and vice versa (De Groot et al. 2011: 33). In our study, factors are images of human—nature interaction. The original HaN scale had four factors. As previously said, we identified a fifth factor: human dependence on nature. This image is arguably common among followers of indigenous religions of Indonesia (Maarif 2015, 2019). In literature on religion and disasters (Chester et al. 2012; Sherry and Curtis 2017) we also noted that, among religious interpretations of the subject, there is the idea that nature is a threat. People, for example, pray to God for protection from the threat, or view a natural disaster as a trial from God (Bjønness 1986; Schlehe 2010). Thus, we identified a sixth factor: nature as a threat for humans. We therefore added two factors and added additional items to each factor of the scale. The adjusted scale thus features a total of six factors with six to eight items each (see Table 1).

Table 1: Scale Measurement of Humans and Nature Relationship

Original Statement	Indonesian Translation
Humans as Masters of Nature	
We have the right to change nature if humans benefit from it	Kita berhak mengubah alam demi kebutuhan manusia
The ability to think puts humans above nature	Karena mampu berfikir, manusia memiliki posisi lebih tinggi dari alam
Nature should not hamper economic progress	(Proteksi) alam tidak boleh menghalangi pengembangan ekonomi
Nature is there for me, not the other way around	Alam ada untuk kepentingan manusia, bukan sebaliknya.
God has created nature for humans' benefit	Tuhan menciptakan alam untuk manusia
Protection of rare plants and animals is an unnecessary luxury	Melindungi tanaman dan binatang langka adalah kemewahan yang tidak perlu
Humans as Stewards of Nature	
Every human being is responsible for the conservation of nature	Setiap manusia bertanggung jawab menjaga alam

Our generation has to take care that nature will be preserved for future generations	Generasi sekarang wajib menjaga alam untuk kepentingan generasi berikutnya.
I feel obliged to protect nature	Saya merasa wajib melindungi alam.
Because humans have the ability to think, we should take care of nature	Karena mampu berpikir, manusia harus menjaga alam.
There are higher powers to which humans are responsible for taking care of nature	Karena diperintahkan oleh Yang Maha Kuasa, manusia wajib menjaga alam.
God commends humans to wisely manage the earth's resources for the sake of human betterment	Tuhan memerintahkan manusia untuk mengelola alam secara bijak untuk kebaikan manusia.
We are part of nature and therefore we are responsible for taking care of it	Kita bagian dari alam, karena itu kita bertanggung-jawab untuk menjaganya.
Being religious, humans must protect the rights of nature	Sebagai orang beragama, manusia harus melindungi hak-hak alam.
Humans as Partners of Nature	
Humans and nature are of equal value	Manusia dan alam memiliki nilai yang setara
Humans and nature are entitled to equal treatment	Manusia dan alam berhak diperlakukan secara setara
I consider nature a good friend	Bagi saya, alam adalah teman baik.
Nature should be given the possibility to develop, just like humans	Alam perlu dibiarkan berkembang sebagaimana halnya manusia
As God's creature, nature has its own right to exist	Sebagai ciptaan Tuhan, alam memiliki hak untuk eksis
Both humans and nature worship God	Manusia dan alam menyembah Tuhan
We must not set ourselves above nature, but must work together with it	Kita tidak boleh menempatkan diri di atas alam, tapi harus bekerja sama dengannya
Humans as Participants in Nature	
I feel at one with all life on earth	Saya merasa menyatu dengan seluruh kehidupan di muka bumi
Human beings are inextricably connected with nature	Manusia dan alam saling terhubung dan tak terpisahkan satu sama lain
In nature, I experience the insignificance of mankind	Di alam, saya menyadari betapa lemahnya manusia
The relationship of humans with nature defines who we are	Cara manusia berhubungan dengan alam menunjukkan siapa dirinya.
Through nature we can witness and meet God	Melalui alam, kita dapat menyaksikan dan berjumpa dengan Tuhan
The earth is our mother	Bumi adalah ibu kita

God, humans and nature are one	Tuhan, manusia dan alam adalah satu
Humans as Dependent on Nature	
I have emotional and spiritual attachment to a certain place	Saya memiliki keterikatan emosional dan spiritual di tempat tertentu
Bringing offerings to a forest is a way of honouring nature	Membawa sajen ke hutan adalah bentuk penghargaan pada alam
Humans' survival depends on nature's survival and vice versa	Keberlangsungan hidup manusia tergantung pada keberlangsungan hidup alam dan sebaliknya
Humans are frail and vulnerable in the face of natural forces	Manusia lemah dan rentan di hadapan kekuatan alam
Natural threats, such as flooding, are caused by humans	Ancaman alam seperti banjir adalah ulah manusia
We need to protect nature because nature nourishes us	Kita perlu menjaga alam, karena alam menghidupi kita.
Nature as a Threat for Humans	
Bringing offerings to a forest destroys faith	Membawa sesajen ke hutan merusak iman
Natural disasters are a trial from God	Bencana alam adalah ujian dari Tuhan
God punishes humans for their sins through natural disasters	Tuhan menghukum manusia karena dosa-dosanya melalui bencana alam
Mountains, forests and rivers are dangerous and threatening	Gunung, hutan dan sungai adalah berbahaya dan mengancam
Living in an urban area is more secure and convenient than living in villages near the forest	Hidup di kota lebih aman dan nyaman daripada hidup di desa, dekat hutan
Nature must be conquered	Alam harus ditaklukkan

This study used two methods of descriptive statistical analysis. First, the descriptive frequency method was used to analyse the background characteristics of the respondents involved in this survey. Second, the mean score was calculated for each scale to ascertain the level of agreement of our respondents with regard to the Humans and Nature relationship in question. We also conducted reliability tests to investigate the validity and internal consistency of the scales used in this survey.

The initial scale had four factors corresponding to different implicit models of human-nature relations, namely: mastery, stewardship, partnership, and participation. To adjust to the Indonesian context, we added one to two extra items to each factor related to religious (more specifically, spiritual) content. This is in accordance with the focus of this research, which aims to apply the Humans and Nature

scale to the context of Indonesia, where each citizen is required to have a religious affiliation. Moreover, we added two additional factors, namely dependence on nature and nature as a threat, consisting of six items each.

Findings

Out of the 64 respondents representing the different research locations, the majority were between 17–30 years old (42.2%), while those above 50 years old comprised approximately 5.9%. With regard to gender distribution there was a good balance, with 51% male and 49.3% female respondents. With regard to the place of origin of the respondents, we selected respondents from ten different locations in Indonesia by taking into account the variety of religious backgrounds in that region. Islamic majority areas were represented by Aceh and Jambi, while Islamic majority areas with significant non-Muslim adherents were represented by Jakarta, Bandung, Semarang, Yogyakarta, Surabaya, and Samarinda. Kupang was selected as a Christian majority area, and Bali was chosen as a Hindu majority area. We were not able to gather respondents representing a balanced composition in terms of rural and urban areas. This is due to the fact that the survey was conducted online during the pandemic and people in rural areas generally have limited access to the internet. In terms of educational background, the respondents had predominantly graduated from tertiary level education: 31.3% held a master's degree, while 25% had completed their undergraduate education. About 17.25% of our respondents held a doctoral degree. In this respect, our sample is not representative, but for our purpose, to make the HaN-scale applicable to the Indonesian context, this is not a big deal. Table 2 shows that the monthly income of our respondents is varied. Although it is low compared to European countries, it is considerably good in comparison to the GDP of Indonesia: 25% of the respondents earn $101–$200 per month, while the other 12.5% earn $201–$300.[1] The employment status of our respondents shows that they predominantly work as teachers/lecturers (42.3%) and as government/non-government employees in formal government/non-government institutions (17.7%).

Table 1 also shows that our respondents had various religious backgrounds. Muslim respondents comprised 53.1% of the total respondents, and Christians (both Protestant and Roman Catholic) comprised 40.6% of the total respondents. Here again, in terms of religious

1. The World Bank, 2019. GDP per capita (current US$). https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=ID (Accessed 18 November 2021)

background, our sample is not representative of the whole Indonesian population. We also sought to discover how actively involved people were in their religious communities, and how important religion was in their lives. Approximately 54.7% of our respondents indicated that religious matters were sometimes spoken of at home, while those who indicated that religious matters were often spoken of at home comprised 40.6%. Hindus made up approximately 4.7%, while those who held indigenous religious beliefs comprised only 1.6% of the total respondents. With regard to the religious life of our respondents, Table 2 shows that our respondents predominantly agree (92.2%) that religion has a large influence on their daily lives, while only 3.1% disagreed with this statement. Similarly, approximately 90.7% of our respondents indicated that their religion plays an important role in decisions in their life, while 3.1% disagreed. In addition, 81.3% of the total respondents agreed that their life would be quite different if they did not have their religion, while the other 6.3% disagreed with this statement.

Table 2: Background Characteristics of Respondents

Item	Option	N	Frequency (%)
Age (N=62)	17–30	27	42.2
	31–40	14	21.9
	41–50	15	28.1
	> 50	6	7.8
Gender (N=60)	Male	31	51.7
	Female	29	49.3
Where do you live? (N=64)	Aceh	8	12.5
	Jambi	6	9.4
	Jakarta	4	6.3
	Bandung	2	3.1
	Semarang	8	12.5
	Yogyakarta	5	7.8
	Surabaya	3	4.7
	Samarinda	7	11.3
	Bali	4	6.5
	Kupang	15	24.2
Are you living in a rural or an urban area? (N=64)	Rural	10	15.6
	Urban	54	84.4

Education Level (N=64)	Senior High School or less	12	18.8
	Diploma	5	7.8
	Undergraduate	16	25.0
	Master Program	20	31.3
	Doctoral Program	11	17.2
Monthly Income (N=64)	Less than $100	18	28.1
	$101–$200	16	25.0
	$201–$300	8	12.5
	$301–$400	5	7.8
	More than $500	17	26.6
Occupation (N=64)	Pharmacist	1	1.7
	Working for other people's companies, including Ojol	2	3.3
	Nurse	1	1.7
	Medical Doctor	1	1.7
	Teacher/Lecturer	26	42.3
	Development Consultant	1	1.7
	Working for an NGO	2	3.3
	University Students	6	10.0
	Medical Issues activist	1	1.7
	Running one's own business	1	2.0
	Farmer/fisherman	4	6.7
	Government/ non-government employee in a formal government / non-government institution	11	17.7
	Religious leader	5	8.3
Are Religious Matters Spoken of at Home? (N=64)	Never	3	4.7
	Sometimes	35	54.7
	Often	26	40.6
Religious Affiliation	Muslim	34	53.1
	Catholic	7	10.9
	Protestant	19	29.7
	Hindu	3	4.7
	Kepercayaan (indigenous religions)	1	1.6

My Religion has a Large Influence on My Daily Life (N=64)	Disagree	2	3.1
	Not sure	3	4.7
	Agree	20	31.3
	Totally agree	39	60.9
My religion plays an important role in decisions in my life (N=64)	Disagree	2	3.1
	Not sure	4	6.3
	Agree	30	46.9
	Totally agree	28	43.8
My life would be quite different, had I not my religion (N=64)	Disagree	4	6.3
	Not sure	8	12.5
	Agree	16	25.0
	Totally agree	36	56.3
Reading Scripture (N=64)	Occasionally	22	34.4
	Weekly	14	21.9
	Daily	28	43.8
Pray (N=64)	Occasionally	10	15.6
	Weekly	2	3.1
	Daily	52	81.3

Before discussing the respondents' answers concerning the HaN scale in correlation with other factors (the importance of religion, religious affiliation, and background characteristics), we will first discuss the reliability of each factor and the level of agreement of each factor. Table 3 below shows the results of the reliability test of each factor. It indicates that almost all factors used in this study had acceptable and good reliability scores, indicated by Cronbach's alpha (Field, 2013). Cronbach's alpha measures how closely related a set of items are as a group and, thus, measures the internal consistency of a factor.

Table 3: Reliability Test of Each Factor

No.	Factor	Cronbach's Alpha	No. of Item
1	Mastery	.67	6
2	Stewardship	.69	6
3	Partnership	.76	7
4	Participation	.67	7
5	Dependence on Nature	.61	6
6	Nature as a Threat	.60	6

Regarding the level of agreement with each factor which corresponded to a particular model of human-nature relations, Table 4 shows that most of our respondents adhered to the 'stewardship' factor; in statistical terms, this factor had the highest level of agreement among our respondents (m=4.65; std .35), followed by 'partnership' (m= 4.65; std .48). The factor of 'nature as a threat' was the least popular; in statistical terms, this factor had the lowest level of agreement among our respondents (m=2.66; std .67), followed by 'mastery' (m= 3.5; std .66).

Table 4: Levels of Agreement with regard to Factors of Humans and Nature Relationship

No.	Factor	Mean	Std. Deviation
1	Mastery	3.15	.66
2	Stewardship	4.65	.35
3	Partnership	4.29	.48
4	Participation	4.14	.52
5	Dependence on Nature	3.87	.56
6	Nature as a Threat	2.66	.67
	Valid N (listwise)		

Note: Scale: 1= Totally disagree; 2= Disagree; 3= Not sure; 4= Agree; 5= Fully agree

Next, we explain the frequency of respondents' responses to the HaN scale, taking the variable of religious practice into account. Table 5 shows the respondents' answers to the question of 'Are religious matters spoken of at home?' Our findings show that respondents who answered the question with 'sometimes' were more likely to agree with statements that represented humans as masters of nature. Approximately 37.5% of them answered 'not sure', while 6.3% answered 'disagree'. Only 9.4% of respondents agreed and 1.6% fully agreed. There were some respondents who answered the question on religious matters with 'often' who also responded to the mastery factor (17.2% were not sure and 21.9% agreed). A different picture emerged for the stewardship factor. Those who answered 'sometimes' (15.6% agreed and 39.1% fully agreed) and 'often' (3.1% agreed and 37.5% fully agreed) to the question on religious matters were the most dominant in responding to the stewardship factor. Similarly, our respondents who answered 'sometimes' and 'often' were dominant in responding to the questions about partnership. Among those who answered 'sometimes', 34.4% agreed and 18.8%

disagreed, and of those who answered 'often', 25% agreed and 15.7% disagreed. This was similar to respondents' answers concerning the factor of participation, where those who answered 'sometimes' and 'often' concerning the question on religious matters were dominant. Among our respondents who answered 'sometimes', approximately 34.4% answered 'agree' and 18.8% answered 'fully agree' concerning the factor of participation. For our respondents who answered 'often' to the question on religious matters, 25% answered 'agree' and 14.1% answered 'fully agree' to the factor of participation. Similar figures were also found for the factor of dependence on nature, where those who answered 'sometimes' and 'often' to the question on religious matters were dominant. Among our respondents who answered 'sometimes' to the factor of dependence on nature, 37.5% answered 'agree', 9.4% answered 'fully agree', and only 7.8% answered 'not sure'. Moreover, of those who answered 'often' to dependence on nature, 26.6% answered 'agree', 6.3% answered 'fully agree', and 7.8% answered 'not sure'. Although it was similar to other factors, where those who answered 'sometimes' and 'often' to the question on religious matters were dominant to the factor of nature as a threat, there was a variety distribution within the answers, which prefer to disagreement. Among those who answered 'often' to the question on religious matters, 28.1% answered 'not sure', 17.2% answered 'disagree', and 4.7% answered 'fully disagree'. Similarly, of those who answered 'often' to the question on religious matters, 26.6% respondents answered 'not sure', and 10.1% answered 'disagree'.

Table 5: Frequency of respondents' responses to Human and Nature variable in relation to the question 'How often are religious matters spoken of at home?'

		Never	**Sometimes**	**Often**
Mastery	TDA	0	0	1.6
	DA	0	6.3	0
	NS	3.1	37.5	17.2
	A	1.6	9.4	21.9
	FA	0	1.6	0
Stewardship	TDA	0	0	0
	DA	0	0	0
	NS	0	0	0
	A	4.7	15.6	3.1
	FA	0	39.1	37.5

Partnership	TDA	0	0	0
	DA	0	0	0
	NS	0	1.6	1.6
	A	4.7	34.4	25
	FA	0	18.8	15.7
Participant	TDA	0	0	0
	DA	0	0	0
	NS	3.1	4.7	1.6
	A	1.6	34.4	25
	FA	0	15.7	14.1
Interdependence with nature	TDA	0	0	0
	DA	0	0	0
	NS	3.1	7.8	7.8
	A	1.6	37.5	26.6
	FA	0	9.4	6.3
Nature as Threat	TDA	0	4.7	0
	DA	0	17.2	10.1
	NS	3.1	28.1	26.6
	A	1.6	3.1	3.1
	FA	0	1.6	0

Note: TDA: Totally Disagree; DA: Disagree; NS: Not Sure; A: Agree; FA: Fully Agree. Presented in percentages.

Concerning the religious affiliation of our respondents in relation to their answers per Humans and Nature factor, Table 6 shows that there were consistencies among our respondents concerning the mastery factor, where most respondents answered 'not sure' (28.1% of those were Muslim, 7.8% Catholics, 18.8% Protestants, 3.1% Hindus and 1.6% indigenous religion). Quite a number of respondents answered 'agree' to the items in the mastery factor: 21.9% were Muslims, and 10.1% were Protestants. Concerning the stewardship factor, most respondents regardless of religious affiliation either answered either 'agree' or 'fully agree' to the items in this factor. Similarly, most of our respondents agreed with the items in the partnership factor ('agree' and 'fully agree'). Most respondents answered 'agree' and 'fully agree' to the participation factor. The number of respondents who answered 'not sure' for the factor of dependence on nature was higher than for the factors of partnership and participation: 9.4% (out

of 53.1%) of Muslim, 1.3% (out of 10.9%) of Catholic and 7.8% (out of 29.7%) of Protestant respondents. However, most respondents tended to agree (ranging from 'agree' to 'fully agree') with this factor. The agreement of our respondents with statements that nature poses a threat to humans was much lower than for the other factors. Most respondents answered 'not sure' for the nature as a threat factor, regardless of their religious background. Of all Muslim respondents (53.1%), 34.4% answered 'not sure', 10.1% answered 'disagree', and 3.1% answered 'totally disagree'; only 4.7% answered 'agree'. The majority of our Catholic respondents answered 'disagree' (4.7% out of 10.9%), while of all Protestant respondents (29.7%), 18.8% answered 'not sure', and 7.8% answered 'disagree'. Of all Hindu respondents (4.7%), 3.1% answered 'disagree', and 1.6% answered 'not sure'. In the Indonesian language, 'not sure' reads 'ragu-ragu'. These words have a broad meaning. They could also be translated as 'undecided' or 'I don't know'.

Table 7 shows the correlation between the respondents' background characteristics and the Humans and Nature factors. None of the variables of the demographic background of the respondents had significant correlation with the factors of mastery and nature as a threat. Gender had significant and high correlation with the factors of stewardship (r –.356) and dependence on nature (r –.291). Female respondents had more positive correlation with stewardship than male respondents. Similarly, female respondents had more positive correlation with dependence on nature than male respondents. Respondents' age had significant and slightly high correlation with the participation factor (r .284), and it had significant and high correlation with the factor of dependence on nature (r .312). Older respondents were more likely to agree with statements that indicated that humans participate in and are dependent on nature. Furthermore, location had significant correlation with the factors of partnership (r .329) and participation (r .278), however, since the number of respondents in various locations is low, we cannot show significant correlations per location. Education had a positive and slightly high correlation with participation. More educated people are more likely to report being connected with nature. Finally, the religious affiliation of the respondents had significant correlation with the factors of partnership (r .308), participation (r .262) and stewardship (r .261).

Table 6: Frequency of respondents' responses to Human and Nature variable divided by religious affiliation

		Muslim	Catholic	Protestant	Hindu	Kepercayaan
Mastery	TDA	1.6	0	0	0	0
	DA	3.1	1.6	0	0	0
	NS	28.1	7.8	18.8	3.1	1.6
	A	21.9	0	10.1	1.6	0
	FA	0	1.6	0	0	0
Stewardship	TDA	0	0	0	0	0
	DA	0	0	0	0	0
	NS	0	0	0	0	0
	A	7.8	3.1	12.5	0	0
	FA	45.3	7.8	17.2	4.7	1.6
Partnership	TDA	0	0	0	0	0
	DA	0	0	0	0	0
	NS	0	0	4.7	0	0
	A	28.1	6.3	25	4.7	1.6
	FA	25	4.7	0	0	0
Participant	TDA	0	0	0	0	0
	DA	0	0	0	0	0
	NS	3.1	0	4.7	1.6	0
	A	28.1	4.7	25	1.6	0
	FA	21.9	6.3	0	1.6	0
Dependence on nature	TDA	0	0	0	0	0
	DA	0	0	0	0	0
	NS	9.4	1.3	7.8	0	0
	A	34.4	4.7	21.9	4.7	0
	FA	9.4	4.7	0	0	1.6
Nature as Threat	TDA	3.1	1.6	0	0	0
	DA	10.1	4.7	7.8	3.1	1.6
	NS	34.4	3.1	18.8	1.6	0
	A	4.7	0	3.1	0	0
	FA	0	1.6	0	0	0

Note: TDA: Totally Disagree; DA: Disagree; NS: Not Sure; A: Agree; FA: Fully Agree. Presented in percentage. Total Frequencies: Muslim (53.1%); Catholic (10.9%); Protestant (29.7%); Hindu (4.7%); Kepercayaan (Indigenous Religion) (1.6%).

Table 7: Correlation between Factors

No.		Mastery	Stewardship	Partnership	Participation	Dependence on Nature	Nature as a Threat
1	Gender		–.356**			–.291*	
2	Age				.284*	.313**	
3	Location			–.329**	–.278**		
4	Rural/ Urban						
5	Education level				.291*		
6	Occupation				.262*		
7	Religious matters		.277**		.260*		
8	Religious affiliation		–.261*	–.308**	–.262*		

Correlations are significant at p≤.00 level (**) or p≤.05 level (*). Insignificant correlations are not mentioned.

Conclusions and Discussion

In this pilot study we wanted to elaborate on the HaN scale in order to make it applicable to a study exploring whether religion (as an independent variable) influences which visions of human-nature interaction people in Indonesia relate to or resonate with. In this final part we first comment on the dependent variables. Next, we comment on their correlation with religious practice and religious affiliation. We end by giving some suggestions for further research.

In our pilot study we found that the first (humans as master of nature) and the sixth (nature as a threat) factors are distinctive in the sense that they have the lowest level of agreement to statements related to these two factors, but that the stewardship, partnership, participation, and dependence factors are not (Table 4). This is in line with other studies. De Groot, Drenthen, and De Groot (2011: 37) note that practically all respondents reject the vision of humans as master of nature, and that practically all adhere to the vision of guardianship (stewardship) (with some variation), as discussed below. These authors distinguish anthropocentric and non-anthropocentric visions and group the factors of partnership and participation under the latter. Thus, they end up with three factors for Western Europe (De Groot et al. 2011: 39).

Duong and Van den Born (2017: 18) also end up with three factors for their study in Vietnam, namely: mastery, guardianship, and eco-centrism, which includes participation and partnership. These authors rename 'guardianship' as 'family with nature' because the term 'family' resonates well with the Vietnamese worldview and it expresses better the relational value of this factor. 'Family with nature' has no instrumental value such as the master, and has no desire to unify with nature, as is the case with the participant model (Duong and Van den Born 2017: 15).

Although people have a tendency to freely mix positions that seem incommensurable in theoretical terms, e.g., adherence to both stewardship and partnership (De Groot et al. 2011: 40), we have come up with a conceptual classification for which there is empirical evidence. Our study shows that, when it comes to human—nature interaction, three distinct visions exist: one in which humans dominate nature (humans as master of nature), one in which nature dominates humans (humans are dependent on nature, nature as a threat to humans) and one in which humans and nature interact and are more or less on equal footing. The latter vision has some varieties and nuances that we found in interviews that we conducted. These need to be explored further by means of additional interviews: indeed, while surveys generally remain at the surface, interviews can allow for a more in-depth understanding.

On the basis of the literature, we expected to find the vision that nature is a threat to humans among our respondents. Secondary literature in the field of religion and ecology, along with media reports, convey the impression that whereas people in Europe try to master nature by technical means, e.g., by building higher and stronger dikes to protect people against flooding, people in Indonesia try to overcome the threat by religious means, e.g., by praying to God for protection (Joakim and White 2015: 199–200). These representations may be too simplistic; other scholars have explored how natural disasters may be seen as moral crises (Gade 2019). Moreover, our research indicates that the image of nature as a threat does not appear to resonate much with the Indonesian respondents to this survey. This may be explained by the fact that in our sample, educated people and Christians are overrepresented. However, as this is a pilot study, we do not see this as a weakness. It urges us to find more respondents with other religious and educational backgrounds in our large-scale study.

Our pilot study also found that the 'stewardship' factor was what most respondents adhered to, in the sense of expressing the highest level of agreement, followed by 'partnership' (Table 4). This finding might be explained by the fact that only a small portion of our

sample (15.6%) was from a rural area. However this may be, our finding endorses the conclusions of Duong and Van den Born (2011: 17) in their Vietnam study that 'East' and 'West' show remarkable similarities when it comes to findings on visions of nature, and that these visions are more universal, and less culture-, country-, or religion-dependent than one might think (Duong and Van den Born 2019: 19). Duong and Van den Born distinguish 'fundamental' and 'constructed' layers in visions of nature which might explain why universalistic and particularistic outcomes of visions of nature studies can both be true. For example, all humans share the need to belong (universal layer), but this need can be constructed in various ways (particular layer). This 'two-layered scheme', however, might be oversimplified and will, therefore, be explored further in our follow-up research.

Unlike Duong and Van den Born (2017: 11–12), who correlated visions of human and nature interactions with closeness to nature and involvement with nature, in our study we were interested in religion as an independent variable. For that reason, we correlated visions of humans and nature interaction with religious practice and religious affiliation. Our pilot study suggests that religious affiliation does not make a difference. Muslims, Catholics, Protestants, and Hindus are similar in accepting the stewardship, partnership, and participation models and rejecting the master model. Thus, based on our pilot study, White's thesis that we started with must be modified, as has been done by others (De Groot and Van den Born 2007: 345).

One can argue that Catholics, Protestants, and Muslims, who form the majority of our sample, represent monotheistic traditions. Although Hinduism in general is considered to be a non-monotheistic religion, the Hindus in our sample did not score differently compared to respondents coming from monotheistic traditions. This can be explained by the fact that Hinduism in Indonesia has adapted to monotheism (Picard 2011). It can also be explained by the fact that visions of human-nature interaction tend to be universal, as stated above. As the number of Hindus in our research is low (N=3), we do not want to state this conclusion categorically, but note that this would be interesting to elaborate on in follow-up research.

In contrast to religious affiliation, however, religious practice does make a difference. Those who practice religion to a lesser extent (as measured by how frequently they report discussing religious matters at home) tend to agree more with the 'mastery' vision than those who practice religion to a greater extent. This suggests that it is not what religion respondents practice (see the statement above on the religion-independency of agreements), but how religious they are (i.e., to what extent they practice religion) which makes a difference. There is more

evidence for the finding that environmentalists are more likely to be regular religious practitioners, (e.g., from the British Household Panel Survey, Gill 1999) and the European Values Survey (Hornsby-Smith and Procter 1995). Our pilot study indicates that people who are practicing religion less are more likely to agree with the image of human beings as masters of nature.

Drawing lessons for future research we advise that the scale be simplified and that items that overlap with other items be deleted. Second, we advise exploration of the relational model in a qualitative way by conducting interviews in order to discover varieties of this model. Third, as scholars of religion we advise a further exploration of how religions 'can be seen as particular constructs to make sense of the more universal mysteries and contradictions of life and world', in harmony with the 'two-layered scheme' suggested by Duong and Van den Born (2019: 19).

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