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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: Cambodia, China, Indonesia, Laos, Malaysia, Papua New Guinea, the Philippines, Sri Lanka, Thailand, and Viet Nam. Its goal is to strengthen local capacity for the economic analysis of environmental problems so that researchers can provide sound advice to policymakers.

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Sharing The Cost Of Conservation : The Fanjingshan Nature Reserve In China

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One of the biggest challenges facing nature conservation across Southeast Asia is balancing the demands of habitat protection with the needs and aspirations of the people who live in and around important wildlife areas. A new study from China calculates how to fairly compensate people affected by conservation measures in these areas. It also shows that taxing those who benefit from – but are not affected by – wildlife protection represents the most equitable way to pay for such compensation. →

A summary of EEPSEA Research Report 2004-RR3, *Distribution of Benefits and Costs among Stakeholders of a Protected Area: An Empirical Study from China* by Yazhen Gong, Centre for Chinese Agricultural Policy, c/o Department of Forest Resource Management, Faculty of Forestry, 2424 Main Mall, University of British Columbia, Vancouver, V6T 1Z4, Canada.
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Total willingness to pay is greater

→ Conflicts over Conservation

The study was undertaken by Yazhen Gong, a researcher from the Chinese Center for Agricultural Policy, currently studying at the University of British Columbia in Canada. Gong undertook her research to help resolve problems that are developing in nature conservation in China. At present, the country's national conservation goals are primarily being met through the creation, management and policing of over 1,200 protected areas. In many of these sites, local people's access is restricted and their traditional ways of making a living by, for example, gathering firewood, strictly limited. This is in contrast to the benefits that many people who do not live in protected areas receive from biodiversity conservation and for which they make no payment. This

inequitable situation has created conflicts that could eventually become an obstacle to sustainable conservation in the country.

Saving the Monkey

To get the evidence she needed, Gong looked at the impact of a new conservation policy in Fanjingshan National Nature Reserve (FNNR). This area in Guizhou Province was selected since it experiences many of the problems faced by other protected areas in China. Conservation in the FNNR is vital. It is home to the endangered Guizhou snub-nosed monkey. If pressures on the reserve cannot be alleviated, this monkey, along with some other species, may become extinct in the very near future.

In order to protect the snub-nosed monkey (along with other species in the reserve), the managers

of the FNNR have decided to implement a new conservation program designed to run until 2010. Under this program, more restrictions will be made on how local households can use the forest.

Gong set out to find how local communities would be affected by these measures and to calculate adequate compensation levels for any loss in livelihood that they might suffer. To investigate how such compensation might be financed, she looked at whether people outside the protected area – who would benefit from the conservation measures – would be willing to fund it through their taxes.

Winners and Losers

Three groups of people were interviewed to investigate the impact of the new conservation plan. These were: 11 households living in the most

Household Firewood Collection

Firewood	Critical core area	Other core area	Buffer zone
Annual consumption in 2000 (tons)	17	18	17
Average collection time (working days)	97	72	135
Mean monetary value (CNY)	5,233	5,670	5,280
Mean value	2,180	1,750	1,647
Forest products consumed in the home as a share of household's total income (%)	83	84	80
Firewood as a share of household's total income from forest exploitation (%)	65	68	66

than the cost of conservation

Reasons for Willingness to Pay to Conserve Fanjingshan

REASONS	Urban Respondents (%)	Rural Respondents (%)
1. I can take personal pleasure in knowing or seeing that biodiversity in FNNR will continue to exist in the future.	35	35
2. Biodiversity in FNNR should have its own right to exist whether it is useful or not for human society now and in the future.	20	15
3. Although my family and I don't use biodiversity in FNNR, I'd like it to be conserved to have more options for its use in future	20	20
4. I want to save biodiversity in FNNR for my future generations	50	51
5. It is our common responsibilities to conserve biodiversity in FNNR	85	80
6. Other reasons	8	11

critical habitat of the Guizhou snub-nosed monkeys; 107 households living in other parts of the core area of the reserve; and 3,032 households living in the rest of the reserve area, including the boundary.

Under the new conservation rules, each group will have different restrictions placed on their activities. The people in the most critical habitat will not be allowed to make any economic use of the forest in the reserve. This group may have to be re-located. For all groups, timber and firewood collection and charcoal production will be limited to a greater or lesser degree. Market prices for items such as firewood, charcoal and

other forestry products were used to calculate how much the restrictions placed on the different communities would affect their current incomes.

To find out how much communities outside the protected area would be willing to pay for conservation in the FNNR, Gong carried out research in Longli County, also in Guizho Province. 244 respondents in 25 villages in rural areas in the county and 247 respondents in urban areas were interviewed. All respondents were given details of a proposed eco-tax designed to fund conservation in FNNR and were then asked whether they would support such a taxation

scheme.

The Value of the Reserve

Gong discovered that local people in the FNNR depend heavily on the forest in the reserve for their livelihoods. In particular, she found that those living in the critical core area would be impoverished if the new conservation program were implemented without alternative livelihoods being provided. They appealed to the reserve management bureau to help them to find other ways of making a living if more restrictions were imposed on them in the future. If this did not happen, they said they would not stop using

forest resources in the reserve even if this meant being punished.

Overall, Gong found that forestry activities such as firewood collection in the FNNR played the most significant role in local people's livelihoods, followed by crop cultivation. On average, forestry income accounted for about 65% of total household income. Her survey results and calculations found that under the new conservation program, people in the FNNR would suffer a loss of about CNY 270,000 (US\$ 326,374). This will significantly undermine their quality of life.

Gong concluded that if the local people are not compensated a commensurate amount, they would, in all likelihood, feel resentful about the conservation work in the reserve. Conflict between them and the reserve management bureau would therefore be likely. She also found that more than 60% of households in the core area were not willing to be resettled to other places even if given support by the government. The respondents said that they felt more comfortable living in the reserve; they enjoy its clean air and feel secure in supporting their families by using adjacent forest resources.

"Yes" to Conservation

In the second half of her research, Gong found that households in Longli County, who do not live in the FNNR, are willing to pay for biodiversity conservation in the reserve. Her survey results showed that about 82% of the urban respondents and about 89% of the rural respondents voted "Yes" for the proposed tax. The main reason given was that people felt a common responsibility for the work and hoped that future generations would benefit from it. Overall, the total willingness of Longli's residents to pay for biodiversity conservation in the reserve was estimated at CNY 2.6 million. This almost covers the total cost that would be borne by the communities affected by the new conservation program.

Guizhou Province has a total rural population of 29 million and an urban population of 9 million. The total amount provincial residents are willing to pay is thus much greater than the costs of the conservation program. The latter include local people's potential compensation costs and the project's implementation costs (CNY 60 million). Thus, the new conservation program –

including compensation for local people's losses and compensated linked to an eco-tax – would improve the overall welfare of society.

A More Equitable Future

As part of her research, Gong analysed the various factors that affected how much people would be willing to pay for conservation measures in FNNR. Not surprisingly, she found that as people's income rises so does the amount of money they are willing to contribute. From these findings she inferred that, with the continuous increase in per capita income in China, the potential funding for nature conservation that could be supplied by the public should increase greatly in coming years.

In light of these findings, Gong recommends that the Chinese government pay close attention to the impact new conservation programs have on local people and that proper compensation must be given to local communities. She emphasized that this is vital if new conservation programs are to be implemented equitably and with a minimum of social conflict.

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