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Environmental Consciousness in Thailand: Contesting Maps of Eco-Conscious Minds

Opart PANYA* and Solot SIRISAI**

Abstract

Although different groups in Thailand display somewhat different concepts of human nature relations, certain common elements can be identified. Both nature and environment, are seen by all respondents, depending on where they live, as the world around them, but not all respondents perceive the same sort of "world." The "world" to the lay people and the NGO leaders is understood as a natural world, whereas the urban-based and educated population lives in a modern or man-made sphere. Accordingly, to them, nature is associated with periphery, rurality, and wilderness. Environment, on the other hand, is perceived of as a modernized and developed world.

It appears that in Thai society, people develop "cultural models" not merely to shape the meaning and "representations" of the environment but rather to reflect contesting views of it. The lay population, most of whom live in rural areas, and their NGO sympathizers, have used "local knowledge" guided by religious and spiritual beliefs to make sense of the rapidly changing world. The urban-based and educated population, on the other hand, have dominated the rural communities with modernized and applied-science knowledge in interpreting the urban environmental problems.

As a result, the general Thai public lack a sense of personal efficacy and responsibility, feeling that environmental "action" is outside the individual's responsibility, and that it belongs to the urban-based elite and environmental experts. Religious values and beliefs, which are strongly held by the rural sector, play insignificant part in shaping the collective "eco-consciousness" of Thai society as a whole.

Keywords: environmental consciousness, Thailand, cultural models, climate change, public opinion

Introduction

In Thailand, "eco-consciousness" has been on the rise since the early 1970s, not too far

* Faculty of Environment and Resource Studies, Mahidol University, Salaya, Nakhon Pathom 73170, Thailand, e-mail: teopy@mahidol.ac.th

** Institute of Language and Culture for Rural Development, Mahidol University, Salaya, Nakhon Pathom 73170, Thailand, e-mail: lcssr@mahidol.ac.th

behind the emergence of environmental awareness in the Western world [Hirsch 1997]. Thailand has done its best to meet the environmental challenge. A capacity and infrastructure have been built at the national scale by setting up various institutions to deal with environmental impacts associated with economic development programs. A national environmental committee was set up as early as the conclusion of the 1972 Stockholm Conference. The first set of environmental laws, known as the National Environmental Quality Act, was promulgated at that time and subsequently revamped in 1997. A number of high-level institutions were established to carry out environmental research, education and training. Thailand's Mahidol University, for example, was a pioneer in training graduate students in resource and environmental management beginning 27 years ago [Mahidol University 1999].

Despite these efforts, environmental degradation and resource over-exploitation in Thailand have gone beyond the crisis point. Over the past 40 years or so, we have destroyed nearly all our natural forest (with roughly 28 percent remaining) and half of the mangrove forest was wiped out during just the last 10 years. More than 300 wild animal species are under a severe threat. Moreover, nearly 70 percent of the major rivers have been contaminated by the overuse of agriculture chemicals and dumping of toxic wastes by industries, causing shortage of water for drinking and domestic uses. Conflicts over the use and control of natural resources are running strong and on the rise [Panya *et al*. 2000; OEPP 1997].

Despite these problems, urban-based, middle-class Thai environmental movements have not strongly responded. Only recently have we witnessed involvement of businessmen and women in promoting environmental awareness in cities (e. g., Sophon Suphaphong of Bang Jak Corporation, and Khunying Chod Choi of the Bangkok Bank).

What is significant for Thailand is that the strength of environmental movements lies at grassroots level. Local people and national NGOs, particularly those who come from rural and regional backgrounds, have always represented the public voice of environmental concerns [Quinn 1997; Narintarangkul Na Ayudhaya 1997].

Despite institutional weaknesses in the environmental movement, concern with environmental problems is widespread in Thailand. Most, if not all, Thai people interviewed stated that, in fact, they are concerned with environmental problems, and are fully aware of the decay and degradation of natural resources, have experienced warmer climate and seasonal changes, and are able to identify weaknesses in environmental education and management policy. What do these people tell us? Is what people said one thing and what they did another? Do they represent the summation of Thai "environmentalism" or "eco-consciousness"? How can what the individual "knows" and "thinks" be transformed into stronger, public environmental action? How would this be strengthened so as to cope with the pressing environmental problems? These are the key issues to be addressed in our study.

Conceptual Approach and Methodology

We employed an anthropological approach, relying on semi-structured interviewing of 22 key informants. Key informants were chosen randomly covering all regions of Thailand. As Table 1 shows, lay people form the largest group. These are farmers and wage laborers, mostly living in rural areas or having rural origins, and having low levels of formal education. Others are chosen from urban and semi-urban areas, including diverse groups of student-youth, media-business, NGO advocates, policy-legislator, and environmental specialists. Fourteen informants were male and 8 female.

We undertook the interviews mostly together as a team during the period August to October 2000. Each interview was tape-recorded and then transcribed, involving approximately 120 hours of transcription yielding over 200 pages of text.

In order to choose an environmental problem that was widely understood by Thai informants, we initially interviewed 15 people at random, asking them to list 5 important environmental problems and rank them in order according to their significance. These respondents were located in a suburb on the west of Bangkok. It was found that climate change/global warming came first on the list. It is worth noting here that most key informants interviewed appeared to have difficulty listing more than three problems.

In our journey to explore environmental consciousness in Thai society through the use "mental" and "cultural" models, we employed a similar methodology to that used by Willard Kempton and associates in their study of American environmental attitudes [Kempton *et al*. 1996] to guide organization of the topics to be discussed in our interviews. Under the term "cultural models," we collected information on: 1) nature and its relations with humans, 2) environmental concerns and awareness, 3) global warming, a specific environmental problem widely recognized in Thai society, and 4) policy reasoning, a reflection from each informant about relevancy and effectiveness of the government's current policy in dealing with the issue of global warming. Our analysis was also guided by concepts relating to the construction of knowledge in Bradd Shore [1998], in his *Culture in Mind: Cognition, Culture, and the Problem of Meaning* and the widely cited *The*

Table 1 Key Informants by Occupation, Geographical Regions, and Sex

Occupation	#	Geographical Region	#	Sex	#
Environmental specialist	3	Central	6		
Policy & legislator	2	North	3	Male	14
Student & youth	2	South	5		
Lay	10	Northeast	2	Female	8
NGOs	3	Bangkok	6		
Business & media	2				
Total	22		22		22

Tree of Knowledge: The Biological Roots of Human Understanding by Maturana and Varela [1992].

Historical Changes in Thai Concepts of Nature and the Environment

The traditional cosmology of the Thai people was shaped by Theravada Buddhism, dated back over 700 years during the early Sukhothai period [Department of Fine Arts 1983]. This later influenced Thai thinking about: Nature—*Dharmmachart*, (literally means the law of *Dharmma*), and Truth (the teaching of the Lord Bhudda about conditioned existence of nature). This cosmology is reflected in one of most respected works in Thai literature, *Trai Phoom* (three spheres or worlds), according to which the Earth is situated in the universe, the Great Wall of the Universe, to be precise. The Earth's surface contains a series of continents, all of which are surrounded by oceans. Most significant is "the three living spheres"—*Trai Phoom*, where lives evolved, transformed and advanced. The three spheres are further divided into 31 sub-spheres, all of which are placed into an ordered and hierarchical whole. All living forms, humans included, evolved, transformed, and advanced within these sub-spheres according to each individual's intellectual (*panya*) and moral (*sila*) developments. This cosmology gradually lost its significance for the Thai elite as Thai society developed close contact with the Western societies, beginning with King Mongkut in the second half of the nineteenth century. Subsequent use of science and technology such as cartography has dramatically changed the way in which Thai people see themselves, nature, the world, and universe [see, for example, Winichakul 1994]. Nevertheless, this cosmology still persists through a variety of religious ceremonies annually performed in rural areas throughout the country.

In the past 100 years, Thai society has undergone dramatic and rapid changes that have caused "leaps" and discontinuities in social structure on a larger scale than many historians have suggested [see, for example, Wales 1934; Vella 1978; Wyatt 1982]. It has been argued that the changes and transformation that have taken place in Thai society during the twentieth century have undermined, rather than empowered, the strength of civil society, the Sangha (Buddhist monks) organization included.

Development of land and forest resource management is a clear example of the national hegemonic process. Prior to the Western colonial threat in the second half of the nineteenth century, traditional land ownership fell into two categories: individual (household) and communal properties (*sithi naa muu*—literally means land for the whole community). Individual households had rights to use the latter in time of deprivation caused by droughts and floods, but were not allowed to claim ownership. But as a threat was seen coming from the British-ruled Burma on the northern and western frontier, the Thai state "centralized" its authority over the country's natural resources creating what was to become a basis for today's Land Code, which states that "unclaimed land,

mountains, rivers, lakes and seas are the subjects of the Crown" [Ganjanapan 1992]. In effect, the Law canceled out the "communal" land ownership and recognizes only two ownership systems—land that belongs to the State and land that belongs to individual households.

During the two World Wars, the rise of anti-Western feelings in Asia had implanted nationalism in society. This created a situation in which cultural diversity and pluralism in Thai society was seen as a source of instability in the nation, mostly led by a vicious cycle of dictatorial regimes. The Cold War brought centralization of development and modernization. Only in the 1970s, especially the 1973 and 1976 student uprisings, did the political pattern began to change. Thai civil society groups in the form of Non-government Organizations (NGOs) have begun to exert themselves as a social force competing with the mainstream state apparatus [Panya 1995].

This short account clarifies the context in which changes have occurred in Thai society in response to external pressure. In doing so internal power structures and relations were altered. So too was the power of knowledge process, as the Bangkok-based elite had a hegemonic control over the national discourse. It follows that new sets of meaning, a new worldview, and new forms of knowledge were adopted by the elite and then imposed upon the traditional forms, but the traditional models have not disappeared. As will be shown, although most Thai key informants have shared a similar cultural model of nature and environment, a great deal of diversity is found among sub-groups, mainly between those with rural and those with urban backgrounds.

Diverse Thai Views on Human-Nature Relationship

In general, most key informants view nature as "a world around us." It is an organized or law-like process in which humans are a part. The human-nature relationship is seen as based on interdependence, with emphases varying depending on the utilitarian values of the individual key informants.

For farmers, "a world around us" provides them with a food resource and necessities for living. For some, there is also an element of emotional bonding. Boonrawd, a female farmer in the Central Plain said, "Nature and human are like fish and water: nature is a food source." This view is shared by a village leader who lives in northeastern Thailand.

A taxi driver from the countryside who is now living in Bangkok explained: "Humans and nature are related to each other as partners: no nature, no humans who can survive. At the same time, where there are no humans existing, matter is absent."

"Nature, from what I understand, is a system governed by God. It is a law of natural process that is always changing, not fixed. For example, when we allow grapes to ferment, it will produce wine. This is natural," says Pa Jii, a Moslem villager in the southern part of Thailand.

Students and youths seemed to have a romantic view of nature as something being green and beautiful. “Nature is the greenness that people can take a breath of fresh air,” a young female student in the city of Chiang Mai tried to give her view of nature. Another view from Noi, another female student, was, “When we see beautiful nature, it makes us feel good and relaxed, and our good feeling toward nature will happen.” Boonchu, a waitress who worked at the provincial resort, provides a similar view: “When humans are with good nature, their hearts and minds are good. At the same time nature needs human to maintain its existence.”

NGO advocates view nature as an integrated system of “all things” and nature exists in a balanced state. Their view reflects the influence of formal environmental knowledge. Wiboon Khemcharoen, a leading Thai national NGO advocate explained, “Nature is an integrated system of all things, which exist in a balanced state.” He also added, “Nature is a system of relationships between humans and nature, in which humans use culture to manage the status of the two.” Alongkot, a young rural-born national NGO worker advocate stressed, “Humans cannot be separated from nature.”

Media and business people view nature as: “Things born out of their own, existing by their own law,” said a young businessman. On humans-nature relationship, he believed that “humans and nature are living together: if nature is good, there will be no disasters.”

Key informants who lived in an urban setting saw the relationship between humans and nature differently. Led by environmental specialists and policy makers, they added an “environment” discourse on “nature,” thereby creating a dynamic process between “man-made” and “natural” environments. “Man-made” environment was seen as world for urban people while “nature” was out there in the countryside for rural people. For example, Dr. Suraphon, a leading Thai environmental scientist, said: “Nature is a law-like phenomena. No one can ever change it, because it is the thing that occurs by nature.” “There is no line demarcating nature and environment: it can be viewed as a dynamical process and only be explained by sciences.” he adds.

A female scientist working in Bangkok sees nature and environment is the same thing as “a surrounding.” She explained: “Nature and environment as well as pollution are natural resources. Therefore, environment and nature is the same thing, which is surrounding us. The only difference is that I am here surrounded by buildings, houses, vehicles, rivers, canals and so on, all of which are different from the nature viewed by rural people.”

Thai Cultural Models of Nature and the Environment

Individual key informants see both nature and environment, depending on where they live, as the world around them, but not all respondents perceive the same sort of “world.” The “world” to the lay people and the NGO leaders is understood as a natural world,

whereas the urban-based and educated population lives in a modern or man-made sphere. Accordingly, to them, nature is associated with periphery, rurality, and wilderness. Environment, on the other hand, is perceived of as a modernized and developed world.

For the lay people and the NGO leaders, their cultural model of nature is that of a "single whole where humans and nature exist through physical, emotional, and spiritual bonding." Yet, this "single whole" can narrowly be defined as a small world just "around us" which provides food and necessities. Nature is understood as an ordered system of harmony and balance. Humans are only a small part of this highly complex world; but, depending on our poor development of insightful knowledge (*panya*) and wisdom, can push nature off a harmonic and balanced state. Our relation with nature is reciprocal, characterized by emotional, moral, and spiritual bonding. "False minds lead to environmental decay," as one of the lay respondents put it.

To those with high education and those who live in urban areas, the world in which they live is different from that of the rural inhabitants. It is viewed as a sphere of modernized and man-made environments. Environment (*sing waed lorm*), by definition, is a subset of nature or human's habitat, which has kept expanding onto and transforming nature. Nature is seen as another "world" out there in the periphery—the countryside. Again, they are concerned with immediate surroundings that have an effect on their health and living space (e. g., crowdedness, congestion, untidiness, etc.).

What do these different views mean with regards to Thailand's environmentalism? In *Environmental Values in American Culture*, Kempton *et al*. identify three sets of values that influence the rise of environmentalism in American society. They include: 1) religious and spiritual values based on religious teaching and spiritual beliefs; 2) anthropocentric values or human-centered view centered on human benefits (aestheticism, included) and goals; and 3) bio-centric values emphasizing rights and ethics of nature. Although our study does not have the same depth as that of the Kempton's, similar patterns of Thai cultural models do emerge and are worth exploring.

Taking the three sets of values as a basis, it can be said that Thai cultural models on nature and environment are largely influenced by anthropocentric values, e. g., nature is seen as a source of food, socio-cultural well-being, and healthy living. Bio-centric views are also found emerging among the younger key informants, reflected in statements like, "Humans are part of nature," "Nature and human is like fish and water," and "We must look at nature with gratitude and thankfulness." These models are not different from that of the American people.

However, there is sufficient evidence to suggest that religious and spiritual values do play a part in the interpretation of nature among the lay informants, most of whom live in rural areas. Recent studies have documented several success stories that demonstrate the use of Buddhist rituals and practices by the grassroots environmental action groups in protecting community-based forests and in many cases to successfully rehabilitate the degraded water bodies and watersheds [see, for example, Taylor 1996; Narintarangkul Na

Ayudhaya 1996]. This shows that religious values based on either Theravada Buddhism (e. g. conditioned living as mindfulness, selflessness, intellectual development, etc.) or Islam (i. e., "false mind causing environmental decay") appear to have contributed to the meaning of nature among the rural but not the urban-based and educated population (see statements quoted earlier from Wiboon and Pa Jii).

As for the urban-based and educated population, religious beliefs and values seem to play little role in generating their environmentalism, because for this group, environment "can only be explained by sciences." Both environmental specialists and a person from media showed a great deal of uncertainty when dealing with global warming. This suggests that these professionals depended much on diverse sources of environmental knowledge, and thus lack a sense of urgency and self-determination in response to environmental issues and problems affecting them.

When asked about whether or not an individual key informant considered herself or himself an environmentalist, most responded that "only those with 'environment knowledge' should be considered as an environmentalist." Here, it is not the case of lacking environmental consciousness and awareness, but a lack of personal efficacy and responsibility. It may well be that there is a lack of alternative "local paradigms— a constellation of ideas, values, beliefs and world views" [Capra 1994], which would deepen their understanding of the serious environmental problems they have encountered. This is why there is a general notion among the Thai urban sector that the "governmental institutions" should be responsible for environmental action. Most Thai people interviewed, more so in the urban setting, see themselves as "victims" rather than "agents" of environmental change and management. Our study might shed some light on why Thailand's urban environmental movements are not as strong and active as the grassroots movements.

Perceptions of Changes in Nature and Explanations for Why Such Changes Are Occurring

Next, we will see that the interpretations of nature and human's relations begin to narrow down into a few sets of "mental models." When it comes to giving an explanation as to what causes nature to change, respondents tend to make reference to things they have perceived in their immediate surroundings. Indicators of change in nature and the causes identified by the key informants across sectors included:

- "Food sources disappeared" (Lay)
- "Forest are being destroyed for commercial and agricultural purposes" (Student & Youth)
- "A system or phenomena which is unnatural: rain no longer falls at the season that

is supposed to" (Media)
- "Changes in ways of living, eating, and sleeping, all of which are not in tune with nature" (NGO)
- "Things that destroyed the balance of nature" (NGO)
- "Seasons changed and natural disasters increased" (Specialist)

Causes of changes included:

- "Population increased leading to increased conflict over resources" (Specialist)
- "Dumping toxic chemicals onto nature" (Lay)
- "Values on nature changed: then we live in forest, now we sell forest for money" (Policy & Legislation)
- "We consume without having much to think about" (Policy & Legislation)

From the above examples, people have been able to describe changes in nature from their own experiences, from what is closer to them, and from what they can make sense. Lay persons, especially those living in rural areas where their livelihoods are highly dependent on natural resources, are seriously concerned about the disappearance of natural food sources caused by deforestation and changes of seasonal patterns. As a young woman from the rural South said, "Natural sources of food have declined. In the past we used to have forests everywhere and so abundant with wild animals that they came to find food under our houses. Now they disappeared." Furthermore, A local farmer in the Northeast summarised the changes as she saw it: "It has gotten colder, warmer, and rain has not followed the season."

Thai Perceptions of Environmental Problems

In Thailand, the word for "environment" (*sing waed lorm*) was only recently invented. Designed and introduced by the central authority, the word itself may suggest the notion that humans are at the center of the environment. On the other hand, the word for "nature" (*dharmmachart*) was used long before the term for environment was coined. In the case of nature, it carries the notion of Buddhist philosophy as "Dharmma," the teaching of the Lord Buddha. Perhaps, because of this, the people interviewed found it very difficult to discuss the definition of "environment." On the contrary, most of them, particularly the lay people, could go on and on when talking about nature. They seemed more comfortable taking about nature than the environment.

The lay people associated the term "environment" with the natural environments on which their livelihoods depended. To the lay respondents, environment carried a negative connotation, and the environmental problems were seen as the result of ill-

treatment, misuse and mismanagement of natural resources by the people themselves.

A taxi driver in Bangkok, for example, defined environment as "pollution caused by the destruction and change of nature." Significant to note is the fact that the lay people see human beings as being part of their "environments" too.

"Environments encompass people around us, nature, people in the house, and the neighbors," said a housewife in a village of the Northeast. A similar view was emphasised by Pa Jii, a local Moslem in the South, who elaborated that "People in general often understand that the environments are the things around us. They forget that they themselves are the environments, all of which can be polluted.... When the environments are degraded, the minds of the people decayed."

Are Our Respondents Personally Concerned about the Environment?

All key informants interviewed expressed their concerns about environmental problems. Three main reasons can be identified as to why people have become concerned over the environmental problems: 1) they were experiencing the depletion of the local resource base, 2) the way they were brought up since childhood, and 3) they were given by society a role of environmental responsibility.

Young people who grew up in rural areas had seen their livelihoods were affected by the environmental degradation. For example, Tarn, a young woman living in a rural area of the South, said: "Our lives were so dependent on the environment for four factors of necessities. In forest, we used to have wild animals; in streams, we had fish and all kinds of food. But today, they have all gone."

Do Our Respondents Think That Other People Are Concerned about the Environment?

When we asked about whether the Thai public in general was concerned about the environment, the responses were diverse. The Thai public appears to be divided into those who are greatly concerned about environment and those who are not. Those who are concerned give reasons like the following:

"For those who have children, they are very concerned about how they are going to be when they grow up," a woman in a village of the Northeast said.

Different reasons were given to explain the fact that the majority of Thai people are not interested in environmental situations. A young woman from the South said: "We are fighting against various, unknown movements such as the industry and media, both of which make us feel that environmental situations are not serious. But as we look deeper, it is frightening." This view was also shared by at least five others.

For environment specialists, they viewed that Thai people had diverse concerns over the environment, depending on the potential benefits a person saw in the environments. "Some groups are very concerned about the environments. Those who live in cities would not feel the problem of deforestation," said a female specialist from an environmental agency.

"Thai people think only for their own, short-term benefits. Anything to gain from it, even it will destroy the environment, they will take it," was a critique from a retired physician in a province near Bangkok. Another specialist claimed, "Some Thai are certainly aware of the impacts; but I take it that the majority of Thai people lack environmental consciousness."

Thai Perceptions of an Environmental Problem: Global Warming

Based on our brief preliminary survey, "global warming" was identified as a common topic of environmental concern to the general Thai public. We then designed four questions to draw on "cultural models" of global warming: 1) their experiences of warmer climate, 2) reasons underlying warmer climate, 3) who should be responsible for solving the problem, and 4) their advice on how the problem should be addressed.

We began with the question: "Have you experienced warmer climate lately?" In response, most of the respondents in all sectors said that they had experienced warmer climate and observed the changes of seasonal patterns. Among those who said that they had experienced warmer climate, a local farmer in the Northeast observed: "I felt the climate has not been normal. It has gotten hotter in the hot season and the winter gets shorter."

The lay people's explanations centered on what they experienced locally. This included the loss of trees in producing shade and absorbing heat. They saw an increase of "green" vegetation could be a solution. The more educated, urban-based groups relied on scientific models, seeing the impact of industries and population increase as two main contributors to global warming. A leading NGO advocate suggested that a simple technique of soil conservation—increasing humus and nurturing living organisms in soil—would keep moisture, hence lower soil surface temperature. In his view, nature has a way of healing itself, as a balanced and self-regulating system.

When posed with the question of responsibility and what could be done about it, we could observe that here "collective" ideas and meaning were at work. All people said that environmental problems needed collective actions from "everyone" and every sector in society. In general, the government's role was seen as ineffective and prone to corruption. The private sector was seen as consisting of "more bad people than good ones," who immorally treated nature and the environment. At the individual and family level, each came up with different responsibilities, including, for example, "telling family member

not to destroy nature"; "using energy efficiently"; "planting more trees"; and "compromising family's needs and individual's lifestyles."

Beliefs about the Causes of Global Warming

As for the reason why this condition changed, most lay respondents associated it with the decline of forest. Young Mard Suren, a Moslem villager in the South gave his reason: "It's because nature has lost its balance. Big trees are virtually gone, and there remains only small green plants, which are grown for commercial purposes."

People in the media and business also saw that global warming was associated with deforestation. Trees were claimed to have a major role to play in protecting the Earth from direct exposure to the Sun's rays. But they saw that industries worldwide were the main contributor of greenhouse gases. A young businessman outside Bangkok explained: "The causes of global warming come from various industries, destroying atmosphere and ozone layers. This allows the heat from the Sun to pass directly to Earth's surface without the forest acting as filter. This increases the heat on Earth."

Scientists and specialists were reluctant to admit that they felt the temperature changes, but had to be convinced by scientific evidence. A woman working in an environmental agency explained: "I . . . have to believe it, because there is a lot of evidence suggesting global warming. . . . There are many scientific indicators—movements of glaciers, resulted from the rise of global temperature. The melting has caused a lot of sudden floods in some areas where there were not supposed to take place." A provincial physician also told of his experience, "It certainly is getting hotter." He then concluded that "it is caused by the destruction of forest, hot air released from air conditioners and the changes of sea currents."

What Can Be Done about Global Warming?

The group of policymakers and legislators was the one that was really serious about the problem of global warming and their views on the causes were firmly based on scientific arguments. Adul Wichiencharoen gave his reasons behind global warming and clearly indicated that it was directly linked with deforestation. He said, "Our biggest problem is the loss of forest in a vast amount, which in future will have a great impact on atmosphere leading to global warming." He gave his suggestions: "We must use energy efficiently and minimize the use of all forms of energy use, for example, use of car pool systems. In making policy recommendations, I have tried pushing for the use of solar energy in small communities so that it will not cause pollution and the increase use of burning fuels."

Among the key informants, one of the NGO advocates deserves some attention. His explanation of global warming is distinct from the rest. Former local leader Wiboon was convinced that scientists must be correct in saying that the earth has gotten warmer and had no arguments against scientific explanations. What was interesting, however, was

his explanation as to how we could help prevent and resolve the problem of global warming. He believed that simply increasing "green" or vegetation areas and most importantly "rejuvenating" the soil would help solve the problem of global warming, saying that,

> My way of doing is simple. We can help by increasing the green areas and soil humus. But what an increase of soil humus and micro-organisms can do is critical. Humus keeps moisture in soils, reduces risks for organisms underneath, and controls soil temperature. [He then continued] For me, I have employed sustainable agriculture, trying to keep balance of the three components. First, economics deals with self-sufficient livelihood. Second, good relationships within community must be built. Third, we must try to rehabilitate the environment to keep a balance in nature.

Who Should Be Responsible for Solving the Problem of Global Warming?

There was a consensus among the people interviewed that solving the problem of global warming needs collective action. The typical view on collectivity is that strong action from governmental institution was needed. This normally came from traditional formal leaders in the rural area, such as these two key informants.

"Although the problem is dependent on local individuals, advice must come from agencies under Department of Local Administration" stated Boonrawd, former village leader in the Northeast. Similarly, Chuan, an owner of a shrimp-farm on the East coast said that: "It's better for the Government to issue orders. Orders must come from the Ministry of Interior."

The two key informants above represented a typical patron-client relationship between government officials and local leaders. A sense of dependency still persisted even though the two had retired.

Not all people in the rural area saw it that way, however. Pa Jii in the South stressed collective action both from various organizations and from participation of people from all walks of life.

> All sectors and organizations must cooperate among each other. This is not about the individuals. A single organization will not be able to do it. Because good environments are virtually gone, we must build new structure for environments. Therefore, we need various organizations to work together.

A young woman, Tarn, from a village raised an issue of "rights" and responsibility, as she said,

> We must talk about the rights of the people too. At present, Thai citizens have not been entrusted with responsibilities and rights to protect themselves. So I am not quite clear how to handle this responsibility problem.

As for institutional responsibility, the government received some sympathy from some respondents. One specialist said a very similar thing to Pa Jii above,

> All people must take responsibility together. Formerly, I thought environmental problems should all fall on government's responsibility. But now the problems have accelerated, intensified, and become more complex. Consumers and users of natural resources should also be responsible. As for the government, it should take a supervisory role in providing financial and technical supports. . . . Polluters should pay back or give something in return to society.

The second response on responsibility stressed the need for individuals to act—"every individual must take responsibility." This view included family responsibility too. The following statements reflect a diverse set of individual strategies employed in daily life.

"I and my family will not do things that will cause problems—like cutting down forest. At the same time, I will help build knowledge and ideas in the community," said Tarn, a young woman from the South.

"If it gets hotter, we can change our quarters. For example, building air-conditioned rooms, turning on electric fans, and finding things to protect from the heat," said Nawa, a housewife in the Northeast. Similarly, Mr. Chuan, a shrimp-farm operator said: "Collectively we should plant trees. Do not destroy them. In the area where forest has disappeared, we must replant them. Houses can be altered, by adding more windows and space to allow easy airflow."

Both Nawa's and Chuan's views reflect a general trend in Thai society in responding to warmer climate they experience. It shows that their perception of the problem, as they were personally experiencing the "heat" of climate, was merely local. They did not seem to see "global warming" to be extended beyond the localities in which they live.

Other examples of individual responses can also be found in the media and business group, who represented an educated and urban-based view on a response to global warming. Controlling needs and keeping lifestyle modest was seen as another way of coping with environmental problems. A young journalist, Jaeng, echoes an "eco-nocentric" view of environmental values.

> I would minimize the use of energy. I would use it, only if necessary. If I wanted a house, I would build a simple one, which did not require a lot of energy. I feel using a lot of energy will destroy natural resources. This goes with the use of papers, electricity and water. It should be in our consciousness that we will use them without creating problems for the later generations.

"Be less selfish. Do not leave air conditioners on all the time. Do not cut down trees, but plant more of them," a retired provincial physician suggested.

It is interesting to note that these two types of solutions to environmental problems

are based on two different rationales: scientific and applied local knowledge. Specialists, administrators, and, especially the scientists, all stressed that the Thai public seems to have inadequate knowledge of global warming. To them, global warming must be explained and dealt with by scientific "knowledge." As leading environmental scientist Suraphon Sudara strongly suggested, "Everything can be explained by sciences, and normally, sciences must be able to explain everything, even social phenomena."

Turning to Thailand, he argued that an environmental problem was often understood from different perspectives, even among scientists and specialists themselves.

"A proper way to solve environmental problems in our country is that," he proposed: "We must bring all qualified people of different views to sit down and work out the differences. We as scientists must provide the public with correct knowledge. And it must be reliable."

A female specialist at an environmental office argued that global warming required scientific explanations. And this should be the role of the government to give advice to the public what action should be taken. Environmental education is another major responsibility falling into government's responsibility. Formal education was a means to raise environmental awareness. "Education is very important. We must implant environmental consciousness in children," the same specialist added.

NGO advocates, on the other hand, seemed to view "knowledge" as process of learning—collective learning, to be precise—as opposed to a transfer of tangible "pieces" of knowledge from experts to recipients. "Community learning is the main issue. We must trust the community to work things out, by using the government's resources," said Alongkot, an NGO working for wildlife conservation.

Knowledge was viewed by NGO advocates, as well as the student and youth group, as a collective learning process. Through the process of group consensus and local forums, people will be able to identify different levels of cause and effect of the problems. To them, environment was not just about the work of sciences. It was related also to culture and livelihood, which were generated and passed on from one generation to the next. Highly regarded former local leader Wiboon put it nicely:

> Education must be able to make people understand the relationship between their livelihoods and nature. Environment should not be understood purely by the work of sciences. Environment is about life.

This view is the opposite of what a trained scientist Suraphon Sudara said earlier that environmental problems must be dealt with by sciences.

In addition to people's awareness of and responsibilities for solving global warming, we asked key informants to give their views on Thai government's rationales and policies with regards to global warming. In general, they had no disagreements with what the government has outlined, but saw them as inadequate. The government, they claimed,

has concentrated solely on a regulatory approach in preventing emission of greenhouse gases.

Conclusion

The Thai case shows a significant difference in the use of "cultural models" of environmentalism. Whereas Kempton *et al*. suggest that all Americans share a single common cultural model of the environment, our study suggests that Thailand may have two distinct sub-cultural models—one employed by the urban-based population, the other characterizing the rural population, or the "center" versus "periphery." Environmentalism should not be considered to have originated from a single source of knowledge and to operate according to a common rationale. Members of an individual "sub-culture" use their cultural resources to interpret and make sense of a world in which they live and of the changes that affect them. Imposing one set of "paradigms" (e. g., dominance of applied sciences over local knowledge) over the others, as the Thai case demonstrates, may have brought about inactive environmentalism: people know about and are aware of environmental problems, but lack individual efficacy and collective action. Environmental problems then are not seen coming from within but from somebody else out there somewhere.

To this end, environment and environmentalism—or "eco-consciousness" is a complex process of organizing ideas and knowledge, not only about a world in which we live "out there," but also about how we define our social existence. There appears to be two sets of knowledge that different groups use to interpret the two separate "worlds," reflecting the widening gap between the urban and rural population sectors. The two sets sometimes oppose each other. For example, a trained scientist stressed that "environment can only be explained by sciences." But a local leader did not see it that way: "Environment is not all about sciences; environment is about life," as one of the key informants, Mr. Wiboon, put it. From this perspective, our ability to work together, allowing each individual segment of the population to "learn" to shift his or her "mental model" will be a great challenge of Thai "environmentalism" in this century.

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