



*Strengthening local capacity
in the economic analysis
of environmental issues*

The Economy and Environment Program for Southeast Asia (EEPSEA) was established in May 1993 to support training and research in environmental and resource economics across its 10 member countries (i.e., Cambodia, China, Indonesia, Lao PDR, Malaysia, Myanmar, Papua New Guinea, the Philippines, Thailand, and Vietnam.) It aims to strengthen local capacity for the economic analysis of environmental issues so that researchers can provide sound advice to policy makers.

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How People's Decision Making Affects Their Conservation: A Study from Thailand

In Thailand, as in many developing countries, one key environmental challenge is getting local people to take part in conservation activities. Knowing the factors that can make people participate in these activities is therefore important for policy makers. However, the personality traits that affect people's decision making with regard to conservation have not been well studied. To help fill this knowledge gap, a new EEPSEA study has looked at the impact of people's patience on their decisions to take part in conservation activities.

The study is the work of a team led by Suparee Boonmanunt from the University of Cologne. It involved a time-preference experiment in a Thai coastal village and a mangrove-planting activity to observe how people actually participate in conservation work. The study finds that less present-biased participants contributed more to the conservation activity and were more likely to be members of a local conservation group. The study recommends that local conservation groups can help people to commit to environmental activities. Therefore, such groups should be a key part of conservation policy and strategy.



A summary of EEPSEA Research Report No. 2016-RR13: "Intertemporal Decisions for Oneself and for a Group and Conservation Decisions: Evidence from a Thai Coastal Village" by Suparee Boonmanunt, Thomas Lauer, Bettina Rockenbach, and Arne Weiss. Comments should be sent to: Ms. Suparee Boonmanunt, Faculty of Environment and Resources Studies, Mahidol University, Salaya, Phutthamonthon, Nakhon Pathom, 73170 Thailand
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The importance of the decision-making process

The way a person thinks about the future can have important consequences on how they make decisions. For example, a farsighted person may be more likely to engage in conservation activities (that may take years to have an impact) than someone who is more focused on the present, who will be more likely to exploit natural resources for immediate gain. Equally, a more farsighted person is more likely to save money than a less patient person who wants to spend money immediately.

Understanding such decision-making processes is therefore important for policy makers who are aiming to get people to contribute to conservation, or who are looking for ways to get people to save money to make them more financially resilient.

Unfortunately, research on these issues is not very well advanced, particularly in developing countries. To help fill this information gap, a team of researchers from the University of Cologne and University of Oldenburg looked at the decision-making process of villagers in Thailand.

The study area: Naithung village

The study participants were drawn from Naithung village, Nakhon Si Thammarat province, Thailand. The village is located along the coast of the Gulf of Thailand. The major economic activities in this village are all related to fishing. Although there is open access to the village's fishing grounds,

fishermen in Naithung still fish in a sustainable way by using techniques and equipment that allow small immature marine animals to escape, grow, and reproduce.

In 2002, some of the village's fishermen founded the Naithung's Fisherfolk Conservation Group to organize regular conservation activities, including the annual building of offshore shelters for aquatic animals. Out of the 704 households in Naithung, around 70 households are members of the conservation group.

The conservation group also manages a savings fund to help its members financially and to encourage other villagers to join in with local environmental activities. The money saved in this club is used to provide micro-loans to club members and to finance conservation work.

Assessing decision-making behavior

The research team undertook an experiment to look at the different priorities that Naithung villagers have when making intertemporal decisions (decisions that involved an element of time). The experiment assessed whether there was a link between the way villagers make intertemporal decisions and their likelihood of engaging in conservation activities. It also compared the difference in intertemporal decisions that individuals made for themselves and for a group.

In total, 180 villagers took part in the experiment, of which 63.33% were fisherman and

90% were from fishing families. About 38.33% of the participants were members of Naithung's Fisherfolk Conservation Group, whereas the rest were nonmembers.

In the experiment, the participants were asked to choose from a number of options. In each option, they would receive a given amount of money on two "payout dates"—a sooner date and a later date. For example, option 1 would payout THB 285 on the sooner date, but nothing at the later date. In option 2, participants would get THB 190 on the sooner date and 100 at the later date. In option 3, the sooner payout would be THB 95 and the later payout THB 200. Option 4 would payout nothing on the "sooner" date and THB 300 at the "later" date. These payment scenarios reflected a situation in which people would be paid interest on their savings depending on how long they left them in a bank.

Time frames and group choices

The participants in the experiment were offered three time frames over which these payouts would take place. In time frame I, the sooner date was "today" and the later date was in two weeks; in time frame II, the dates were today and four weeks; and in time frame III, the dates were two weeks and four weeks.

After all the participants had made all their decisions, a randomly selected participant in each session randomly drew one number lot from a box to determine the actual decision that would be paid out.

Table 1. Decisions in time frame I (today, +2 weeks)

No.	Payment Dates	Option 1 (THB)	Option 2 (THB)	Option 3 (THB)	Option 4 (THB)	t Sooner Date	k Delay Days	P Gross Interest Rate
1	TODAY	285	190	95	0	0		
	AND in 2 WEEKS	0	100	200	300		14	1.05
2	TODAY	270	180	90	0	0		
	AND in 2 WEEKS	0	100	200	300		14	1.11
3	TODAY	240	160	80	0	0		
	AND in 2 WEEKS	0	100	200	300		14	1.25
4	TODAY	210	140	70	0	0		
	AND in 2 WEEKS	0	100	200	300		14	1.43
5	TODAY	150	100	50	0	0		
	AND in 2 WEEKS	0	100	200	300		14	2.00

Mangrove-planting activity, Naithung village, Nakhon Si Thammarat province, Thailand (Photo by Suparee Boonmanunt)



and option 1 would be chosen by participants who are least patient. Furthermore, a subject would show that s/he was present-biased if s/he wanted to be paid more on the sooner date in the short-run (time frame I) than in the long-run time frame (time frame III).

To assess whether there was a link between the way villagers made intertemporal decisions and their likelihood to engage in conservation activities, the research team organized a mangrove-planting activity on the dates that the participants in the experiment picked up their future payoffs. This task was simple and not labor intensive; thus, it allowed the researchers to observe the contributions of both female and male participants within a wide age range.

The conservation task

After the participants picked up their money, they were asked to go to a nearby desk. At the desk, research assistants asked them whether they would like to plant mangrove (the mangrove seeds were free of charge). If they answered yes, they were asked, "How many seeds would you like to plant and for what reason?" and "Why?" If they answered no, they were asked, "Why not?"

The number of mangrove seeds that each participant had chosen to plant was taken as a proxy for their willingness to engage in conservation work.

Another proxy for conservation was also considered—the participants' membership in the village's conservation group. As the conservation group regularly organizes various conservation activities and asks members to contribute labor, time, or money, its membership is a decent proxy for a person's commitment to conservation.

To assess the difference in intertemporal decisions that individuals made for themselves and for a group, the experiment was conducted in both an individual and a group setting. First, the participants had to make their choices for themselves with no input from anyone else. Then, in a group setting, the participants were informed about the choices that the other group members had made for themselves in the individual setting. They were then asked to make choices for the group.

Judging patience and present bias

As can be seen, the total amount of payoff on both sooner and later dates in each option increased with the option number, with participants having to be more patient to receive a higher total payoff. The options chosen by participants in the experiment, therefore, revealed information about their patience and bias toward the present. For example, option 4 would be chosen by participants who are most patient,

What kind of decision makers live in the village?

The study found that 20% of the participants were future-biased, 40% were nonbiased, and 40% were present-biased. This indicates that there was a good variation in present bias among the participants.

When it came to group decisions, the study found that when participants decided for a group and were informed about the other group members' choices, they were, on the average, less present-biased. This shows that the information about the other members' preferences had an effect on individual behavior.

The study also found that when participants knew that their choices might affect other people, they took into account others' preferences and did not just maximize the total payoff they would receive. Interestingly, it was found that participants did not simply conform to the choices of others, but gave more weight and importance to the choices of those people who were more patient.

Which type of person is committed to conservation?

When it came to the conservation task, out of the 180 participants, 61 (33.89%) did not plant any seeds. The majority of the contributors (56 participants or 31.11%) planted five seeds.

Less present-biased participants planted more mangrove seeds. The members of the conservation group planted, on the average, more mangrove seeds than the nonmembers did. The conservation group members also exhibited more commitment to this work. Moreover, the longer the time that members had been in the conservation group, the more they contributed to the conservation activity.

Overall, in comparison with non-group members, group members contributed more to the mangrove-planting activity, and they expected others to do more. All of these findings may suggest that conservation groups help people to learn about conservation and enhances their commitment to it.

The policy importance of conservation groups

The significant correlation between the experimental results and people's actual field conservation decisions provides evidence for an important—yet not well-studied—internal psychological trait that affects the likelihood of a person to contribute to the common good. This provides a very useful insight for those working with community groups who want to encourage people to get involved in conservation work.

The findings suggest that a conservation group might work as a way to get people to commit to conservation activities, and thus overcome the present bias (not to conserve).

Moreover, it shows that long-term membership of such groups can enhance the contributions that people make. All these results support the formation of conservation groups as a way to involve local communities in managing the resources they rely on.

Also, informing people about more patient others could lead them to more patient decisions. The study therefore recommends that such groups should be considered as a potential institutional solution to conservation problems and suggests that they might reduce the need for heavy-handed state intervention.

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