Executive Summary

While the Asian countries have been successful in achieving economic growth and poverty reduction, the region cannot avoid exposure to a variety of disasters. Indeed, Asia, particularly the area of the ASEAN Member States (AMSs), is the most prone region to disasters in the world.

In preparation for or the aftermath of a disaster, a variety of market and non-market mechanisms are indispensable for people to maintain their livelihood. Market insurance mechanisms include mechanisms through direct insurance markets as well as indirect mechanisms based on credit, labor, and other market transactions.

Since market insurance mechanisms are still weak, especially against damage caused by disasters, governments and communities can play important roles in strengthening overall insurance mechanisms. The state can provide public insurance schemes and social protection programmes. Community-based informal insurance mechanisms can also make up for a lack of formal insurance schemes. Such informal insurance networks themselves comprise the important component of social capital in a broader sense.

To strengthen market, state, and community insurance mechanisms, we need to have a strong grasp of the roles of individual and social preferences. By employing combined data sets, we identify effective policies to facilitate livelihood recovery of the victims of a disaster, considering closely people's behavioural responses against unexpected events caused by a variety of natural and man-made disasters.

In this project, our first aim is to produce the academic foundations of the nexus between a disaster and individual/social preferences so that we can fill in the remaining large gap in the literature on behavioural impacts of disasters by investigating two issues: first, whether and how a disaster affects preferences; and second, how preferences determine the vulnerability and resilience against damage caused by a disaster.

We believe that such a study is also indispensable in terms of designing and implementing appropriate post-disaster policies. To achieve this aim, we employ both existing data and new experiments from selected fields to quantify heterogeneous behavioural impacts of the disaster. Through this project, we can provide important policy implications for better insurance mechanisms at community, national, and regional level, generating inputs for high-level forums of the Association of Southeast Asian Nations (ASEAN) and East Asia.

In order to approach the first issue, whether and how a disaster affects preferences, it is indispensable to grasp people's individual and social preferences correctly by carrying out carefully designed experiments. Canonical methods as well as a new experiment such as the "Convex Time Budget (CTB)" experiment were conducted in selected sites to elicit and compare social preferences in different Asian countries and areas.

To carry out an assessment of the second issue, how preferences determine vulnerability and resilience, we employ standard and non-standard outcome measures in economics. Our outcome evaluation criteria include: standard individual decisions, particularly consumption and saving decisions based on the standard Euler equation, firm decisions and performance, psychosocial outcomes, and human capital outcomes. Basically, in each component, data on welfare measures such as consumption, ex post risk coping strategy against a disaster, and other dimensions such as social networks were collected and analysed by using multi-purpose household survey instruments together with the carefully designed experiments. Also, we employ relatively new measures in economics such as management practices and psychosocial measures as outcome measures. The latter measure is to capture post-traumatic stress disorder (PTSD), which has been studied extensively in public health and social epidemiology literature.

There are several policy implications from the findings of our research project.

First, the poor might be significantly risk averse and present-biased as in the case of farmers in the Philippines, Thailand, Viet Nam, and Cambodia. Natural disasters make the poor more present-biased and risk averse than those who are unaffected by disasters. AlsoAccordingly, disasters seem to undermine weaken

the effectiveness of the pre-existing informal network of social safety nets. Such impacts of disasters may stimulate people's too much dependence on financial and non-financial assistance from the government, donor agencies, and NGOs, undermining sound post-disaster reconstruction or "building back better." Reinforced present-bias may induce substantial procrastination behaviors such as over-eating, over-spending, drinking, smoking, gambling, and over-indebtedness. Risk aversion would also facilitate procrastination behaviors. Since careless cash and in-kind transfers to the victims will worsen procrastination behaviors, the government and donor agencies should carefully design incentive-compatible safety net and development interventions to establish "commitments" against procrastination behaviors. Examples may include carefully-designed in-kind or voucher transfers rather than pure cash transfers, disaster loan programs, and commitment micro-saving programs.

Second, the importance of individual preferences can be also found in business investments. As found in the case of Lao PDR, firms with risk adverse managers are more likely to self-finance investments rather than to employ borrowing from a bank or other informal sources, leading to lower overall asset level. A risk averse firm manger is more likely to face binding "self-inflicted" borrowing constraints on additional investments. Risk tolerant managers, are more likely to have adopted better practices and to achieve employment stability. To facilitate "resilient" firm investments, it will be indispensable to make managers take risks (promoting entrepreneurship) by providing effective insurance mechanisms against business related risks. Concrete examples may include business information sharing network, credit guarantee system, and public facilitation of trade credit.

Third, natural disasters generate not only economic damages but also serious psychosocial and family problems as shown in the case of the Great Sichuan Earthquake in China and preschool children's psychological health in Fukushima. Such negative impacts seem to be large substantial among children and teenagers who are in an important phase of accumulating their human capital. Since non-cognitive skills may be more malleable than cognitive skills at later ages, the government must play an important role in facilitating human capital accumulation of the young who are affected natural disasters in a broader sense effectively by amending not only cognitive skills at school but also the non-cognitive skills of the victimized children and teenagers directly

or indirectly. In addition to rehabilitation of infrastructure and reconstruction of family and community economies, special cares and resources should be provided at schools and out of schools to amend psychosocial damages caused on the students. Carefully-designed “rehabilitation camps” for the affected children may also be effective to weather the problems.

In sum, it would be imperative to strengthen market, state, and community insurance mechanisms by promoting risk control and financing instruments such as “hard” insurance schemes within each country and across countries in the region. Yet, we also need to place special care on subtle psychosocial and behavioral problems of the victimized children, teenagers, business managers, and other ordinal people.