



CLIMATE CHANGE Policy Brief

No. 2011-CCPB5

Understanding Household Adaptation Decision-Making in Southeast Asia

Climate change presents a new and huge challenge with far reaching repercussions and implications especially for countries in Southeast Asia with limited resources to meet the demands. Relevant research has therefore a very important role to play in filling in the gaps. One critical area is understanding how people make adaptation decisions so that action can be taken to improve poor decisions and build on good ones. An analysis of a cross-country study on household adaptation behaviour in Southeast Asia has identified the determinants of household adaptation decisions. It found that the choice of taking proactive or reactive adaptation measures was significantly influenced by the following factors: housing type, household size, level of education, attendance at training programs on disaster preparedness, perception of the risk of future extreme climate events, the number of information channels available, and the level of dependence on others for help.

Cross-Country Study

A cross-country study entitled "The Climate Change Adaptation Behaviour of Households, Communities and Local Government Units in China, Indonesia, the Philippines, Thailand, and Viet Nam" by the Economy and Environment Program for Southeast Asia (EEPSEA) came in the wake of EEPSEA's climate change vulnerability map for Southeast Asia (Yusuf and Francisco 2009) which had created a huge impact in the region. The cross-country study focused on some of the 'hotspots' in the map and examined the adaptation strategies and adaptive capacities of local households, communities and government units in five selected Southeast Asian countries.

Study Sites

For the cross-country study, six specific study sites in the five countries (two in Viet Nam) were selected in which an extreme climate event had been experienced during the period 2005-2008 (Figure 1). These events were major typhoons and floods. The rationale was that since climate change was manifesting itself in extreme climate events, understanding how households responded to such events would provide a good indication of how they were responding to climate change.

This study was part of the EEPSEA Cross-Country Project on Adaptation Behavior in Response to Extreme Climate Events in Southeast Asia and China which was conducted over five countries: Vietnam, Indonesia, the Philippines, Thailand and China in 2009-2010.

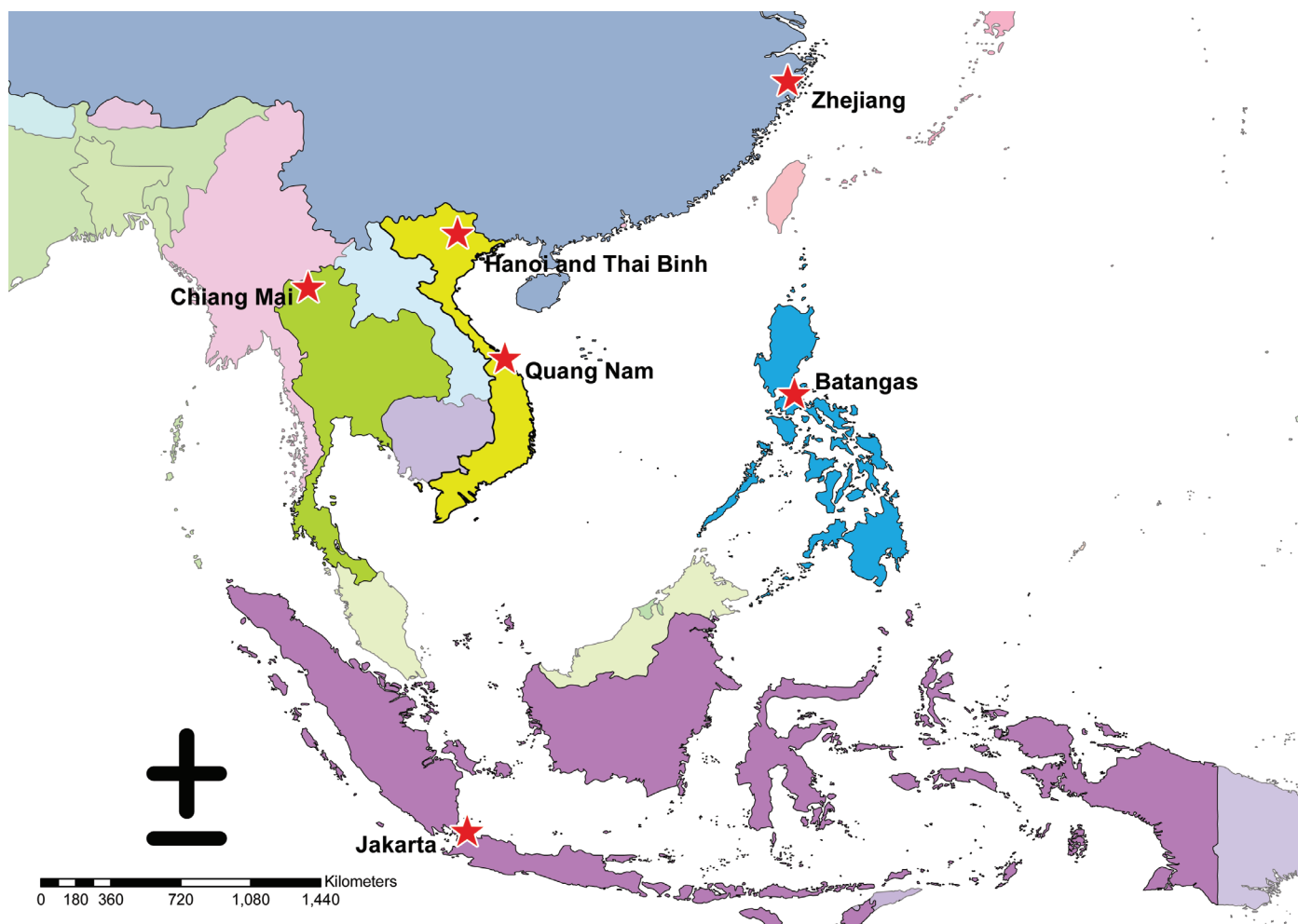


Figure 1. Study Sites

Household Adaptation Behavior

The different adaptation strategies employed by the households were divided into four categories: behavioural, soft structural, technological, and financial. Table 2 lists out the practices and their level of usage/popularity in the five countries.

The most prominent behavioural adaptation measures adopted by most of the respondent households across the five countries were evacuation and moving properties to safer places. In the Philippines, Viet Nam and China, many households also stored food, drinking water and other necessities in preparation for the climate event.

"Soft structural" adaptation strategies include building scaffolds; placing bamboo frames, hollow blocks or heavy metal objects on top of roofs; tying houses to trees or poles; reinforcing ponds and dykes; and using sandbags or concrete blocks as dykes. In China, the Philippines, Viet Nam,

and Indonesia, repairs or reconstruction of houses using more durable materials or structures was highly popular while sandbags/concrete block dykes and scaffolding were common practices among Thai and Vietnamese households, respectively.

Early warning systems featured prominently in Thailand, but other than this exception, capacity in using technological measures in general was low across the countries. Meanwhile, only the households in China appeared adept at financial adaptation in terms of diversifying their incomes and/or borrowing money compared to those in the other countries. An interesting finding was that although none of the households had opted to buy disaster insurance, 46% of the Chinese respondents, 37% of the Thai respondents, 33% of the Filipino respondents, and about 20% of those in rural Vietnam expressed their willingness to do so if it became available.

Proactive and Reactive Adaptation Measures

The adaptation strategies the households had used were classified into mutually exclusive options i.e., (a) no adaptation; (b) reactive measures, and (c) proactive measures. Reactive adaptation measures refer to actions that are done at the very last minute or when the event is already happening. They also refer to minimal efforts to protect oneself. The most common practices under this category are evacuation and "soft structural" strategies. Proactive measures, on the other hand, come from anticipating the event way in advance, for instance, by relying and acting on early warnings, constructing elevated housing units, and building concrete walls or dykes to prevent flooding. Clearly, proactive adaptive behavior should be the goal for policy-makers to aim for in disaster management and adaptation capacity-building programs. The study discovered that 64% of the households had relied on reactive measures and about 31% on proactive measures and that those with higher adaptive capacities tended to prefer the latter over the former. The rest (5%) did not practise any adaptation at all.

Factors Influencing Household Adaptation Choices

An econometric analysis was conducted using the findings of the cross-country study to ascertain the determinants of household adaptation decisions. The variables were: experience, exposure/sensitivity, wealth, social capital, and household characteristics and belief system.

In terms of experience, we found that attendance at training events on disaster preparedness was a significant factor. Households which had received such training had a higher probability of undertaking proactive rather than reactive adaptation measures. The same could be said for households with permanent-type houses and more storeys in their houses (exposure/sensitivity factor) as well as those which owned their own houses and boats/vehicles. Therefore, it was surmised that wealthier households tended to opt for proactive strategies over reactive ones. This corresponded with the finding that those who found no need to seek help from others – probably because they were sufficiently well-off – were more likely to choose proactive measures. Conversely, those who asked for help from outside the household were found to be more likely to use reactive measures.

Table 2. Adaptation strategies of households in selected SEA countries

Adaptation Strategies	Level of Usage	Which Countries
Behavioral		
Evacuation to safer places	High	China
	Medium	VN, Phil, Indo
	Very Low	Thai
Moving properties to safer places	Very High	Thai
	High	Phil, China, VN
	Medium	Indo
Storing food, drinking water and other necessities	High	Phil, VN, China
	Very Low	Indo, Thai
Soft Structural		
Repairing/reconstructing houses using more durable materials or more resilient structures	High	China, VN, Indo, Phil
Building mezzanine/ second floor	Very Low	VN, Indo, Thai, China
Building scaffolds to protect household structures	High	VN
	Medium	Thai
Use of sandbags/ concrete blocks as dykes	High	Thai
	Very Low	VN, Indo
Reinforcing ponds and dykes	Medium	VN
	Very Low	China, Indo, Phil,
Technological		
Changing cropping patterns	Very Low	China, VN, Phil, Thai
Installing pumping machines	Low	Indo
	Very Low	VN
Early warning system	High	Thai
	Medium	China, Phil, VN
	Very Low	Indo
Financial		
Diversifying income sources, borrowing money, etc.	High	China
	Low	VN, Indo
	Very Low	Phil

Source: Household survey data (2009)

Notes: (1) Very high: >70%; High: 41-70%; Medium: 20-40%; Low: 10-20%; Very low: <10%

(2) If a country is not listed for a particular strategy, then that country was not found to practise it.

Increasing the number of information channels providing news about extreme climate events (a form of social capital) was found to decrease the probability of undertaking reactive measures. This underscores the important role that information provision plays in enhancing the adaptive capacity of households.

The size, education level and belief system of the households also played an important role in adaptation preferences. Larger and more educated households were found to be more likely to implement proactive adaptation strategies. However, households were more likely to undertake reactive measures if they perceived the risk of future climate change-induced events to be more severe than what they had previously experienced. This could be due to an attitude of resignation that such events were 'fated' and thus beyond their control. The study had in fact found this attitude to be predominant among the respondents.

Collective Adaptation and Barriers to Adaptation

The main barriers to adaptation identified were lack of finance, not knowing when the extreme climate event would occur, not knowing how to adapt, and not expecting the event to be severe. Strong social capital and social networks could ironically also act as barriers in preventing households from relocating to safer places. In terms of collective adaptation, the main barrier was the lack of cooperation among the various stakeholders and constituents.

Policy Implications

The results of the analysis provide an important reference for policy-makers in improving the adaptive capacity of households by way of understanding the factors that support proactive adaptation and addressing the barriers to it. From the analysis, it is clear that getting households to opt for proactive adaptation measures could be facilitated by providing those households with limited means better access to information, training on disaster management and adaptation options, livelihood support to enhance their economic capability, opportunities for higher education, and financial support to enable them to build stronger and more resilient houses. This will in turn help instil a more empowered and less fatalistic attitude to climate disasters, a critical factor in building household resilience. Offering disaster insurance should also be considered as a viable adaptation option to offer households. Besides these measures, it is critical for governments to provide households with adequate and timely information related to imminent climate events so that the latter can prepare for and respond to these events more effectively. Finally, government and non-government organizations should take decisive action to strengthen community-based adaptation.

Policy-makers can encourage proactive adaptation measures by providing timely climate event-related information, more training on disaster preparedness, and financial support to build more resilient houses.

Reference:

Yusuf, A.A., and H.A. Francisco. 2009. Hotspots! Mapping Climate Change Vulnerability in Southeast Asia. The Economy and Environment Program for Southeast Asia. Singapore.