H-2 A study on the relationship between development and quality of life (QOL), and environmental risk perception/behavior in Asian countries

(Contact Person) Michinori Kabuto, National Institute for Environmental Studies
16-2 Onogawa, Tsukuba, Ibaraki, 305-0053 JAPAN
(tel:+81-298-50-2333; fax: +81-298-50-2571; e-mail: kabuto@nies.go.jp)
(Total Budget for FY1997-FY1999) ¥ 85,000,000
(Budget for FY1999) ¥ 28,052,000
(Key Words) China, Indonesia, South Asia, , transboundary risks, risk assessment/management, risk awareness and perception, traditional risks, education
(Abstract) As an approach to effective managements of the so-called "transboundary risks" in which acid rain and other global environmental issues are included, general status of knowledge and perception of the environmental issues/risks were surveyed for the lay people consisted of around 1000 each in 5 urban areas in China and 3 in Indonesia (around 8000 people altogether) and more than hundreds of villages in rural areas in India, Bangladesh and Nepal Major environmental risks, in case of urban areas, have been evaluated on the basis of the existing statistics with some additional measurements and questionnaire of respiratory symptoms and infectious diseases among children. As for villages, environmental risks have also been evaluated with the existing rough risk assessment data, interview studies as well as, especially in Bangladesh, clinical examinations on the possible effects of arsenic in drinking water All of the data obtained have been analyzed to assess the status of risk perception as a function of the stage of environmental risk transition. A series of logistic regression analyses showed the odds ratios of awareness of the local environmental issues, perception of their health risks as well as needs of counteractions among the lay people tended to be higher in the cities with heavier industrial pollution compared to Shanghai or the reference city in China (Table 1), whereas they were much less regardless of the cities in Indonesia with an exception for the highly educated group in Jakarta. In China, the above tendency was also consistent when the sub-areas classified by land use were considered. In Chongqin, where industrial pollution has been the most serious in China, percent people who are thinking the pollution is hazardous for their own health, was the highest in the industrial area or 98 %, for example. Their possible differences by cities or sub-divided areas were not significant.

Table 1 Percent people who answered that their health is affected by industrial air pollution

variable		Odds Ratios	p-value
Sex	Male	1.0	0.64
	Female	1.0	-
Age group	15-19	0.97	0.92
	20-29	0.93	0.53
	30-39	0.92	0.33
	40-49	1.0	-
Sub-area	industrial	6.8	0.00
	Commercial	0.97	0.70
	Residential	1.0	-
Education	High	1.1	0.20
	Middle	1.0	0.96
	Low	1.0	-
City	Beijing 北京	5.7	0.00
	Chengdu 成都	19	0.00
	Chongqin 重慶	50	0.00
	Darien 大連	22	0.00
	Shanghai 上海	1.0	-

On the other hand, odds ratios of knowledge/risk perception/action needs for the global environmental issues including acid rain issue were largely dependent on education level in both in China and Indonesia. In the two groups of lay people and highly educated people in Jakarta showed large differences in knowledge/perception of health risks/needs of counteractions regarding regional environmental issues as well as global environmental issues, suggesting especially in Indonesia education or related socio-economic factors is a critical determinant of them.

In the villages of the 3 South Asia countries, perception of the prevalent health risks of the traditional type as well as the risks associated with global issues were generally low. Even the people who know the health risk of arsenic pollution of drinking water obtained the information from health or medical professionals, for example. On the other hand, in India, deforestation has progressed in general during the last 10 years but economic level as well as the traditional risks have been improved generally with the effects of "green revolution" and the economic development at the national level. In order to protect deforestation, which may cause water shortage and other natural disasters, it is concluded that agricultural productivity should be raised. In Nepal, where 51 villages over the nation were surveyed, poverty and deforestation were shown to be the most serious for their life, which were also characterized with high

fertility, high infant mortality and low health services.

Thus, in order to manage the "transboundary risks" as quickly as possible, it seems important to raise risk awareness in Asian developing countries through health services, education and mass media, for which more intense risk communications among scientists and policy makers in developed and developing countries in Asia must be recommended. To this end, a simulation model which could estimate the cost of excess risks due to a delay of environmental management would be useful as a tool for such risk communication among developed and developing countries, for which assistance by developed countries to their capacity building in terms of risk assessment for not only modern but also traditional risks. It is needless to say, the available data needed for risk assessment are generally scarce yet.