

Environmental Risk Communication and
Management Based on Stakeholders '
Quantitative Risk Assessment: A Case of
Maptaphut Industrial Development Area,
Thailand

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year	2014-09
その他のタイトル	利害関係者の定量的リスク評価に基づく環境リスクのコミュニケーションとマネジメント：タイ国マタプット工業地帯を例として
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URL	http://hdl.handle.net/10173/1221

論文内容の要旨

Failures in multi-stakeholder decision making process for environmental risk management are contributed by (1) the immense gap in risk judgment and perception among relevant stakeholders (2) loss of trust between stakeholders which effects their involvement in risk management processes. The goal of this study is to develop risk communication strategies that potentially bridge the gap in risk perception and increase trust among relevant parties. The study was divided into two parts.

In the first part, to understand the difference in the risk judgments of stakeholders, the study aims at exploring stakeholders' fundamental understanding of risk-related judgments and identifying factors contributing to perceived risks. An exploratory model was created in order to investigate stakeholders' qualitative risk assessment. In this model, the relationship between stakeholder's perceived risks and factors related to the physical nature of risks, such as perceived probability of environmental contaminations, probability of receiving impacts, and severity of catastrophic consequences, were examined. In addition, psychological and cognitive factors, such as ability to control the risk, concern about family members, experiences with air pollution, and perceived benefits from industrial development were also included in the analysis of risks perception held by laypeople. The analysis consists of two sections.

1: the qualitative analysis of risk perception exhibited by NGOs, environmental protection agencies, academia, and public health service had been conducted based on the results of in-depth interviews. The significant factors determining a degree of risk perception were also indentified. The results demonstrated that stakeholders exhibited different degrees of risk perception, and their determinants of risk perception are different. This phenomenon caused the gap in risk perception among stakeholders.

2: risk perception hold by lay people was thoroughly investigated, and relationship between risk perception and potential predictor factors, factors related to the nature of risks and psychological and cognitive factors, were analyzed by means of multiple regression analysis. In addition, how the relationship between these factors differs among people facing a different level of hazardous gas contamination was also investigated. The study conducted surveys by distributing questionnaire forms to 181 residents who currently live in communities experiencing different levels of hazardous gas contamination. The results showed that the factors related the physical nature of risk were more influential to predict risk perception hold by lay people from high-risk and moderate-risk communities. Moreover, different from findings of previous studies, environmental risk perception hold by people in high-risk community has a positive relationship with perceived benefits. Lay people in high-risk community, actually, realized the fact that higher benefits are always associated

with higher risk taking. Overall, the results suggest that communication platform for fostering mutual information sharing between stakeholders should be established because laypeople are actually knowledgeable, and their possessed information should be communicated to other stakeholders as well.

In the second part, the study aims to investigate roles of uncertainty communication in building public trust in risk management operated by industrial agencies and public authorities. The study first investigates whether laypeople have capability to conceptualize uncertainty associated with risk management and uncertainty related to potential impacts. Then, relationship between lay understanding of uncertainties and levels of trust in risk management operated by public authorities and industrial agencies were examined. Finally, (1) roles of uncertainty communication in building trust and (2) the strategic way to communicate information related to uncertainty were discussed based on empirical studies and literature reviews.

In conclusion, the study proposed risk communication strategies which contain specific purposes to bridge the gap in risk perception among stakeholders, and to build trust between the public and public authorities and industrial agencies.

Keywords: environmental risk management; risk communication; risk perception.