

Measuring the Rural and Urban Attitudes towards Wetlands Using the New Ecological Paradigm: Setiu Wetlands, Malaysia

Suziana Hassan^{1,2*}, Søren Bøye Olsen², Syamsul Herman Mohammad Afandi^{3,4}, Bo Jellesmark Thorsen^{2,5}

¹Faculty of Agriculture and Food Science, Universiti Putra Malaysia Bintulu Campus, Bintulu 97008, Malaysia

²Department of Food and Resource Economics, Faculty of Science University of Copenhagen, Rolighedsvej 23, Frederiksberg C 1958, Denmark

³Faculty of Forestry, Universiti Putra Malaysia, Serdang 43400, Malaysia.

⁴Institute of Tropical Forestry and Forest Product, Universiti Putra Malaysia, Serdang 43400, Malaysia.

⁵Center for Macroecology, Evolution, and Climate, University of Copenhagen, Rolighedsvej 23, Frederiksberg C 1958, Denmark.

Abstract

This study addresses the attitudes of the urban and rural dwellers towards Setiu Wetlands conservation. The New Ecological Paradigm (NEP) scale is adopted to measure the degree of environmental concern. A series of factor analysis and regression is applied to analyze the urban-rural attitudes and three factors structure of attitudes to wetland conservation is suggested. The urban-rural residential variable is able to predict in part the overall NEP scores and element of anti-anthropocentrism, where the urban communities are more positive towards wetland conservation. Therefore, outreach efforts are suggested in the rural population.

© 2016. The Authors. Published for AMER ABRA by e-International Publishing House, Ltd., UK. Peer-review under responsibility of AMER (Association of Malaysian Environment-Behaviour Researchers), ABRA (Association of Behavioural Researchers on Asians) and cE-Bs (Centre for Environment-Behaviour Studies), Faculty of Architecture, Planning & Surveying, Universiti Teknologi MARA, Malaysia.

Keywords: Setiu Wetlands conservation; urban-rural attitudes, New Ecological Paradigm

1. Introduction

Management of natural resources such as wetlands encompassed a varied spectrum of social components. It involves the community participation, politics and poverty exclusion, cultural, and resident's quality of life. As well as state economic, social and cultural benefits are the important factors of community participation in ecological protection (Eshliki & Kaboudi, 2012; Hajduová, Andrejovský, & Beslerová, 2014). It is inevitable that the wetland ecosystems are allied to the ecological, economic, and the landscape of the region. Despite many management initiatives, exclusion of the public opinions in conservation planning will contribute to the failure of managing performance (Datta, Chattopadhyay, & Guha, 2012). In a wetland conservation context, environmental externalities frequently occur such as the need for habitat and biodiversity preservation, risk of flooding, and ecological cost. Public preferences have an economic standing in any decision relating to environmental change. Consideration

* Corresponding author. Tel.: +0-000-000-0000

E-mail address: sbh@ifro.ku.dk

of welfare gains in rural and urban dweller on the hypothetical conservation project is a worthy initiative in resource management strategies. Population's attitudes towards natural resources are sometimes positive because, in the certain rural area, they have the belief that conservation could create economic benefits for them (Mbaiwa & Stronza, 2011; Rahman, Hasshim, & Rozali, 2015). It is a common practice nowadays to include local the population and their views and interests along with the other stakeholder groups into the natural resource planning and management process (Bandara & Tisdell, 2003). Many studies have found different attitudes towards the environment between the rural and urban populations (Badola, Barthwal, & Hussain, 2012; Bandara & Tisdell, 2003; Datta et al., 2012; Mbaiwa & Stronza, 2011). Therefore, the study and analysis of different preferences towards Setiu Wetlands conservation could inform conservation planning and management.

This paper builds upon existing studies on environmental attitudes and extends the works on New Ecological Paradigm (NEP) Scales and analyze the effects of residence area on that scales and dimension based on regression approaches. We adopt the measures of the revised version NEP Scale, which has been established by Dunlap, Liere, Mertig, & Jones (2000). They divided the items in the NEP Scale into five core facets of individual attitudes towards the environment. These are 'limit to economic growth', 'anti-anthropocentrism', the 'fragility of nature balance', 'rejection of human exemptionalism', and the 'possibility of potentially catastrophic environmental changes' or 'eco-crisis'. The essential focus of this paper is to access the different attitudes held by urban and rural populations using NEP scale as the measurement tool. Thus, we explicitly test the differences between these dwellers and analyze whether their environmental concerns can be linked to their view regarding the management of wetland conservation.

In the next section, we briefly review the studies addressing the general context of wetland conservation, an overview of the NEP Scales, and finally the urban-rural attitudes towards conservation. Section 3 presents how the study is designed and analyzed to get meaningful outputs. We then present and discussed the results in Section 4 before concluding in Section 5.

2. Literature Reviews

2.1. The context of wetland valuation for conservation

Wetlands have frequently been viewed as unproductive areas, and converted to agriculture or industrial uses and often being undervalued in decisions relating to their use and conservation (Brander et al., 2012). Although reduced in extent, Southeast Asia's remaining natural and semi-natural wetlands still support tremendous biodiversity wealth, including many endemic and threatened species. Examples of remaining wetlands in Southeast Asia are Sungai Buloh Wetland Reserve (Singapore), Moeyungyi Wetland Wildlife Sanctuary (Myanmar), Xuan Thuy Natural Wetland Reserve (Vietnam), Krabi Estuary Wetlands (Thailand), and Tasik Bera (Malaysia). In Malaysia itself, six wetlands have been recognized as a Ramsar sites i.e. Tasik Bera, Tanjung Piai, Pulau Kukup, Sungai Pulai, Kuching Wetland, and Lower Kinabatangan-Segama Wetland (Asean Center Biodiversity, 2011).

The vast amount of natural resources endowed in Malaysia includes rich of wetland forest, which is most diverse and complex ecosystems of the earth. These natural resources have been identified to provide habitats for many species, and they have significant impacts on the region e.g. towards hydrological, biological and ecological roles in the ecosystem (Ibrahim, Aziz, & Hanifah, 2012; Ibrahim, Hua, Aziz, & Hanifah, 2013; Kasawani & Kamaruzaman, 2009). However, these areas are continuously cleared for cultivation of cash crops, particularly for palm oil and other agricultural products to meet domestic and international demands. The development of the wetland management strategies is hindered because little data is available on the status and the extent of Malaysia's wetlands. Setiu Wetlands in Terengganu is one of the undervalued and potentially to be degraded wetland of the region because relatively unknown and lack of published documentation. It was claimed to be a unique and beautiful area because of the combination of nine interconnected ecosystems and is a habitat for a diversity of flora and fauna (Amin & Hasan, 2003). However, to the date, only a few published documents that highlight the inherent and potential value of this wetland (Azmi, 2014; Nik Fuad Kamil, 2008).

2.2. Urban and rural attitudes on environmental conservation

The degradation of ecosystems remains a matter of concern in many countries. An effective conservation of natural resources management is possible only with an understanding of the attitudes and perceptions of the communities around the wetlands (Badola et al., 2012). In many developing countries, negative attitudes of residents towards conservation may

contribute to the failure of biodiversity conservation (Mbaiwa & Stronza, 2011). Marginalized populations in Asia are often engaged in livelihood activities such as mangrove cutting, shrimp catching along riverbanks and development of aquaculture farms. Most of them are associated with wetlands areas that imply the uneven economic impact of conservation (Datta et al., 2012). It is comparable to Setiu Wetlands where the local people are involved in small-scale economic activities like crab fisheries in mangrove area for their live supports. It is undeniable that the rural communities may feel challenged by the conservation project (Bandara & Tisdell, 2003) while urban dwellers in general mostly favor wetlands protection. Hence, the future survival of the wetlands area depends on the attitudes of both parties. Support for wetland conservation projects depends on the public's attitudes towards environmental issues, and knowledge of these can be useful for policy decisions.

2.3. New Ecological Paradigm

The purpose of using the New Ecological Paradigm (NEP) in this study is to measure resident's environmental attitudes. The revised NEP scale first developed by Dunlap et al. (2000) is composed of 15 Likert-scale statements (Table 1) intended to measure five core facets of individuals' attitudes towards the environment. This measures of environmental concerns have been applied in many studies (Amburgey & Thoman, 2012; Dunlap, 2008; Hawcroft & Milfont, 2010; Pienaar, Lew, & Wallmo, 2013; Stern & Dietz, 1994). Schultz & Zelenzy (1999) and de Groot & Steg (2008) also applied the NEP Scale as a measure of environmental attitudes and found it is useful in clarifying the value bases of environmental concern. A recent study was done by Pienaar, Lew, & Wallmo (2015) who tested the effect of survey context in measuring environmental attitudes using NEP Scales. Since then, it has been suggested to other researchers and environmentalist to integrate the NEP Scale in sophisticated socio-psychological models of environmental concern and behavior (Dunlap, 2008). Socio-demographic variables and individual preferences are important to consider in measuring the five facets of environmental concerns and their distribution in the public (Cordano, Welcomer, & Scherer, 2003).

Table 1. The revised New Ecological Scale

NEP Items	NEP Statements	Environmental Facets
NEP 1	We are approaching the limit of the number of people the Earth can support.	Limit to economic growth
NEP 2	Humans have the right to modify the natural environment to suit their needs.	Anti-anthropocentrism
NEP 3	When humans interfere with nature, it often produces disastrous consequences.	Fragility of nature balance
NEP 4	Human ingenuity will ensure that we do not make the Earth unlivable.	Human exemptionalism
NEP 5	Humans are seriously abusing the environment.	Eco-crisis
NEP 6	The Earth has plenty of natural resources if we just learn how to develop them.	Limit to economic growth
NEP 7	Plants and animals have as much right as humans to exist.	Anti-anthropocentrism
NEP 8	The balance of nature is strong enough to cope with the impacts of modern industrial nations.	Fragility of nature balance
NEP 9	Despite our special abilities, humans are still subject to the laws of nature.	Human exemptionalism
NEP 10	The so-called "ecological crisis" facing humankind has been greatly exaggerated.	Eco-crisis
NEP 11	The earth is like a spaceship with very limited room and resources.	Limit to economic growth

NEP 12	Humans were meant to rule over the rest of nature.	Anti-anthropocentrism
NEP 13	The balance of nature is very delicate and easily upset.	Fragility of nature balance
NEP 14	Humans will eventually learn enough about how nature works to be able to control it.	Human exemptionalism
NEP 15	If things continue their present course, we will soon experience a major environmental catastrophe.	Eco-crisis

Source: Dunlap et al., (2000)

3. Survey Designed and Analyzes

This survey was designed to elicit respondents' attitudes towards wetland conservation measures in Setiu Wetlands, Terengganu, Malaysia. Surveyed respondents were presented with detailed information about four elements of conservation in Setiu Wetlands i.e. environmental protection, biodiversity, recreational services, and controlling the risk of floods in the area. Then, the measure of environmental concern that is 15 NEP Scale were asked according to 5-point Likert Scales. Besides that, the survey also contained socio-demographic section. The full-scale data collection was carried out from July 2014 until September 2014 using a face-to-face interview recruitment strategy across villages and towns in the areas adjacent to the wetlands. This sampling strategy was chosen since it is a possible way since a web-based survey would suffer heavily from coverage problems, and complete telephone or address listings are not available to obtain a suitable sampling frame. Furthermore, the respondents' concerns and questions could be addressed, and any clarification can be made on the spot. The sample was drawn using a systematic random sampling method. Specific locations were selected due to the time and cost constraints as well as accessibility factors. The classification of the urban-rural area is based on the value of the property and other modern facilities such as public schooling, shopping centers, and recreation sites. A total of 1137 respondents completed the survey questions.

The data were analyzed using Statistical Package for Social Study (SPSS) version 22.0. We initially conduct a factor analysis to test for the dimensionality of the NEP Scale using a measure of internal consistency and homogeneity tests. Then, the effect of the rural and urban residence variable on the NEP Scores were predicted by ordinary least squares (OLS) regression analysis. In this regression model, the effect of residence area were dummy coded with a variable name is 'Urban'. The value 1 represents for the urban people and 0 for rural people. In term of gender, the variable name is 'Male' is represented as a dummy. Other explanatory variables were also included to test whether the resident area can be an operative predictor for the environmental attitudes.

4. Results and Discussion

4.1. Descriptive analyses

Selected socio-demographic information collected in the survey is shown in Table 2. The largest share of respondents (69.2%) live in the urban area at the time survey. The rest of the respondents (30.8%) live in the rural area that are adjacent to the wetland site. Regarding gender, the proportion interviewed were different in both samples. More female were surveyed in the urban area while more male were interviewed in rural sites. This difference is possible because the man in the urban area was restricted to official working hours. In contrary to the rural area, they were not limited by time because most of them are a fisherman and self-employed. The mean age for urban and rural respondents were 37 years and 42 years respectively. The minimum and maximum age were interviewed in both area were 19 and 73 years old. Urban people hold a higher level of education as compared to the rural residents. It was as expected due to the quality of facilities and social components provided which discriminate the quality of life in this area (Herrera, Buitrago, Lorenzo, & Badea, 2015). The majority of respondents in both group, at least, finished their primary school. The largest share of rural respondents earned below the lowest income rate per anum, RM 12,000 (58.6%). Meanwhile, in the urban area, there was an almost similar share of income earning between the lowest and middle level. There were 14.5% of urban residents in the highest income bracket, in contrast to only 4.9% of rural

people. Given large income differences between urban and rural people, it is difficult to get urban and rural household income become more comparable due to the cost of living (Shi & Chuliang, 2010). The mean household size was five and six people in urban and rural households respectively. The minimum number of household size was a single person while the maximum in the house is 13 and 16 in urban and rural households. That is prevalent in a country like Malaysia where some parents have more than five children. In the some family, the children are not leaving their parents' house until they get married or having a spouse. A study claimed that be living together with offspring and parents could increase the sense of belongingness in community members (Zhang & Lin, 2012).

Table 2. Socio demographic variables separated by residence area

Variables	Urban		Rural	
	Frequency (787)	Percentage (69.2)	Frequency (350)	Percentage (30.8)
Gender				
Male	370	47	193	55.1
Female	417	53	157	44.9
Education				
Primary	35	4.4	78	22.3
Secondary	461	58.6	191	54.6
Diploma	119	15.1	34	9.7
Bach Degree	153	19.4	40	11.4
Post-graduate	18	2.3	4	1.1
None	1	0.1	3	0.9
Income / year (RM*)				
< RM 12000	305	38.8	205	58.6
RM 12000- RM 24000	265	33.7	93	26.6
RM 24000- RM 36000	103	13.1	35	10
> RM 36000	114	14.5	17	4.9
	Mean	Min / Max	Mean	Min / Max
Age	37	19 / 73	42	19 / 73
Household size	5	1/13	6	1/16

*Note: At the time of data collection, the currency exchange was USD 1 = RM 3.20 (2014)

4.2. Dimensionality of the NEP items

Before we proceed to the main test of factor analysis and regression, the NEP items were scaled and analyzed for the reliability of the data. Cronbach's alpha for the NEP Scales of this data is 0.571 which indicates that the data are almost characterized by internal consistency and homogeneity. A good reliability test of a particular data set with Cronbach's alphas of 0.84 to 0.89 will show a very clear factor structure, however, close to 0.60 is rather weak but still acceptable because some respondent were unfamiliar with the NEP statements (Abdullah, Said, & Omar, 2014; Costello & Osborne, 2005). Thus, the Cronbach's alpha suggest the factor structure will not be strong. An exploratory factor analysis using the Principle Component Analysis (PCA) was used on the 15 NEP items to identify the eigenvectors that contributed most to underlying factors about the environmental concern. The test measure of Kaiser-Meyer-Olkin is 0.711, and it is suggested that a minimum index of 0.6 is needed for good factor analysis. The Bartlett test also showed a significant value for factor analysis to be considered appropriate with p-value is lower than 0.05, the critical value. We can conclude that the sample available here is suitable for factor analysis though perhaps not very strongly structured. The orthogonal VARIMAX rotation method were selected because we believe the variable are not correlated to another in the correlation matrix.

Based on the first output of factor analysis for this data set, five factors with an Eigenvalue greater than one were retained. However, reanalyzing and evaluating performance, we restricted to three factors so that the data analyzed were more meaningful and interpretable. In the environmental literature, it is discussed that three different value orientations are relevant for understanding environmental beliefs and intentions (de Groot & Steg, 2008). These three-factor loading is accounting for 39.3% of total variance in the NEP Scales. Only items with factor loading more than 0.45 were retained and used for further analysis. The three NEP Scales component names were modified according to wetlands conservation suitability and based on the top two loaded items for each factor. The rotated factor loads sorted by the size and the new component names as presented in Table 3.

Table 3. The components of environmental attitudes

NEP Items	Factor 1	Factor 2	Factor 3	Mean	Standard Deviation
	Ecology and nature conserve	Economic Growth	Anti-anthropocentrism		
EP15	0.72			4.02	0.94
EP5	0.70			3.68	1.05
EP13	0.68			3.89	0.92
EP3	0.67			3.73	1.06
EP1	0.54			3.21	1.06
EP11	0.48			3.14	1.00
EP6		0.72		4.26	0.72
EP7		0.68		4.36	0.69
EP14		0.51		3.98	0.75
EP8			0.58	3.03	1.12
EP2			0.55	3.55	1.08
EP12			0.49	3.51	1.01
EP9			0.48	3.72	0.99
EP10			0.45	2.68	0.94
EP4			0.44	3.61	0.94
Eigenvalue	2.72	1.78	1.40		
% variance	18.10	11.86	9.30		
Cumulative % variance	18.10	29.96	39.26		

Cronbach's alfa	0.70	0.46	0.43
Extraction method: Principle Component Analysis (PCA). Rotation: Varimax with Kaiser Normalization			

4.3. Divergent of attitudes towards wetlands conservation

The result of our regression model is shown in Table 4. The first model is based on the regression of the individual total scores on the residential variable and socio-demographic variables. The next models are a regression of the variables on each of the three conservation attitudes as weighted in the factors 1 (ecology and nature conserve), 2 (the economic growth), and 3 (the anti-anthropocentrism). The goodness-of-fit measure, R² are relatively small across the models as is often the case for microdata. It implied the dimension reduce on NEP based scales in this study do not indicate high variations. Thus, we cannot say very much about the variances that explained by the explanatory variables in the model. Only selected variables were included in the models since our foundation focus is to assess the effects of urban and rural dwellers on the wetland conservation. The mean coefficient of the resident area is significantly different from zero in the total score of NEP and the 'anti-anthropocentrism' facet. The effects of positive direction indicate that the urban people hold positive attitudes on the overall scores and 'anti-anthropocentrism' dimension compared to rural dwellers. The result is also supported by a study like Fransson & Gärling (1999) and Pienaar et al., (2015) who found that residence area affects the environmental concern. Overall in the 'anti-anthropocentrism' segment, those who live in urban express higher awareness of the fragility of the nature balance that might be easily disturbed by the urbanization and industrialization as compared to rural communities. These urban people are also less likely to believe in human's ability to manage the environment.

On the other hand, we find no differences between urban and rural on the segment of 'ecology and nature reserve' and 'economic growth.' Both urban and rural are believe on the ecology crisis that faced by the earth which can cause catastrophic. There is also a similar opinion among these people about the limited space and resources that this earth can support. It was stated by Mombo, Speelman, Hella, & Van Huylenbroeck (2013), the sustainability of the natural resource and ecosystems are under serious threat due to human impact, advances in new technologies, increasing population and economic growth. Both dwellers area agree an action like limiting the economic growth should be considered in conserving the wetlands. They also think that the rights for plants and animals to exist as the human does.

In our samples, the older respondents tend to have a lower level of environmental concerns in the total NEP scores and lack of belief on the limited of earth resources. In contrast with findings in Pienaar et al., (2015) that is the eldest are more concern with resource constraints and environmental fragility. Male respondent in the sample holds slightly lower attitudes on all NEP facets as compared to female. However, the effects of gender are not marked on all models for wetland conservations. Respondents from larger households tend to hold positive attitudes towards ecology and natural conservation as well as the resource constraints. This finding is consistent with the prior research Johnson, Bowker, & Cordell (2004) on the nature participation. The mean for all environmental concern variables revealed a consistent and mildly positive attitudes on environment issues. This estimates could, therefore, be a useful instrument to understand better the human attitudes and beliefs on the environment, specifically for wetland conservation.

Table 4: Regression of environmental attitudes results with standard error in parentheses

Socio-demographic variables	Total NEP Score	Ecology and nature conserve	Economic Growth	Anti-anthropocentrism
(Constant)	53.90* (0.713)	0.012 (0.131)	0.243 (0.130)	-0.356* (0.131)
Urban	0.79* (0.362)	0.036 (0.066)	0.035 (0.066)	0.139* (0.066)
Age	-0.027*	-0.003	-0.012*	0.004

	(0.013)	(0.002)	(0.002)	(0.002)
Male	-0.236 (0.329)	-0.096 (0.060)	0.105 (0.060)	-0.001 (0.060)
Household Number	0.220* (0.076)	0.029* (0.014)	0.028* (0.014)	0.024 (0.014)
Mean Score	54.36	21.67	12.60	20.01
Adjusted R-squared	0.011	0.005	0.020	0.004
ANOVA, F	4.165*	2.313	6.713*	2.126

*significant at 5% level

5. Concluding Remarks

The empirical analyzes presented in this paper explored urban and rural people's attitudes towards Setiu Wetlands conservation as measured by the NEP Scales. In general, the majority of the respondent that is urban people have positive attitudes towards all wetlands conservation aspects as compared to rural respondents. These urban people hold strong attitudes on the overall NEP Scales and the element of 'anti-anthropocentrism.' However in term of attitudes on ecology and nature conservation as well as economic growth, they are not much different from rural people. The input of selected socio-demographic variables also demonstrates that there are significant influences on the measure of environmental concerns of age and number of the household. In particular, the conclusion about the attitudes on the wetland conservation may be inclined by the different types of residents area. Taking into account the view of those who live in the rural area prior to the planning and management is the most crucial point for a successful conservation. This types of dwellers have potential implications for decision makers because they tend to hold negative attitudes on conservation if their welfare being neglected. A strategic plan for induced outreach efforts on the rural communities to raises their support for conservation of Setiu Wetlands is suggested before further management action were taken place. It is suggested for future studies to investigate the level of concern and familiarity with a current issue regarding wetland conservation. It also recommended the study to measure welfare gained through economic valuation by the urban and rural people in Setiu Wetlands.

Acknowledgements

The authors acknowledge the Ministry of Education Malaysia and Universiti Putra Malaysia for financial assistance throughout the completion of this Ph.D. project. Our gratitude also goes to the research group of Responsible Rural Tourism Network and Ministry of Higher Education's (Malaysia) Long Term Research Grant Scheme (LRGS) Programme [Reference No.: JPT.S (BPKI) 2000/09/01/015Jld.4 (67)] for financial assistance during a preliminary visit. Many thanks to funding and supports from the University of Copenhagen.

References

- Abdullah, K., Said, A. M., & Omar, D. (2014). Community-based Conservation in managing mangrove rehabilitation in Perak and Selangor. *Procedia - Social and Behavioral Sciences*, 153, 121–131.
- Amburgey, J. W., & Thoman, D. B. (2012). Dimensionality of the New Ecological Paradigm: Issues of factor structure and measurement. *Environment and Behavior*, 44, 235–256.
- Amin, N. M., & Hasan, F. A. (2003). Setiu Wetlands: Tranquility amidst plenty. Kolej Universiti Sains dan Teknologi Malaysia.
- Asean Center Biodiversity. (2011). Wetlands Biodiversity in Southeast Asia : Areas of cooperation with ACB.
- Azmi, M. (2014). Valuing The potential economic value of mangroves resources in Setiu Wetlands, Terengganu, Malaysia: A Preliminary Findings. *International Journal of Education and Research*, 2, 487–504.
- Badola, R., Barthwal, S., & Hussain, S. A. (2012). Attitudes of local communities towards conservation of mangrove forests: A case study from the east coast of India. *Estuarine, Coastal and Shelf Science*, 96, 188–196.
- Bandara, R., & Tisdell, C. (2003). Comparison of rural and urban attitudes to the conservation of Asian elephants in Sri Lanka: empirical evidence. *Biological Conservation*, 110, 327–342.
- Brander, L. M., Wagtendonk, A. J., Hussain, S. S., McVittie, A., Verburg, P. H., de Groot, R. S., & van der Ploeg, S. (2012). Ecosystem service values for mangroves in Southeast Asia: A meta-analysis and value transfer application. *Ecosystem Services*, 1, 62–69.
- Cordano, M., Welcomer, S. a., & Scherer, R. F. (2003). An Analysis of the predictive validity of the New Ecological Paradigm Scale. *The Journal of Environmental Education*, 34, 22–28.
- Costello, A. B., & Osborne, J. W. (2005). Denpasar declaration on population and development. *Practical Assessment, Research & Evaluation*, 10, 1–9.

- Datta, D., Chattopadhyay, R. N., & Guha, P. (2012). Community based mangrove management: A review on status and sustainability. *Journal of Environmental Management*, 107, 84–95.
- de Groot, J. I. M., & Steg, L. (2008). Value orientations to explain beliefs related to environmental significant behavior. *Environment and Behavior*, 40, 330–354.
- Dunlap, R. E. (2008). The New Environmental Paradigm Scale: From marginality to worldwide use. *The Journal of Environmental Education*, 40, 3–18.
- Dunlap, R. E., Liere, K. D. Van, Mertig, A. G., & Jones, R. E. (2000). Measuring endorsement of the New Ecological Paradigm : A revised NEP scale. *Journal of Social Issues*, 56, 425–442.
- Eshliki, S. A., & Kaboudi, M. (2012). Perception of community in tourism impacts and their participation in tourism planning : Ramsar , Iran. *Journal of Asian Behavioural Studies*, 2, 51–64.
- Fransson, N., & Gärling, T. (1999). Environmental Concern: Conceptual Definitions, Measurement Methods, and Research Findings. *Journal of Environmental Psychology*, 19, 369–382.
- Hajduová, Z., Andrejovský, P., & Beslerová, S. (2014). Development of Quality of Life Economic Indicators with Regard to the Environment. *Procedia - Social and Behavioral Sciences*, 110, 747–754.
- Hawcroft, L. J., & Milfont, T. L. (2010). The use (and abuse) of the new environmental paradigm scale over the last 30 years: A meta-analysis. *Journal of Environmental Psychology*, 30, 143–158.
- Herrera, L., Buitrago, R. E., Lorenzo, O., & Badea, M. (2015). Socio-Emotional Intelligence in Colombian Children of Primary Education. An Analysis in Rural and Urban Settings. *Procedia - Social and Behavioral Sciences*, 203, 4–10.
- Ibrahim, I., Aziz, N. A., & Hanifah, N. A. (2012). The Laws of Wetness: The Legislative Framework in Malaysia Regarding Wetlands Conservation. *Procedia - Social and Behavioral Sciences*, 50, 574–581.
- Ibrahim, I., Hua, K. P., Aziz, N. A., & Hanifah, N. A. (2013). Hima as "Living Sanctuaries": An Approach to Wetlands Conservation from the Perspective of Shari'a Law. *Procedia - Social and Behavioral Sciences*, 105, 476–483.
- Johnson, C. Y., Bowker, J. M., & Cordell, H. K. (2004). Ethnic Variation in Environmental Belief and Behavior: An Examination of the New Ecological Paradigm in a Social Psychological Context. *Environment & Behavior*, 36, 157–186.
- Kasawani, I., & Kamaruzaman, J. (2009). Assessment of wetlands in Kuala Terengganu district using Landsat TM. *Journal of Geography and Geology*, 1, 33–40.
- Mbaiwa, J. E., & Stronza, A. L. (2011). Changes in resident attitudes towards tourism development and conservation in the Okavango Delta, Botswana. *Journal of Environmental Management*, 92, 1950–1959.
- Mombo, F., Speelman, S., Hella, J., & Van Huylenbroeck, G. (2013). How characteristics of wetlands resource users and associated institutions influence the sustainable management of wetlands in Tanzania. *Land Use Policy*, 35, 8–15.
- Nik Fuad Kamil. (2008). Ecosystem Functions and Services and Sustainable Livelihood of the Wetlands Communities. *The International Journal of Environmental, Cultural, Economic And Social Sustainability*, 4.
- Pienaar, E. F., Lew, D. K., & Wallmo, K. (2013). Are environmental attitudes influenced by survey context? An investigation of the context dependency of the New Ecological Paradigm (NEP) Scale. *Social Science Research*, 42, 1542–1554.
- Pienaar, E. F., Lew, D. K., & Wallmo, K. (2015). The importance of survey content: testing for the context dependency of the New Ecological Paradigm Scale. *Social Science Research*, 51, 338–349.
- Rahman, A. a., Hasshim, S. A., & Rozali, R. (2015). Residents' Preference on Conservation of the Malay Traditional Village in Kampong Morten, Malacca. *Procedia - Social and Behavioral Sciences*, 202, 417–423.
- Schultz, P. W., & Zelenzy, L. (1999). Values As Predictors of Environmental Attitudes: Evidence For Consistency Across 14 Countries. *Journal of Environmental Psychology*, 19, 255–265.
- Shi, L., & Chuliang, L. (2010). Re-estimating the Income Gap between Urban and Rural Households in China. *Procedia - Social and Behavioral Sciences*, 2, 7151–7163.
- Stern, P. C., & Dietz, T. (1994). The Value Basis of Environmental Concern. *Journal of Social Issues*, 50, 65–84.

Zhang, H., & Lin, S.-H. (2012). Sense of Community in Taiwan and its Relationships with the Residential Environment. *Procedia - Social and Behavioral Sciences*, 35, 335–343.