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What is Autonomous Adaption? Resource Scarcity and Smallholder Agency in Thailand

TIM FORSYTH
London School of Economics and Political Science, London, United Kingdom

and

NATALIE EVANS *
EMGO Institute, Amsterdam, The Netherlands

Summary. — The concept of autonomous adaptation is widely used to describe spontaneous acts of reducing risks posed by resource scarcity and, increasingly, climate change. Critics, however, have claimed it is unproven, or simplifies the agency by which smallholders respond to risk. This paper presents empirical research in eight Karen villages in Thailand to identify how resource scarcity is linked to adaptive responses including livelihood diversification. The paper argues that autonomous adaptation is driven by how environmental change and scarcity present livelihood risks, rather than physical risks alone. Adaptation planning therefore should acknowledge different experiences of risk, and socio-economic barriers to adaptation.

Key words — adaptation, livelihoods, resource scarcity, households, Asia, Thailand

1. INTRODUCTION

"Adaptation" is now widely discussed within development planning as a means of reducing risks posed by resource scarcity, environmental change, and increasingly as the result of climate change (Adger, Huq, Brown, Conway, & Hulme, 2003; Adger *et al.*, 2007; Dessai & O'Brien, 2007). A key aspect of this discussion is how far planned forms of adaptation can be supplemented by "autonomous adaptation," which are actions undertaken by affected people without planned interventions (IPCC., 2007; Smit *et al.*, 2001, p. 877).

Autonomous adaptation, however, is controversial. Debates within economics have argued that autonomous adaptation, by definition, is inefficient, and might reduce attention to necessary planned interventions (Chambwera & Stage, 2010, p. 9; Eisenack, 2009; Stern, 2007). Analysts have therefore called for more evidence to identify how autonomous adaptation might occur, and connect with planned adaptation (IPCC, 2012, p. 399).

Researchers on environmental adaptation within developing countries, on the other hand, have argued that there is a long history of how poorer societies have responded to resource scarcity and population growth (Boserup, 1965; Head, 2010; Netting, 1993; Tiffen, Mortimore, & Gichuki, 1994). These debates have also indicated that the term "autonomous" might be a misnomer because adaptation can reflect pre-existing social practices; the capacity for local adaptation can be planned; and because adaptation might not occur spontaneously in the face of new environmental changes, but according to how changes impact on local needs and livelihood strategies (Ayers, 2011; Batterbury, 2011; Ribot, 2010; Rigg, 2006).

Accordingly, various analysts have argued that adaptation among vulnerable populations "should be done with a deeper awareness of the social, economic, cultural, and political factors that frame their actions, incentives, opportunities, and limitations for action" (Christoplos *et al.*, 2009, p. 3), and that "adaptation always has, and arguably should, refer to more than just responses to climate change" (Sabates-Wheeler, Mitchell, & Ellis, 2008, p. 53). Indeed, one of the earliest papers describing a new "adaptation science" proposed that development planning should assume not predefine the nature of risk and adaptive responses arising from environmental changes or scarcity, but instead ask "what" is being adapted to (i.e., the experience of risk); "who" adapts (what are the socio-economic barriers to adaptation); and "how" (how do these actions, adopted by certain groups, reduce vulnerability to environmental change) (Smit, Burton, Klein, & Street, 1999).

This paper contributes to debates about autonomous adaptation in three ways. First, it reviews the tensions within academic and policy debates about the meaning and ways of achieving autonomous adaptation. This discussion especially refers to the differences between interpretations of adaptation under climate change policy, and from pre-existing debates about adaptation to resource scarcity and challenged livelihoods in developing countries.

Second, it presents an empirical study of autonomous adaptation within an ethnic group in Thailand that has been associated with environmental adaptations in the past (the Karen). This study analyzes the differential experience of resource scarcity in eight villages in order to assess how and for whom adaptive responses are adopted, including livelihood diversification.

Third, the paper then draws lessons from this discussion and study for wider debates about the role of autonomous adaptation in development planning. The paper's key argument is

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that autonomous adaptation can form an important complement to planned adaptation, but that autonomous adaptation, by definition, is driven by how environmental scarcity and change impact on the availability of livelihoods. Consequently, planned forms of adaptation need to acknowledge the relationships between environmental change and livelihood risk, and how socio-economic barriers limit both livelihoods and adaptive responses. Building adaptation policy on the nature of physical risks alone might fail to acknowledge these linkages to livelihoods, and could even restrict smallholder agency to undertake autonomous adaptation if the actions of planned adaptation inhibit livelihood diversification.

2. RESOURCE SCARCITY AND AUTONOMOUS ADAPTATION

Adaptation has been defined as adjustments to behavior or economic structures that reduce vulnerability of society in the face of scarcity or threatening environmental change (Adger *et al.*, 2007). The term has been used in debates about resource scarcity for some years (Batterbury & Forsyth, 1999; Netting, 1993; Tiffen *et al.*, 1994), but is increasingly used in the context of anthropogenic climate change. The Intergovernmental Panel on Climate Change (IPCC, 2007: Sections 5.5.1 and 5.5.2), distinguishes between "planned adaptation," which results from deliberate interventions, and "autonomous (or spontaneous) adaptation," which is "adaptation that does not constitute a conscious response to climatic stimuli but is triggered by ecological changes in natural systems and by market or welfare changes in human systems."[1] According to this definition, autonomous adaptation might include practices such as altering agricultural inputs, introducing water-managing technologies, altering cropping cycles, or diversifying economic activities. They can be based on pre-existing "risk-management or production-enhancement activities," but which "have substantial potential to offset negative climate change impacts and take advantage of positive ones."

The concept of autonomous adaptation, however, has raised various questions, sometimes because different disciplines understand adaptation in varying ways. Behavioral economists, for example, have interpreted adaptation as the alterations in individual behavior necessary to combat climate change. These economists have argued that adaptation will not happen autonomously (or without government action) because of the lack of market incentives to make private actors change behavior since climate protection remains a public good (where there are no rights to exclude actors who do not undertake changes) (Stern, 2007; Vernon, 2008; World Bank, 2010). Accordingly, some economists have argued that "little adaptation is observed empirically" and that "autonomous adaptation is inefficient" (Eisenack, 2009, p. 1). This interpretation of "adaptation" as changing behavior was also used by Ostrom (2009, p. 8), who wrote "coping with climate change" implies "the potential for building a more effective way of reducing greenhouse gas emissions at multiple levels."

For many other analysts of climate change policy, however, these discussions of adaptation above actually refer to climate change mitigation—or the reduction of greenhouse gas concentrations—rather than the more common definition of adaptation as actions that reduce the impacts of enhanced greenhouse gas concentrations (Adger *et al.*, 2003; Hardee & Mutunga, 2009). But there is disagreement about how to understand these impacts. Burton (2009, p.89), for example, argues that most discussion of adaptation under the United Nations Framework Convention on Climate Change (UNFCCC) has utilized the so-called "pollutionist" approach (Burton, 2009, p. 89), which seeks to reduce direct harmful impacts of additional greenhouse gas concentrations such as floods and droughts. In contrast, the "development" approach to adaptation seeks "to incorporate adaptation to climate in development planning and implementation" including actions such as livelihood diversification, enhancing social safety nets, or integrating adaptation to climate change with disaster risk reduction. This approach draws on older research within cultural and political ecology on adaptation to resource scarcity, which have often distinguished between adaptive processes (the long-term changes faced by societies such as sedentarization or population growth), and adaptive strategies (the shorter-term means by which risk is reduced, such as terracing land or diversifying livelihoods) (Bartlett, 1980; Denevan, 1983).

Accordingly, various analysts have argued that adaptive responses at the local level are not simply driven by environmental changes *per se*, but in how these changes present hazards for vulnerable people's livelihoods and assets (Ayers & Forsyth, 2009). And similarly, livelihood diversification in itself can be another form of adaptation if it means that people are less reliant on resources that are threatened by environmental changes (Kuruppu, 2009; Osbahr, Twyman, Adger, & Thomas, 2008; Sabates-Wheeler *et al.*, 2008; Schipper, 2006). Research on Sustainable Livelihood Approaches (SLAs), for example, has highlighted ways of diversifying sources of income in order to reduce the risks posed by specific environmental threats such as drought or declining soil fertility through actions such as livelihood diversification, agricultural intensification, and strategies of migration for income (although, as discussed below, the benefits of these strategies can be distributed unequally; and they are not a panacea against all environmental risks) (Carney, 2003).

But these points also pose questions for the concept of autonomous adaptation. If adaptation is seen as a wider process of seeking livelihoods in the face of resource scarcity, adaptation is not just an "autonomous" response to new physical risks such as floods, but can be based on pre-existing cultural and economic practices. In turn, the capacity to diversify livelihoods might also be built through processes of planned adaptation. But if planned adaptation only focuses on direct physical risks such as flooding, without assessing how these risks impact upon livelihoods, then development interventions might overlook local causes of social vulnerability to environmental changes, or options for making environmental changes less threatening to livelihoods. Consequently, there is a need for debates about autonomous adaptation within climate change policy to consider lessons from older debates about adaptation to resource scarcity in order to understand how environmental changes might impact upon livelihoods, and how affected people respond.

3. AUTONOMOUS ADAPTATION AND SMALLHOLDER AGENCY

The term autonomous adaptation implies that individuals or communities can undertake adaptation to environmental risks and scarcity independently of outside intervention. But the agency of smallholders to undertake autonomous adaptation is uncertain and not always apparent. It is commonly claimed that the poorest people are most vulnerable to climate change (Smit *et al.*, 2001), or that they can adapt to global climate change "with great difficulty and much pain" (Kates, 2000, p. 15). But some analysts have argued there is an apparent paradox that relatively poor groups such as pastoralists in the West