

Szabolcs Nagy*:
Values and Environmentally Conscious Behaviour (ECB)

Global environmental problems, depletion of resources, damages to the environment and overpopulation are considered to be the most important challenges of our post-modern age. Environmentally conscious marketing (ECM), using the results of other disciplines, is looking for answers to the above mentioned critical questions. Therefore ECM must concentrate on establish new environmentally conscious consumption patterns or at least changing the existing consumption patterns into a more environmentally-benign way parallel to greening the corporate behaviour patterns as well. That is why understanding consumer behaviour, analysing and predicting values, attitudes and motivation are of utmost importance. In this article the focus will be placed on values since these are considered to be as special filters in environmental conscious behaviour. Comparison of values regarding Eastern vs. Western cultures, or economically developed versus not developed countries is one of the most interesting sides of researches into environmental values. A Global Environmental Survey was carried out in several countries between 1997 and 1999. One of its main objective was to explore and analyse the differences in environmental values of the countries involved in the project. It made me possible to carry out a comparative analysis regarding the Schwartz value structure and Dominant Social Paradigm (DSP) versus New Environmental Paradigm (NEP) in Hungary. The outcomes of my research are quite surprising as the value structure of our students was almost completely different from that of Western or Eastern cultures, and that assumed and expected before the research. The characteristics and possible roots of the distinctions experienced in the Hungarian value structure will be shown in details here in this paper.

Environmental values play an important role in environmentally conscious behaviour as they are considered to be as special filters. Kaiser, Wölfling és Fuhrer (1999) have empirically justified that values have impact on ECB through environmentally-conscious behaviour intention. It was later reconfirmed by the outcomes of my own research carried out among the students of the University of Miskolc in 2004. Other aspects of this survey were to analyse the Schwartz value structure as well as to compare the Dominant Social Paradigm (DSP) with the New Environmental Paradigm (NEP).

There is no universal value definition in the marketing literature. According to Peter-Olson (1987) values 'are cognitive aspect of consumers' needs and desires.'. While Schwartz and Bilsky (1987) define value as '... a belief about a desirable end-state that transcends specific situations and guides selection of behaviour.'

Cross cultural comparison of values is one of the most important aspects of environmental value surveys. The comparison has been made on dimensions Eastern versus Western cultures or Economically Developed Nations versus Developing Countries. The starting point of all environmental value surveys is that each culture has its dominant basic values which have been learnt and accepted by everyone during socialisation. These basic values are often mixed with the product benefits in promotions. These basic values determine which product will be popular or at least accepted in a society. It is assumed that in a culture in which environmental values are dominant environmental protection and consumption of green

**Assistant Professor, Department of Marketing Strategy and Communication, Institute of Marketing, University of Miskolc*

products are also more important. Dominant environmental values can be manifested through environmentally conscious behaviour and green consumption patterns.

The original survey with which my survey was compared was part of an international comparative study entitled GOES (Global Environmental Survey). The survey was carried out in September 1997 in Japan, December 1997 in Bangkok, Thailand, and January 1999 in metropolitan Manila, Philippines, by the National Institute for Environmental Studies of the Japan Environment Agency (now called the Ministry of the Environment). Another team from the Institute for Social Research at Tilburg University in the Netherlands conducted a survey in that country from December 1997 to February 1998. My survey was carried out in the University of Miskolc in September 2004. The sample size was 333 students aged 21-16 years.

The original survey was published in *Human Ecology Review* in 2003. It made me possible to carry out a comparative analysis regarding the Schwartz value structure and Dominant Social Paradigm (DSP) versus New Environmental Paradigm (NEP) in Hungary. In the original research data from international comparison surveys was analysed to explore differences in environmental values amongst Asian and Western countries. It was found that the structure of environmental values in Asian countries differs from those in Western countries. While an environmental way of thinking conforms to traditional Asian values of honouring parents and family security, Western people believe that such thinking opposes their traditional values. These structural differences, which have been documented by White (1967) and by several Japanese researchers (e.g., Watanabe 1995), are confirmed and clarified by the original surveys. The original study reveals the following conclusions. First, in the Netherlands and the United States, environmental values are linked with altruistic values that are perceived as being contrary to traditional values. In Japan, Bangkok, and Manila, environmental values are linked with both traditional and altruistic values. Second, environmental values are contrary to egoistic and progressive values in all surveyed countries. Third, factors encouraging environmental actions differ by country and by type of actions.

White (1967) insisted that the idea of human dominance over nature caused the destruction of nature in Christian countries, but Watanabe (1995) insisted that Japanese people do not have the same concept of nature as Western people. *Shizen*, the word for nature that is currently used in Japan, is borrowed from Chinese and has a different meaning from the Western concept. Most Japanese do not draw a clear boundary between humans and nature, while Westerners discuss nature in the context of its relationship to humans.

Researchers in western countries have been trying to analyse values in a common framework. Among them, Inglehart (1977, 1981, 1995, 1996), Inglehart and Carballo (1997), and Inglehart and Abramson (1999) found that his postmaterialist thesis was much related to the emerging environmentalism. Both postmaterialism and materialism are distinguished by a combination of items that refer to the condition of democracy. For postmaterialism, it is "giving people more say in important government decisions," and "protecting freedom of speech;" for materialism, it is "maintaining order" and "fighting rising prices." Researchers who chose other combinations of "giving people more say in important government decisions" and "maintaining order," or "protecting freedom of speech" and "fighting rising prices" are categorized as "mixed." Inglehart used other surveys to show that generational effect and also that the environmental values of a society are affected by its social and economic situation. This thesis is well known and fits well with data at the nation-state level in developed countries. However, there has been much criticism of this thesis. Brechin and

Kempton (1994) maintain that this thesis is not appropriate for explaining globally emerging environmentalism, especially in developing countries. (See other criticisms, Brechin and Kempton 1997; Kidd and Lee 1997; Dunlap and Mertig 1997; Pierce 1997, and for Inglehart and others' responses, see Abramson, 1997; Inglehart and Abramson, 1999).

The postmaterialist thesis is based on Rokeach's value theory (Rokeach 1973). Schwartz and Blisky also analysed general value structures based on Rokeach's, using data from five countries and, later, twenty countries (Schwartz and Blisky 1987, 1990; Schwartz 1992); their five-country study included one Asian society, Hong Kong. They found that the value structure was slightly different in the Hong Kong sample from the samples of Western countries, but the values themselves were not different. Specifically, they found that "the meaning of the values and domains were not different for the Hong Kong sample. What differed was the perception of domains as compatible or in conflict. Value domains seen as incompatible in the West were seen as compatible in Hong Kong." Furthermore, they explain the differences "based on contrasts between Confucianist and Western thought" that can be clarified by "replications (of surveys) in Chinese cultures and studies in Islamic, Buddhist, and other cultures." A number of researchers have explored values concerning the environment. Dunlap and Van Liere (1978) first proposed the New Environmental Paradigm (NEP), "composed of three distinct dimensions — balance of nature, limits to growth, and anthropocentrism" (Dunlap and Jones 2002). The concepts of NEP contrast popularly accepted worldviews (the dominant social paradigm) that emphasize mass consumption and economic growth. Using a similar framework, Milbrath (1984) compared NEP and the dominant social paradigm in three Western countries: United States, Germany, and the United Kingdom. Karp (1996) tested the relationship between general values and environmental values. The George Mason University group (Stern, Dietz and Kalof 1993; Stern, Dietz 1994; Stern, Dietz and Guagnano, 1995; Stern, Dietz, Kalof and Guagnano 1995; Stern 1998; Stern, Dietz, Guagnano and Kalof 1999; Stern 2000; Dietz, Kalof and Stern 2002) has been investigating general and environmental values, including NEP. Using NEP and Schwartz's general value items, they derived four factors in the structure of general values. They called these factors biospheric- altruistic, egoistic, openness to change, and traditional (conservative). According to their results, biospheric-altruistic values, egoistic values, and traditional values are significantly correlated with items in the NEP. The components of each of these factors are shown in Table 3 with my own analysis. Biospheric-altruistic values include unity with nature, respecting the earth, protecting the environment, and a world at peace, equality, and social justice. Egoistic values include authority, wealth, and influence. Traditional values include honoring parents and elders, family security, and self-discipline. Most research about environmental values has been done in the United States; few studies have been conducted in Asian or European contexts. One exception is the series of comparative studies by Pierce et al. (1987) in which they applied Inglehart's postmaterialist theory and Dunlap's NEP to both Japan and the United States. Japanese respondents showed a higher percentage of acceptance for NEP items, even among the materialist group, than did their counterparts in the United States. The authors reached a very interesting conclusion: "Unlike the United States, then, in Japan the New Environmental Paradigm is not really all that new."

Analysis of the modified version of Schwartz's general value items

In the original and in my Hungarian survey a modified version of Schwartz's general value items and economy-versus-environment items were used to clarify the value basis of environmental attitudes and

proenvironmental behaviour, and to compare these among the study populations. The modified Schwartz items were developed by the George Mason University group (Stern, Dietz and Kalof 1993; Stern, Dietz and Guagnano 1995) into a twelve-item system that is especially relevant to environmental attitudes and behaviour.

Biospheric values include unity with nature, respecting the earth, protecting the environment, while altruistic values include a world at peace, equality, and social justice. Egoistic values include authority, wealth, and influence. Traditional values include honouring parents and elders, family security, and self-discipline.

In the original survey Japan and Thailand were compared because they are the only countries in Asia where the main religion is Buddhism, and because they have not been colonized by Western countries in the past (although Japan was occupied by the United States after World War II for six years). Thailand is categorized as a newly industrialized economic society. There is still a big economic gap between the two countries, which was tried to reconcile by using a sample from the so-called “new middle class” in Thailand. The Philippines is the only country in Asia where the main religion is Catholicism (82% of respondents). Its history is complicated. It had no national king before being colonized, first by Spain, and then by the United States, briefly by Japan in Word War II, and again briefly by the United States before independence. The country is very much influenced by American culture. Because the schools teach in English, all of our interviews there were conducted in English. Hungary is considered to be a developing country, where the main religion is Catholicism. It is worth mentioning that between 1945 and 1989 the number of atheists was significantly increased. After the transition the American and Western European culture significantly affected Hungary. So I assumed that the Hungarian value structure might be similar to that of the Philippines besides the obvious cultural differences and the big geographical distance between the two countries. Therefore *I hypothesized that the value structure of the Hungarian youths shall be similar as that of the Philippines, which is a newly industrialised, ex-colonised, developing country with significant American cultural effects, where the main religion is the Catholicism. So traditional and egoist values shall compose distinct factors, while biospheric and egoist values shall be in the same factor.*

Results

I asked respondents to evaluate each of twelve general value items with the following question: “Please tell me how important each of these is as a guiding principle in your life.” I asked respondents to rate the importance on a fivepoint scale from “completely unimportant” to “extremely important,” and included the voluntary options, “this item is against my (respondent’s) principles” and “don’t know.”

	Values	Value category	mean	St dev
1	family security	traditional	4,92	0,45
2	honouring parents and elders	traditional	4,27	0,78
3	self-discipline	traditional	3,86	0,81
4	a world at peace	altruist	4,03	1,02
5	social justice	altruist	3,88	0,86
6	unity with nature	biospheric	3,83	0,90
7	equality	altruist	3,75	1,02
8	respecting the earth	biospheric	3,65	1,02

9	wealth	egoist	3,41	0,95
10	authority	egoist	2,37	1,16
11	influence	egoist	2,69	1,09
12	protecting the environment	biospheric	4,18	0,82

Table 1 - Descriptive statistics of the modified version of Schwartz's general value items, n=333, 2004

Descriptive statistical analyses revealed that the most important value was family security, followed by honouring parents and elders and protecting the environment. These strength of these values were ranged from very important to extremely important. The least important value was authority, influence and wealth. These values were not so important for the Hungarian respondents. Considering the fact that my respondents were university students studying economics, and presumably they are the next generation of company managers and staff, these results are more than a big surprise.

Descriptives

	mean	St. dev.	N
Altruist values	3,88	0,72	333
Biospheric values	3,89	0,77	333
Traditional values	4,35	0,53	333
Egoist values	2,83	0,88	333

Table 2 – Importance of value factors

Table 2 shows that traditional values are determiners in the life of my respondents, while biospheric and altruist values are equally important, and egoist values are not important at all.

I applied factor analysis to categorize the general value items. The previous results for each country are shown in Table 3, together with those of the U.S. samples by the George Mason University group (Stern, Dietz, and Guagnano 1995) for reference. By using factor analysis, for each country three factors with eigenvalues larger than 1 were derived.

Japan*	Factor-weight	Holland*	Factor-weights	USA*, ***	Factor-weight	Thailand*	Factor-weight	Philippines*	Factor-weight	Hungary**	Factor-weight
<i>Factor 1 – Biospheric-traditional</i>		<i>Factor 1 – Biospheric-altruist</i>		<i>Factor 1 – Biospheric-altruist</i>		<i>Factor 1 – Biospheric-altruist</i>		<i>Factor 1 – Traditional</i>		<i>Factor 1 – Biospheric</i>	
A world at peace	0,79	Respecting the Earth	0,72	Unity with nature	0,81	Unity with nature	0,80	Family security	0,85	Unity with nature	0,83
Family security	0,87	Unity with nature	0,70	Respecting the Earth	0,74	Self discipline	0,72	Honouring parents and elders	0,76	Respecting the Earth	0,79
Respecting the Earth	0,65	Protecting the environment	0,63	Protecting the environment	0,81	Protecting the environment	0,63	Self discipline	0,71	Protecting the environment	0,79
Protecting the environment	0,61	Social justice	0,53	A world at peace	0,69	Equality	0,61	A world at peace	0,66		
Honouring parents and elders	0,46	A world at peace	0,52	Equality	0,64						
		Equality	0,48	Social justice	0,59 0,55						
				Helpfulness	0,53						
				World of							

Eigenvalue	3,308	Eigenvalue	3,038	beauty <i>Belonginess</i>	0,43	Eigenvalue	3,496	Eigenvalue	4,064	Eigenvalue	3,760
Factor 2 - Altruist		Factor 2 - Egoist		Factor 2 - Egoist		Factor 2 - Traditional		Factor 2 - Biospheric-altruist		Factor 2 - Traditional-altruist	
Influence	0,62	Authority	0,79	Authority	0,67	Family security	0,76	Social justice	0,68	Honouring parents and elders	0,83
Equality	0,58	Influence	0,76	Wealth	0,48	Respecting the Earth	0,63	Unity with nature	0,68	Family security	0,68
Self discipline	0,58	Self discipline	0,30	Influence	0,44	Honouring parents and elders	0,63	Equality	0,62	A world at peace	0,61
Social justice	0,56				0,62	A world at peace	0,60	Respecting the Earth	0,49	Social justice	0,50
Unity with nature	0,52			Social power		Social justice	0,49			Self discipline	0,49
Eigenvalue	1,342	Eigenvalue	1,452			Eigenvalue	1,617	Eigenvalue	1,545	Eigenvalue	2,123
Factor 3 - Egoist		Factor 3 - Traditional		Factor 3 - Traditional		Factor 3 - Egoist		Factor 3 - Egoist		Factor 3 - Egoist	
Wealth	0,79	Family security	0,72	Honouring parents and elders	0,85	Authority	0,78	Wealth	0,73	Authority	0,86
Authority	0,78	Wealth	0,66	Family security	0,62	Influence	0,70	Authority	0,70	Influence	0,84
		Honouring parents and elders	0,52	Self discipline	0,56	Wealth	0,62	Influence	0,68	Wealth	0,73
					0,71						
				Honesty							
				<i>Obedience</i>	0,54						
				<i>Orderliness</i>	0,49						
				<i>Politeness</i>	0,46						
				<i>Social order</i>	0,46						
				<i>Loyalty</i>	0,40						
1,097		1,151				1,160		1,102		1,078	
48%		47%				52%		56%		58%	

Table 3- Schwartz's value items factor components (method: Principal Factor Analysis)

* Source: Aoyagi-Usui, Vinken és Kuribayashi (2003), Human Ecology Review, Vol. 10, No. 1, ** my own research in Hungary, *** George Mason University Group results (see Stern, Dietz és Guagnano, 1995). This survey included more than 12 items. Extra items are put in italics.

KMO and Bartlett test confirmed that factor analysis is a proper method in this case.

KMO & Bartlett test

Kaiser-Meyer-Olkin measure	,809
Bartlett test and estimated Chi-square	1136,098
Degree of freedom	66
significance	,000

Table 4 – Results of KMO and Bartlett-test

The three result-factors are explaining 58,012 % of whole variance, which is at an adequate level.

Whole variance explained

Components	Initial eigenvalues			Sum of square factor weights			Sum of square rotated factor weights		
	total	variancia %	cumulated %	total	variancia %	cumulated %	total	variancia %	cumulated %
1	3,760	31,336	31,336	3,760	31,336	31,336	2,413	20,107	20,107
2	2,123	17,690	49,026	2,123	17,690	49,026	2,373	19,777	39,884
3	1,078	8,986	58,012	1,078	8,986	58,012	2,175	18,128	58,012
4	,858	7,154	65,166						
5	,735	6,126	71,292						
6	,655	5,460	76,752						
7	,625	5,206	81,958						

8	,578	4,817	86,775
9	,456	3,797	90,572
10	,422	3,519	94,091
11	,368	3,069	97,160
12	,341	2,840	100,000

Table 5 – explained variance (Method. Principle Factor Analyses (PFA))

The result-factors are as follows:

values	Factor components		
	biospheric	Traditionalist- altruist	egoist
family security	0,19	0,68	0,23
honouring parents and elders	0,00	0,83	0,09
self-discipline	0,27	0,49	0,21
a world at peace	0,28	0,61	-0,27
social justice	0,42	0,50	0,07
unity with nature	0,83	0,15	0,05
equality	0,36	0,45	0,07
respecting the earth	0,79	0,21	-0,12
wealth	-0,01	0,18	0,73
authority	0,02	0,02	0,86
influence	0,04	0,06	0,84
protecting the environment	0,79	0,22	0,07

Method. Principle Factor Analyses (PFA), Rotation: VARIMAX with Kaiser normalisation. Number of iteration. 5.

Table 6 - Rotated component matrix

The three components, showing the value structure of our marketing students, resulting from the factor analysis is unique as the Hungarian value structure is not similar to any of those countries also involved in the surveys.

- Biospheric values can be found in a distinct factor-component only in Hungary. In any other cases these values are mixed with other values. In countries representing the Western cultures (USA and the Netherlands), in the Philippines (maybe due to the American effect) and even in Thailand biospheric values are mixed with altruist ones in a single factor-component, while in Japan biospheric values are linked to traditional ones.
- Traditional and altruist values can be found in the same component only in Hungary.

In Table 3 the different factor components of values for each country are clearly shown. For Japan's data, factor 1 was labelled as "biospheric-tradition" because it includes two items of tradition and two environmental items. Factor 2 was labelled "altruistic" because three altruistic items are included, although one was related to the environment (unity with nature). Factor 3 was labelled "egoistic," which includes wealth and authority. For the data from the Netherlands and the United States, three environment-related items (respecting the earth, unity with nature, and protecting the environment) were grouped with altruistic items such as social justice, a world at peace, and equality. But in Japan, they were grouped differently. Factor 1 was labelled as biospheric-altruistic, factor 2 as egoistic, and factor 3 as tradition. Table 3 also compares responses from the Asian countries. In all three countries, environment-related items were categorized differently. In Japan, two environment-related items were grouped with the traditional items, and another one with altruistic items. In Bangkok and Manila, two environment-related items were grouped with altruistic items, and

As I mentioned before, my survey in Hungary revealed a unique value structure as biospheric and egoist values composed different factor components, while altruist and traditional values were mixed in a third, separated component. Therefore my hypothesis must be rejected.

Component Plot in Rotated Space



Why participating in selective waste collection?

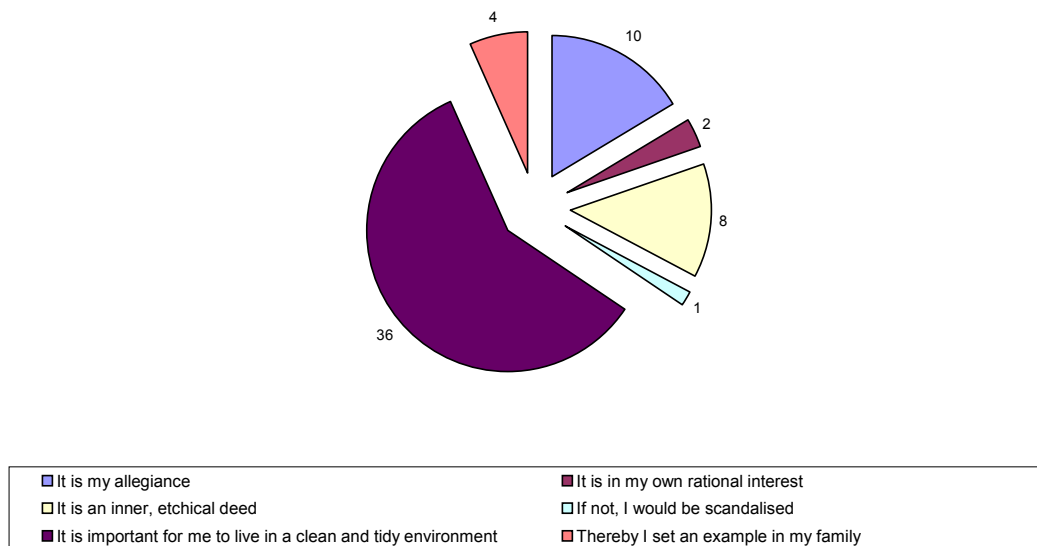


Chart 2 – Motivation factors of participating in selective waste collection, Miskolc, n=800, 2004

Literature

1. Abramson, P. 1997. Postmaterialism and environmentalism: A comment on an analysis and appraisal. *Social Science Quarterly* 78(1), 21-23.
2. Aoyagi-Usui M., Vinken H. és Kuribayashi A. : Pro-environmental Attitudes and Behaviors: An International Comparison, *Human Ecology Review*, Vol. 10, No. 1, 2003
3. Brechin, S. R. and W. Kempton. 1997. Beyond Postmaterialist values: National versus Individual Explanations of Global Environmentalism. *Social Science Quarterly* 78 (1), 16-20.
4. Brechin, S. 1999. Objective problems, subjective values, and global environmentalism: Evaluating the postmaterialist argument and challenging a new explanation. *Social Science Quarterly* 80, 783-809.
5. Brechin, S. and W. Kempton. 1994. Global Environmentalism: A Challenge to the Postmaterialism Thesis? *Social Science Quarterly* 75(2), 245-269.
6. Dietz, T., L. Kalof. and P. Stern. 2002. Gender, values, and environmentalism. *Social Science Quarterly* 83(1), 353-364.
7. Dunlap, R. and A. G. Mertig. 1977. Global environmental concern: An anomaly for postmaterialism. *Social Science Quarterly* 78(1), 24-29.
8. Dunlap, R. and Robert Emmet Jones. 2002 Environmental concern: Conceptual and measurement issues. In Michelson W. (ed.), *Handbook of Environmental Sociology*. Westport CT: Greenwood Press
9. Dunlap, R. and K. D. Van Liere. 1978. The new environmental paradigm: A proposed measuring instrument and preliminary results. *Journal of Environmental Education* 9, 10-19.
10. Ester, P., H. Vinken, S. Simoes and M. Aoyagi-Usui (Eds.): *Culture and sustainability. A cross-national study of cultural diversity and environmental priorities among mass publics and decision makers*. Amsterdam: Dutch University Press, 2003
11. Inglehart, R. and P. R. Abramson, 1999. Measuring postmaterialism. *American Political Science Review* 93(3), 665-667.
12. Inglehart, R. and M. Carballo. 1997. Does Latin America exist? (And is there a confusion culture?): A global analysis of cross-cultural differences. *PS: Political Science and Politics* 34-46.
13. Inglehart, R. 1996. Generational shifts in citizenship behaviours: The role of education and economic security in the declining respect for authority in industrial society. *Prospects* XXXVI(4), 653-662.
14. Inglehart, R. 1977. *Culture Shift in Advanced Industrial Society*. New Jersey: Princeton University Press.
15. Inglehart, R. 1981. Post-materialism in an environment of insecurity. *The American Political Science Review* 75, 880-900.
16. Inglehart, Ronald. 1995. Public support for environmental Protection: Objective problems and subjective values in 43 societies. *PS: Political Science and Politics* 15, 57-71.
17. Kaiser, F., Wolfing S. and Fuhrer U.: Environmental attitude and ecological behaviour, *Journal of Environmental Psychology* 1999 19, 1-19.
18. Kidd, Q. and A. Lee. 1997. Postmaterialist values and the environment: A critique and reappraisal. *Social Science Quarterly* 78(1), 1-15.
19. Karp, D. G. 1996. Values and their effect on pro-environmental behavior. *Environment and Behavior* 28(1), 111-133.

20. Lee, A. R. and Q. Kidd. 1997. More on postmaterialist values and the environment. *Social Science Quarterly* 78(1), 36-43.
21. McKean, M. 1981. *Environmental Protest and Citizen Politics in Japan*. University of California Press.
22. Milbrath, L. 1984. *Environmentalists: Vanguard for a New Society*. Albany: State University of New York Press.
23. Peter P. and Olson J.: *Consumer Behaviour*, Irwin, Homewood, Ill., 1987
24. Pierce, J., P. Lovrich Jr., P. Nicholas, T. Tsurutani, and T. Abe. 1987. Culture, politics and mass publics: Traditional and modern supporters of the New Environmental Paradigm in Japan and the United States. *The Journal of Politics* 49, 54-79.
25. Pierce, J. C. 1997. The hidden layer of political culture: A comment on "Postmaterialist values and the environment: A Critique and reappraisal." *Social Science Quarterly* 78(1), 30-35.
26. Rokeach, M. 1973. *The Nature of Human Values*, New York: Free Press
27. Schwartz, S. H. and W. Bilsky, W. 1987. Toward a universal psychological structure of human values. *Journal of Personality and Social Psychology* 53(3), 550-562.
28. Schwartz, S. H. and W. Bilsky. 1990. Toward a theory of the universal content and structure of values: Extensions and cross-cultural replications. *Journal of Personality and Social Psychology* 58(5), 878-891.
29. Schwartz, S. H. 1992. Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries. *Advances in Experimental Social Psychology* 25,1-65.
30. Stern, P. C., T. Dietz and L. Kalof. 1993. Value orientations, gender, and environmental concern. *Environment and Behavior* 25(3), 322-348.
31. Stern, P. and T. Dietz. 1994. The value basis of environmental concern. *Journal of Social Issues* 50 (3), 65-84.
32. Stern, P., T. Dietz, L. Kalof and G. A. Guagnano. 1995. Values, beliefs, and proenvironmental action: Attitude formation toward emergent attitude objects. *Journal of Applied Social Psychology* 25 (18), 1611-1636.
33. Stern, P. C., T. Dietz and Guagnano G. A. 1995. The new ecological paradigm in social-psychological contexts. *Environment and Behavior* 27(6), 723-743.
34. Stern, P. 1998. A brief inventory of values. *Educational and Psychological Measurement* 58 (6) 984-1001.
35. Stern, P. 2000. Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues* 56 (3), 407-424.
36. Watsuji T. 1935/1979. *Natural Climate — From the Perspective of Human and Climate*. Tokyo: Iwanami Publishers.
37. Watanabe, M. 1995. The Japanese view of nature in the modern era: A comparison with Westerners. In Shuntaro Ito (ed.), *Japanese View of Nature*. Tokyo: Kawade Publishers.
38. White, Lynn, Jr. 1967. The historical roots of our ecological crisis. *Science* 155-3767, 1203:1207.