

# Environmental Perceptions across Nations

Dariush Damoori<sup>1</sup>, Mehran Nejati<sup>2</sup>, Sasan Ghasemi<sup>3</sup>

<sup>1</sup> Department of Economics, Management, and Accounting, Yazd University, Iran,

<sup>2</sup> School of Management, Universiti Sains Malaysia (USM), Malaysia,

<sup>3</sup> CEO, ALA Excellence Consulting Group, Iran.

## Abstract

Development of various industries and technologies accompanied by the consumerism habits around the world has led to a global pollution crisis. The issue of global warming is now more critical than the previous century. While in the eyes of general public industries and governments should take the main responsibility in environmental endeavours, the current environmental crisis throughout the world takes more than a stand alone effort and requires a global responsibility by all citizens of the planet. Therefore it is important to raise awareness among people in order to encourage such a responsibility by all individuals. To this end, the current research aims to tackle this issue further by investigating the perception of world citizens on environmental problems and protection. This study applies secondary data and includes a total sample of 5640 respondents across 4 countries namely China, Spain, Thailand and Turkey.

**Key words:** Environment, environmental protection, environmental problem, cross-cultural

## Introduction

As environmental pollution has turned into a world crisis accompanied by public concern for global warming and its adverse consequences, it is essential for all citizens of the planet to take environmental preservation seriously. Climate changes, the ozone layer depletion, changes in the water reserves, land degradation, and loss of biodiversity, among others, are accurate indications of changes which can have unpredictable consequences on the planet (de Faria *et al.*, 2009). At this point every individual is responsible for en-

vironmental preservation more than ever. Such a global effort and awareness is required to ensure a sustainable planet for our future generations. However, environmental preservation derives from environmental perception. According to Bechtel (1997), environmental perception shapes our knowledge of the environment and involves interpretation of events or information. Because environmental issues have reached the status of a global problem since the last quarter of the twentieth century (de Faria *et al.*, 2009), it is important to conduct a study at a global scale and investigate the perception of individuals as global citizens on environmental issues and problems. The purpose of the present study is to investigate the perception of world citizens on environmental problems and protection.

## Data Sources, Variables and Scales

This study applied secondary data for its analysis. The required data was downloaded from World Values Survey (2009) publicly available for researchers. The variables examined in this research include “perception of environmental problems in the world”, “perception on the responsible organization to protect the environment”, and “environmental beliefs”.

The first variable (perception of environmental problems in the world) consisted of three constructs namely global warming, loss of plants or animals, and pollution of rivers, lakes and oceans. For each of these items, respondents were supposed to select their perception on the seriousness of each of these environmental problems using a scale of 4 categories namely very serious, somewhat serious, not very serious, and not serious at all.

The second variable (perception on the responsible organization to protect the environment) investigated about the perception of respondents on the organization which is responsible to play the key role in environmental preservation. A list of three items (national governments, United Nations, and regional organization) was suggested to respondents and they were supposed to select among these organizations.

Finally, the last variable (environmental beliefs) was composed of three environmental statements and respondents were supposed to choose their selection using a five-point scale coded as ‘-1’ for “don’t know”, ‘1’ for “strongly agree”, ‘2’ for “agree”, ‘3’ for “disagree” and ‘4’ for “strongly disagree”.

### Findings

Findings of the study shows that unlike respondents from investigated European countries who find global warming and loss of plants and animals as the most serious environmental problem, respondents from investigated Asian countries believe pollution of rivers, lakes and oceans to be the

most serious environmental problem. Table 1 summarizes the perception of respondents on the major environmental problems of the world namely “global warming or the greenhouse effect”, “loss of plant or animal species or biodiversity”, and “pollution of rivers, lakes and oceans”. As it can be observed, majority of respondents in all four countries believe these three problems as serious environmental problems. Interestingly, respondents from Europe (Spain and Turkey) consider global warming and loss of plants or animals as the most serious problem while Asian participants (China and Turkey) consider pollution of rivers, lakes and oceans as the most serious environmental problem. While among Spanish and Turkish respondents, a small proportion do not consider global warming and loss of plants and animals as a serious problem (below 3 percent), a relatively large percentage of respondents from China and Thailand (approximately 18% for China and over 22% for Thailand) do not consider global warming and loss of plants and animals as a serious problem. Compared to a similar study conducted in the context of USA (Burger et al., 2004), this study revealed that European respondents tend to consider global-scale environmental problems

Table 1. Perception of environmental problems in the world

Item		Spain	China	Turkey	Thailand
Global warming or the greenhouse effect	Very serious	74.9%	38.0%	88.8%	21.8%
	Somewhat serious	22.2%	43.5%	8.3%	55.8%
	Not very serious	2.5%	16.2%	2.3%	20.7%
	Not serious at all	0.3%	2.2%	0.7%	1.8%
	<b>Total</b>	<b>1156 (100%)</b>	<b>1246 (100%)</b>	<b>1251 (100%)</b>	<b>1529 (100%)</b>
Loss of plant or animal species or biodiversity	Very serious	75.3%	41.4%	82.1%	17.8%
	Somewhat serious	21.3%	41.4%	14.3%	55.7%
	Not very serious	3.0%	14.8%	2.5%	23.0%
	Not serious at all	0.3%	2.4%	1.1%	3.5%
	<b>Total</b>	<b>1166 (100%)</b>	<b>1298 (100%)</b>	<b>1268 (100%)</b>	<b>1524 (100%)</b>
Pollution of rivers, lakes and oceans	Very serious	81.5%	45.5%	86.8%	20.2%
	Somewhat serious	16.0%	36.0%	11.1%	55.6%
	Not very serious	2.4%	14.6%	1.5%	21.7%
	Not serious at all	0.2%	3.9%	0.6%	2.4%
	<b>Total</b>	<b>1169 (100%)</b>	<b>1335 (100%)</b>	<b>1276 (100%)</b>	<b>1521 (100%)</b>

as more serious, while Asian respondents considered global environmental problems as less serious compared to more local problems (pollution of rivers and lakes). However, they study by Burger et al. (2004) respondents ranked ecological (habitat) problems higher than contamination problems, and they ranked more global problems lowest. In their study, Burger et al. (2004) interviewed 356 people attending a gun show in Albuquerque, New Mexico, on the issue of major concerns about the US Department of Energy's Los Alamos National Laboratory (LANL). Due to application of secondary data, the current study, however, was limited in the number of items included as environmental problems and only three items were examined.

Table 2 summarizes the answer to the second question about the organization which plays the key role in protecting the environment. While Asian respondents mainly consider national government as responsible for environmental protec-

tion, respondents from European countries have a broader perspective in this regard and consider United Nations or regional organizations as the key responsible organization for this purpose.

This research also investigated environmental beliefs of respondents by examining three environmental statements across nations and found that there is a significant difference among studied nations in all the three statements. Table 3 shows the descriptive analysis of the studied countries on the three statements and table 4 summarizes the results of one-way ANOVA test. As it can be observed in table 3, on average respondents of all countries agree to the statements (mean below 2.50) except Spain whose respondents are not in favour of statement 1 and 2 which deal with spending one's money for environmental protection through income or tax and China whose respondents are marginally not in favour of statement 3, which deals with government role for pollution reduction.

Table 2. Survey on perception of the responsible organization to protect the environment

	National Governments	United Nations	Regional Organizations	Total
China	684 (57.4 %)	323 (27.1 %)	185 (15.5 %)	1192 (100 %)
Spain	330 (31.6 %)	477 (45.7 %)	236 (22.6)	1043 (100 %)
Thailand	941 (61.5 %)	85 (5.6 %)	504 (32.9 %)	1530 (100 %)
Turkey	454 (36.6 %)	236 (19.0 %)	549 (44.3 %)	1239 (100 %)

Table 3. Descriptive analysis

Statement		Total Sample	Mean	Std. Deviation
Would give part of my income for the environment	China	1718	2.00	0.64
	Spain	1093	2.67	0.89
	Thailand	1532	2.03	0.54
	Turkey	1291	2.00	0.68
	Total	5634	2.14	0.73
Increase in taxes if used to prevent environmental pollution	China	1684	2.14	0.68
	Spain	1099	2.68	0.88
	Thailand	1530	2.17	0.62
	Turkey	1291	2.11	0.72
	Total	5604	2.25	0.75
Government should reduce environmental pollution	China	1705	2.56	0.78
	Spain	1127	1.59	0.74
	Thailand	1530	2.21	0.74
	Turkey	1278	2.05	0.89
	Total	5640	2.15	0.86

Table 4. The results of one-way ANOVA test

Statement	Total Sample	Mean Square	F
Would give part of my income for the environment (Statement 1)	5633	126.92	273.74**
Increase in taxes if used to prevent environmental pollution (Statement 2)	5603	85.27	164.65**
Government should reduce environmental pollution (Statement 3)	5639	218.67	353.76**

Significant at \* $p < 0.05$  and \*\* $p < 0.01$ .

One by one comparison of the studied countries through t-test also revealed that China is significantly different from Spain in all the three statements, while it is significantly different from Thailand and Turkey only in the third statement. Furthermore, Spanish respondents' perception about the three environmental statements is shown to be significantly different from all other investigated countries. This is justified by the cultural differences which exist between this European country

and the other three investigated countries. Finally, Thailand is also significantly different from Turkey and Spain in all three statements. However, due to cultural vicinity of Thailand and China and their existence in the same income level ranked by World Bank, the perception of the respondents in both of these Asian countries are only significantly different in statement 3 which deals with government role for pollution reduction.

Table 5. The results of t-test for comparison of China and Spain

Statement		Levene's Test Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)
		F	Sig.	df	t	
Statement 1	Equal variances assumed	445.97	0.00	2809	-23.15**	0.00
	Equal variances not assumed			1816.43	-21.60	0.00
Statement 2	Equal variances assumed	240.10	0.00	2781	-18.11**	0.00
	Equal variances not assumed			1926.79	-17.17	0.00
Statement 3	Equal variances assumed	6.40	0.01	2830	33.19**	0.00
	Equal variances not assumed			2498.02	33.55	0.00

Significant at \* $p < 0.05$  and \*\* $p < 0.01$ .

Table 6. The results of t-test for comparison of China and Thailand

Statement		Levene's Test Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)
		F	Sig.	df	t	
Statement 1	Equal variances assumed	32.556	0.00	3248	-1.68	0.09
	Equal variances not assumed			3233.07	-1.70	0.09
Statement 2	Equal variances assumed	6.391	0.01	3212	-1.46	0.15
	Equal variances not assumed			3211.99	-1.47	0.14
Statement 3	Equal variances assumed	19.943	0.00	3233	12.94**	0.00
	Equal variances not assumed			3218.60	12.97	0.00

Significant at \* $p < 0.05$  and \*\* $p < 0.01$ .

Table 7. The results of t-test for comparison of China and Turkey

Statement		Levene's Test Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)
		F	Sig.	df	t	
Statement 1	Equal variances assumed	0.36	0.55	3007	-0.24	0.81
	Equal variances not assumed			2692.99	-0.24	0.81
Statement 2	Equal variances assumed	0.22	0.64	2973	1.02	0.31
	Equal variances not assumed			2690.93	1.01	0.31
Statement 3	Equal variances assumed	0.00	0.97	2981	16.69	0.00
	Equal variances not assumed			2536.14	16.38**	0.00

Significant at \* $p < 0.05$  and \*\* $p < 0.01$ .

Table 8. The results of t-test for comparison of Spain and Thailand

Statement		Levene's Test Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)
		F	Sig.	df	t	
Statement 1	Equal variances assumed	793.40	0.00	2623	22.77**	0.00
	Equal variances not assumed			1654.85	21.07	0.00
Statement 2	Equal variances assumed	346.85	0.00	2627	17.24**	0.00
	Equal variances not assumed			1845.14	16.30	0.00
Statement 3	Equal variances assumed	2.88	0.09	2655	-21.38	0.00
	Equal variances not assumed			2441.86	-21.42**	0.00

Significant at \* $p < 0.05$  and \*\* $p < 0.01$ .

Table 9. The results of t-test for comparison of Spain and Turkey

Statement		Levene's Test Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)
		F	Sig.	df	t	
Statement 1	Equal variances assumed	348.83	0.00	2382	20.65**	0.00
	Equal variances not assumed			2025.61	20.21	0.00
Statement 2	Equal variances assumed	195.55	0.00	2388	17.21**	0.00
	Equal variances not assumed			2119.07	16.94	0.00
Statement 3	Equal variances assumed	3.31	0.07	2403	-13.70	0.00
	Equal variances not assumed			2394.08	-13.86**	0.00

Significant at \* $p < 0.05$  and \*\* $p < 0.01$ .

Table 10. The results of t-test for comparison of Thailand and Turkey

Statement		Levene's Test Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)
		F	Sig.	df	t	
Statement 1	Equal variances assumed	33.40	0.00	2821	1.28*	0.20
	Equal variances not assumed			2431.37	1.25	0.21
Statement 2	Equal variances assumed	2.98	0.08	2819	2.38	0.02
	Equal variances not assumed			2557.06	2.35*	0.02
Statement 3	Equal variances assumed	11.22	0.00	2806	5.29**	0.00
	Equal variances not assumed			2498.67	5.21	0.00

Significant at \* $p < 0.05$  and \*\* $p < 0.01$ .

## Conclusions

This study confirmed people's concern regarding global warming with over 96% of Spanish and Turkish respondents and over 75% of Chinese and Thai respondents considering it as a serious environmental problem. According to research by Schwartz and Randall (2003), there is a possibility that human-caused global warming leads to a relatively abrupt slowing of the ocean's thermohaline circulation which might result in harsher winter weather conditions, greatly diminished rainfall and more intense winds in many important agricultural regions that will cause consequent disruptions in energy supply and diminished world's energy production. Such phenomena which we have been observing increasingly around the world, seem to have shaped people's mindset and raised their awareness on the seriousness of global warming as an environmental crisis.

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*Corresponding author  
Mehran Nejati,  
School of Management,  
Universiti Sains Malaysia (USM),  
Malaysia,  
E-mail: Mehran.nejati@gmail.com*