

Pro-Environmental Attitudes and Behavior

– A Comparison of Thailand and Japan –

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Introduction

The treatment of environmental problems has moved beyond awareness to action. The government, industry, NGOs, and individuals are engaged in different capacities. In addition, troubling new issues have surfaced such as environmental hormones and dioxin. Nonetheless, the general public is presently more preoccupied with the prolonged recession. Indeed, even though reduced consumption has been recognized as crucial to the solution of environmental problems, both the government and business are seeking ways to stimulate personal consumption to revive the economy.

Following the "Survey of the Eco-Life of Urban Dwellers" in 1993,¹ NLI Research Institute conducted an annual "Survey of Pro-Environment Life-styles" for the past three years.² These surveys emphasize the need to analyze personal attitudes and life-styles in successfully implementing policies to promote pro-environmental action at the individual level.³

In recent years, international attention has focused on social science research examining the human causes and impacts of global environmental change. As one researcher explains: "Research in the natural sciences is clarifying what needs to be done regarding global environmental problems. Now informed opinions are being sought from the social sciences on how to deal with these problems."⁴ This approach has been the topic of a series of Open Meetings of the Human Dimensions of Global Environmental Change Research Community held at Duke University in 1995, Austria's International Institute for Applied Systems Analysis in 1997, and Shonanmura, Kanagawa-ken next June.⁵

This paper compares environmental behaviors and attitudes among individuals in Japan and Thailand based on identical surveys conducted in 1997 in Bangkok, Thailand and Japan nationwide.^{6,7} We analyze the relationship between pro-environmental behavior and attitudes,⁸ and

describe the value structure of Bangkok residents, whose interest in environmental preservation remained strong despite an ongoing financial crisis.

1. Thailand's Environmental Problems and Policies in the Context of Asia

(1) Asia's Environmental Problems

Rapid economic growth in Asian countries since 1970 has created a variety of environmental problems associated with development.⁹ Bangkok, Jakarta and Shanghai are densely populated metropolises with huge traffic jams and stifling air pollution. In a half year period from May 1997, mountain fires spread smog over Malaysia, Singapore, and Indonesia. The cause was a disastrous attempt to use controlled fires to clear land for private and government-run palm tree plantations in the Kalimantan region of Indonesia.¹⁰

Generally speaking, for developing economies to take off and catch up with industrialized countries, the state must take the lead in promoting industrialization. In the interest of economic development, environmental concerns are often ignored. Moreover, because politico-economic systems are undemocratic, the government sometimes cooperates with profit-seeking companies and contributes to environmental destruction. In such cases, the only recourse is to seek a pro-environmental impetus from grassroots movements and unique culture.¹¹

(2) Thailand's Environmental Problems and Policies¹²

Thailand's environmental problems can be divided into those of urban areas and rural areas.

Five-year plans and rapid urbanization

Thailand was among the earliest countries in Southeast Asia to begin industrialization. An economic development agency set up in 1959, and in the 1960s a law was passed to encourage investment in new industries, regional development projects were drafted, and economic development plans were begun. A rural development plan was formulated in 1964, bringing planned development to remote areas. The first five-year economic plan was begun in 1966, and the country is currently in its eighth five-year plan implemented in October 1996. Thailand's development is characterized by the consistent application of this modern approach, and by the aggressive introduction of foreign capital for development with the 1960s investment law. Also, by the late 1980s Japan accounted for approximately half of all inbound foreign investment,

making Thailand heavily dependent on the Japanese economy.

However, not all goals in the planned economic development have been achieved. Among them, the correction of regional disparities, balanced development between rural and urban areas, and correction of urban/rural disparities have repeatedly been addressed in the plans. Nonetheless, disparities have only grown.

Since 1970, the population movement from rural to urban areas became pronounced. Most of this concentrated in Bangkok, which was also the destination for an inordinate proportion of investment. Although road, railway and other infrastructure construction were begun in Bangkok, because the "project format" leads to the postponement of unprofitable projects, traffic congestion and the resulting air pollution have not been alleviated.

Environmental Problems in Rural Areas

While decreasing as a share of GDP, agricultural products occupied the top position in exports until being unseated by industrial products in the 1990s. The encouragement of agro-industry since the 1970s led to the development of exports besides rice such as rubber, sugar cane, and broiler chickens, making this the most important domestic industry. In the 1980s, prawn farming was begun, and prawn exports to Japan grew rapidly. However, the growth of agro-industry also caused increasingly severe environmental problems such as the damage to the fishery industry from waste water of sugar refining plants, destruction of forests, and water pollution.

A major emphasis of the five-year plans was the development of Thailand's impoverished northern area. Believing that northeastern Thailand could become the center of the Indochinese market, the government has built numerous industrial parks. But this development has caused health problems among local residents due to toxic waste from plants, as well as environmental problems stemming from the construction of hydroelectric dams. Moreover, these local environmental problems have grown into international problems and spilled into neighboring Laos and southern China.

Environmental problems caused by development were addressed from the fourth five-year plan. The 1974 constitution contained provisions for natural preservation and antipollution. In addition, an administrative framework was formed with passage of the national environmental quality preservation and improvement law and establishment of a national environment committee. However, the environment continued to be a secondary concern to large-scale development projects.

Environmental protection policies began to seriously be addressed from the six five-year plan (1986-91). Under the seventh five-year plan, in 1992 environmental policies were further strengthened by completely revising the national environment protection law, and establishing a factory law and toxic substance law.

Table 1 describes Thailand's environmental problems.

Table 1 Thailand's Environmental Problems

Cause	Problem	Description of problem
Urbanization	Severe air pollution from automobiles	Bangkok has high concentrations of SPM and HC due to large no of motorcycles and lack of adequate emission controls.
	Worsening waste problem in urban areas	Due to population concentration, waste disposal capacity growth lags behind increase in household waste.
Industrialization	Air pollution from industry	In over 50 industrial parks built since 1972, pollution by small & mid-sized companies is worsening. Nox, Sox, and CO emissions from lignite power plants is also a problem.
	Toxic waste	Metal processing, electrical product manufacturing, and chemical industries generate toxic waste. Lack of adequate industrial waste processing plants leads to uncontrolled
Regional development	Deforestation from conversion to agricultural land	Forest land comprised 53% of land area in 1960, but only 26% today. Besides impact on natural ecology, loss of ground water supply leads to increasingly severe water shortages for drinking and irrigation.
	Deforestation from development of tourism	Forest land is being consumed to build roads, golf courses, hotels, etc. for tourist industry which accounts for 17% of foreign exchange earnings.
River problem	Securing water resources	Vicious cycle: Rapid growth in water demand leads to dam construction, causing deforestation and reducing supply of ground water water.
	River pollution	Waste from industry and households contaminates rivers.

Source: Japan Environment Conference, *White Paper on Asia's Environment 1997/1998*.

2. Comparison of Environmental Attitudes and Behavior in Japan and Thailand

(1) Recognition of Environmental Problems

To ascertain the importance that the people of Thailand place on environmental problems, we asked respondents to choose the most important problem from among a variety of social problems. The top three responses were environmental destruction accompanying economic development (23.6%), inflation (14.0%), and traffic congestion (13.6%), indicating the high priority placed on the environment even in the midst of the currency crisis.

In Japan, the problems cited as most important were political problems (30.1%), followed by the environment (25.8%). As with Thailand, the environment is thus a major concern.

We then asked about the most serious environmental problem at the local, national, and global level (Table 2). Among Thai respondents, the top three responses at the local level were air pollution (16.9%), desertification (16.5%), and deforestation (16.1%); at the national level, air pollution (36.8%), desertification (17.4%), and deforestation (16.1%), and at the global level, global warming (30.2%), nuclear energy/toxic waste (17.4%), air pollution (11.2%), and ozone destruction (11.2%).

These results indicate widespread concern for the following problems as local or national problems: air pollution, especially given Bangkok's population concentration, inadequate infrastructure, and traffic congestion; deforestation caused by lumber production, Thailand's main primary product; and clearing of forestland to increase farm acreage. At the global level, the widespread concern of global warming is an interesting result.

What Thailand shares with Japan are high response rates for air pollution as a local, national, and global problem, deforestation as a national problem, and global warming and ozone destruction as global problems.

Table 2 Environmental Problems Perceived as Most Important

(%)

	Local		National		Global	
	Thailand	Japan	Thailand	Japan	Thailand	Japan
Overpopulation	9.1	-	2.9	0.4	5.4	0.8
Air pollution	16.9	13	36.8	16.8	11.2	14.9
Water pollution	0.8	11.3	3.3	6.1	-	-
Noise pollution	0.47	7.5	-	-	-	-
Soil contamination	0.4	0.4	-	0.2	0.8	-
Recycling/depletion of natural resources*	14	-	12.8	1.7	9.9	1.7
Loss of bio-diversity	5.8	0.2	1.7	0.2	2.5	0.4
Global warming	8.3	0.9	0.8	3.9	30.2	19.9
Ozone hole	1.7	1	2.9	2.8	11.2	15.6
Deforestation	16.1	5.7	16.1	11.3	2.9	8.7
Desertification	16.5	-	17.4	-	3.7	2.1
Industrial waste	1.7	4.8	3.3	6.6	1.2	1.9
Acid rain	1.2	-	-	0.3	-	0.7
Nuclear energy/toxic waste	3.7	1	-	3.1	17.4	5
Toxic chemical substances	1.7	3.5	1.2	7.1	2.1	2.4
Household garbage**	-	27.3	-	24.5	-	1.8
Other	0.8	19	0.8	12.7	1.2	17
Nothing in particular	-	4.2	-	0.8	-	0.7
Don't know	0.8	1.2	-	1.3	0.4	4

* The Thai survey referred to "depletion natural resources," and the Japan survey to "recycling."

** Omitted in Thai survey.

Sources: For Thailand, survey by NLI Research Institute; for Japan, Midori Aoyagi-Utsui, "The Japanese Public's Environmental Attitudes and Behavior."

(2) Daily Pro-Environmental Behavior

Table 3 looks at participation rates for three types of pro-environmental activity at the individual level: political activity,¹³ energy and resource conservation,¹⁴ and green consumerism.¹⁵

In Thailand, 96.3 percent of respondents have participated in energy/resource conservation, and 71.5 percent in green consumerism. The participation rate in energy/resource conservation is roughly equivalent to Japan's, while green consumerism is higher and political activity is lower.

Table 3 Participation Rates in Pro-Environmental Activities

Activity	Thailand		Japan	
	Participation rate (%)	Avg. no. of activities	Participation rate (%)	Avg. no. of activities
Pro-environment political activity	19.4	0.285	46.4	0.849
Energy/resource conservation	96.3	2.777	94.6	3.289
Green consumer activity	71.5	1.822	40.4	0.708

Sources: For Thailand, survey by NLI Research Institute; for Japan, Midori Aoyagi-Usui, "The Japanese Public's Environmental Attitudes and Behavior."

3. Attitudes and Values Regarding Environmental Preservation

We now look at the analytical results for attitudes on the environment and economy and on life guidelines, and the relationship between attitudes and pro-environmental behavior.¹⁶

(1) Attitudes on the Environment and Economy

After performing a factor analysis (principal component analysis) on the six attitudes regarding the environment and economy, two factors were extracted for both Japan and Thailand (Table 4).

Whereas factors for economic development and the environment could be clearly distinguished for Japan, they were mixed for Thailand.

Table 4 Value Structure Relating to the Environment and Economy (Factor Analysis Results)

	Thailand		Japan	
	Factor 1 (econ. dev.)	Factor 2 (environment)	Factor 1 (econ. dev.)	Factor 2 (environment)
Interfering with nature has bad consequences, even if scientifically based	0.542			0.818
Modern technology can solve environmental problems	0.504		0.644	
Present economic problems are more important than future environment	0.747		0.79	
Most activities in modern life are harmful to environment		0.628		0.813
People are too concerned that economic growth will damage environment		0.807	0.719	
One person cannot do much for the environment	0.722		0.54	
Eigenvalue	1.631	1.23	2.161	1.132

Source: Midori Aoyagi-Usui and Atsuko Kuribayashi, "Pro-Environmental Attitudes and Behavior: An East-Asian Perspective."

(2) Guiding Principles of Life

For the guiding principles of life, we used the general value items formulated by Schwartz:

- Unity with nature
- Self discipline (self control, resistance to temptation)
- Environmental protection (pro-environment)
- Equality (equal opportunity for all persons)
- Security of family (concern for well being of people important to oneself)
- Respect for the earth (harmony with other life forms)
- Respect for parents and elderly (indicates respect)
- A world at peace (absence of war)
- Social justice (to right wrongs, take care of the weak)
- Authority (right to lead and instruct)
- Influence (to have influence on events or people)
- Wealth (material assets, money)

Application of a five-level response scale and factor analysis of these items produced the following results.

For Thailand, the first factor was found to be "biospheric-altruistic," the second factor was "traditional," and the third factor was "egoistic." For Japan, the first factor was "biospheric-traditional," the second factor was "altruistic," and the third factor was "egoistic" (Table 5). For comparison, when the same analysis was applied to the U.S.,¹⁷ the first factor was the same as Thailand, while the second factor was "egoistic" and the third factor was "traditional."

For Thailand, as with Japan, the first factor contains two environmental values. In Japan's case, these are tied to the traditional values of family security and respect for parents and elderly, whereas in Thailand they are tied to equality, an altruistic value. The structure of environment-related values for Thailand is actually closer to that of the U.S. Moreover, like the U.S., the factors of Thailand's traditional values are independent of the biospheric factor.

Thus while both Japan and Thailand are Asian countries, in terms of environmental values, Thailand's structure of values resembles the U.S. more than Japan.

Table 5 Value Structure Relating to Guiding Principles (Factor Analysis Results)

Thailand		Japan		U.S. sample
FACTOR 1				
Biospheric-altruistic		Biospheric-tradition		Biospheric-altruistic
<i>Unity with nature</i>	0.804	<u>World at peace</u>	0.787	<i>Unity with nature</i>
Self discipline	0.717	Family security	0.765	<i>Protect environment</i>
<i>Protect environment</i>	0.627	<i>Respect for earth</i>	0.648	<i>Respect for earth</i>
<u>Equality</u>	0.607	<i>Protect environment</i>	0.61	<u>World at peace</u>
		Respect parents & elders	0.453	<u>Equality</u>
				<u>Social justice</u>
FACTOR 2				
Tradition		Altruistic		Egoistic
Family security	0.756	Influence	0.622	Authority
<i>Respect for earth</i>	0.631	<u>Equality</u>	0.581	Wealth
Respect parents & elders	0.629	Self discipline	0.576	Influence
<u>World at peace</u>	0.601	<u>Social justice</u>	0.562	
<u>Social justice</u>	0.493	<i>Unity with nature</i>	0.52	
FACTOR 3				
Egoistic		Egoistic		Tradition
Authority	0.78	Wealth	0.789	Respect parents & elders
Influence	0.7	Authority	0.78	Family security
Wealth	0.615			Self discipline

Note: Italics indicate U.S. biospheric factor items; underline indicates U.S. altruistic factor items.

Source: Midori Aoyagi-Usui and Atsuko Kuribayashi, "Pro-Environmental Attitudes and Behavior: An East-Asian Perspective."

(3) Attitudes and Values that Explain Pro-Environmental Behavior

We now turn to the relationship between the attitudes and values described above and pro-environmental behavior as shown in Table 6.

For Japan, the economic development factor has a negative impact on pro-environmental behavior overall, but the biospheric-traditional factor has an overall positive effect. On the other hand, the environment factor has a positive effect only on pro-environmental political activity.

For Thailand, the economic development factor has a positive effect on energy/resource conservation, and the environment factor has a positive effect on pro-environmental political activity. These results reflect the fact that the factors for economic and environmental attitudes in Thailand are not as distinct as Japan's. In addition, the biospheric-altruistic factor has a positive effect on political activity, and the traditional factor has a positive effect on green consumer activity.

Table 6 Regression Analysis Results for Values and Pro-Environmental Behavior

	Thailand				Japan		
	Political activity	Energy/resource conservation	Green consumer activity		Political activity	Energy/resource conservation	Green consumer activity
Environment & economy							
Environment	+			Environment	+	-	-
Econ. dev.		+		Econ. dev.			
Guiding principles							
Biospheric - altruistic	+			Biospheric - traditional	+	+	+
Traditional			+	Altruistic	+	+	+
Egoistic				Egoistic			

- Notes: 1. Logistic regression was used for green consumer activity, and ordinary weight regression analysis for the others. While other variables were also used including materialistic orientation, occupation, age, education, and sex, for convenience we only show two types of values.
 2. The "+" and "-" refer to positive and negative correlations (significance level 10%).
 3. For political activity includes only four items: petitions, demonstrations, correspondence with government, and membership in environmental groups.
 Source: Midori Aoyagi-Usui and Atsuko Kuribayashi, " Pro-Environmental Attitudes and Behavior: An East-Asian Perspective."

Conclusion

Since Thailand and Japan are both in East Asia and share Buddhist traditions, there is a tendency to assume that these countries also share common values and attitudes. But with regard to the environment, Bangkok's residents are actually more closely aligned with American rather than Japanese values and attitudes. This might be attributed in part to the fact that the survey samples were drawn from Bangkok's middle class for Thailand and from ordinary households nationwide for Japan. However, our findings suggest that for the environment or any other issue, there are pitfalls to seeking harmony among Asian peoples based on the assumption that certain "Asian values" are shared by all Asians.

The environmental problems in Asian countries, being derived from economic development directed by the state, have many points in common with those of Japan's rapid growth period. In the same way that anti-pollution movements occurred in Japan, the people in these countries need to take the lead in pro-environment campaigns. In the future, more opportunities will appear for the Japanese government and environmental NGOs to address environmental issues in Asia. In doing so, Japan must respect local values, particularly the values that will contribute to environmental preservation.

For example, let us consider of the factors that induced Thai residents to become concerned about the lumber industry's destruction of forest land. Thai society values the elephant very highly. What aroused the public's concern about deforestation was that it deprived elephants of their natural habitat. If Japan is to provide support for natural preservation in Thailand, one of the things it must do is to learn more about the elephant culture.

Notes

1. The "Eco-Life Survey of Urban Dwellers" (1993) was conducted by NLI Research Institute. Residents in the Tokyo area were surveyed to examine their structure of pro-environmental attitudes and behavior.
2. The "Survey of Environment Friendly Lifestyles" was commissioned by the Environment Agency's Planning and Coordination Bureau, and conducted annually from 1995 to 1997. The objective was to examine pro-environmental behavior at the individual level, as called for in the Environment Basic Plan.
3. While economic measures are often proposed for solving environmental problems at the individual level, charging money for household garbage bags, increasing the gasoline tax, and imposing bottle deposits are not very effective means to shift people toward more pro-environmental lifestyles.
4. Shuzo Nishioka, research team leader, National Environment Research Institute Global Environment Research Group.
5. Topics discussed at the Australian conference included human health, attitudes and behavior, industrial conversion, trade, overall assessment of the environment, environmental management, environmental security, etc.
6. Under commission of the National Institute of Environmental Studies in fiscal 1997, "An International Comparison of Public Perception, Knowledge, Behavior, and Communication Toward the Environment."

Thailand was chosen because its similarities to Japan in being an East Asian country, Buddhist, and assumed to be relatively close in values to Japan. In addition, it has reached a certain economic level, and residents of metropolis like Bangkok have begun acquiring lifestyles similar to industrialized nations.

Survey sample: 242 Bangkok residents aged 20-49, with a monthly household income of at least 20,000 baht.

Survey period: January-February 1998

Survey method: Random door-to-door interviews using question sheets.

7. Midori Aoyagi-Usui (1998): "The Japanese Public's Environmental Attitudes and Behavior." The survey was conducted in September 1997, and covered 2,178 randomly chosen men and women throughout Japan, aged 16 and above. 1,530 responses were received (response rate 70.2%).
8. Midori Aoyagi-Usui and Atsuko Kuribayashi (1998): "Pro-Environmental Attitudes and Behavior: An East-Asian Perspective."
9. Japan Environment Conference, ed., *White Paper on Asia's Environment 1997/1998*, Toyo Keizai.
10. Environmental Economics and Policies Conference, ed., *Asia's Environmental Problems*, Toyo Keizai, 1998, pp. 1-3.
11. Ibid, p. 8.
12. Japan Environment Conference, ed., *White Paper on Asia's Environment 1997/1998*, Toyo Keiza, 1997, pp. 140-163.
13. Activities included in political pro-environmental behavior : participating in volunteer activities, monetary contributions for environmental protection causes, signing petitions, participating in meetings to discuss environmental problems, contacting government officials, participating in boycott campaigns, participating in demonstrations, and participating in environmental groups.
14. Activities included in green consumer behavior : looking for environment mark when pur-

chasing goods, buying products that use recycled materials, buying organic foods not made using insecticide or chemical fertilizers, checking the amount of wrapping on products when purchasing, considered fuel efficiency when purchasing a car, and bring own shopping bag to store.

16. Guiding principles of life refers to Schwartz's general value structures based on data from 20 countries.

17. The survey was conducted in the U.S. in 1995 by Stern et al.