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Adaptive lives. Navigating the global food crisis in a changing climate

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ABSTRACT

Human adaptation to climate change is gaining increasing academic as well as political attention. Understanding how and what people around the world adapt to is, however, difficult. Climate change is often, if not always, only one of a multiplicity of exposures perforating local communities. In Biidi 2, a small Sahelian village in northern Burkina Faso, climate variability have had a great influence on inhabitants' lives since the major droughts of the early 1970s and 1980s. Tracing the intertwinement of drought, diminishing agricultural production and the need to buy food, this article explores how villagers attempt to attract development projects and negotiate with political parties in order to negate the impact of the global food crisis on their livelihoods. In doing so the article attempts to show how adaptation to climate variability is related to multiple, intersecting processes, and in this specific case is a matter of navigating changing socioeconomic factors. Using recent theory from social anthropology, adaptation is explored as a matter of social navigation. It is suggested that this theoretical approach might help nuance and elucidate how, and to what, local people around the world adapt.

1. Introduction

The question of what people are adapting to has gained increasing attention in academic as well as policy spheres. For developing countries the impacts of climate change are seen as requiring particularly significant adaptation. This adaptation is, however, played out in many different sectors of society, which makes isolating, or simply locating, observed or expected climate stimuli as drivers of human actions very difficult (e.g. Adger et al., 2007; Mertz et al., 2009; Patt et al., 2010). A major reason for this is the complex interplay of different driving forces for development and environmental change (Adger et al., 2009). Double (O'Brien and Leichenko, 2000), triple (Reenberg, 2009) and multiple (Belliveau et al., 2006) exposures such as globalisation, population increases, and various policy and economic incentives and barriers intermingle with cultural and individual concerns and environmental change when particular strategies are either chosen or rejected.

Before climate change became an important object of scientific study and international concern, the Sahel region came to represent what Raynaut (1997) called the quintessence of a major environmental emergency after the severe episodes of drought and food deficiency witnessed in the region in the 1970s and 1980s. Even though Sahelian populations were accustomed to climate variability (e.g. Rain, 1999) these droughts became significant not only due to their severity, but also because they "prompted profound economic and political reforms and extensive international assistance" (Batterbury and Warren, 2001, p. 1). In Biidi 2, a small Sahelian village in northern Burkina Faso, the villagers have since utilized new opportunities provided by these developments in order to negate the negative impact of drought and precipitation variability on their traditional economic mainstay: rainfed agriculture. By diversifying their livelihood activities out of agriculture they strive to make money to buy food no longer available from their fields. In this they have been very successful and households in the village have been able to buy the food needed to feed its members. The need to buy food has, however, made them vulnerable to increasing food prices.

The escalation of global food prices in 2007/2008 can be ascribed a complex array of causes and effects. Most analysts agree however that a potent mix of rising oil prices, biofuel policies, market speculation, US dollar depreciation, trade restrictions, lack of investments in the agricultural sector, falling productivity due to soil depletion, and climate change all contributed to the rapid rise in 2007/2008 (e.g. Ghosh, 2010; Lang, 2010; Vanhaute, 2011). Whatever the cause, the net welfare effect of the global food crisis on the world's very poor has been negative, largely due to the high share of net food buyers among this group (e.g. Conceicao and Mendoza, 2009; Cudjoe et al., 2010). In Burkina Faso between 40 and 70 per cent of household expenditures is devoted to food (FEWS NET, 2010). In the north of the country approximately 50 per cent of the stable food (millet) is purchased (FEWS NET, 2010, p. 71). Even though Burkina Faso is not a net food importing

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country, millet prices increased by 43 per cent between November 2007 and November 2008 (Swan et al., 2010). Moreover, the conundrum of continued high food prices in much of the developing world despite falling global prices (Ghosh, 2010) is also seen in Burkina Faso (FEWS NET, 2011a,b).

Tracing the interconnected trajectory of drought, diminishing rainfed agricultural production and the need to buy food, this article explores how the villagers in Biidi 2 attempt to negate the negative impact of rising food prices on their lives. Besides providing a much needed local scale evidence-based analysis of the impact of the global food crisis on individuals and households in the developing world (e.g. Benson et al., 2008; Janvry and Sadoulet, 2010), the article shows how adaptation to climate change can be a matter of navigating changing socioeconomic rather than bio-physical factors. Using recent theory from social anthropology, adaptation to drought and continued precipitation variability in the village is explored as a matter of social navigation (Vigh, 2003, 2006, 2009). It is suggested that this theoretical lens might help elucidate how local people around the world adapt, what they adapt to, and, in turn, human sociality in social–ecological systems.

The article starts with a brief reference to the theoretical context of adaptation to climate change, global environmental change research and social navigation. Then the local setting and the methodology are presented. The results are organized around three perspectives. First, the villagers' perception of the climatic changes over the last 50 years is presented. Second, it is shown how these changes have made rainfed agriculture difficult, which has prompted households to engage in livelihood diversifications. Finally, we show how the villagers attempt to attract development projects and negotiate with local political power holders in order to negate the impact of the global food crisis. The results are followed by a discussion and a conclusion.

2. Theoretical framework

2.1. Adaptation to climate change

The concept of adaptation has been understood, applied and interpreted in various ways in the climate change literature (e.g. Engle, 2011; Smit et al., 2000; Smit and Skinner, 2002; Smit and Wandel, 2006; Smithers and Smit, 1997). At its most basic level, adaptation research distinguishes between natural and human systems. Natural systems respond to climate perturbations in an entirely reactive manner, whereas the response of humans can be reactive (after impact takes place) and/or anticipatory (before impact takes place), "incorporating environmental perception and risk evaluation as important elements of adaptation strategies" (Smithers and Smit, 1997, p. 133; Adger et al., 2007; Smit and Skinner, 2002). As such, the adaptive response in social systems is often defined on the basis of intent and purposefulness, emphasizing that adaptation is a process by social actors aimed at negating and/or ameliorating a concurrent or future situation. These general attributes are summed up by the IPCC (2007), who define adaptation as an "adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities".

Isolating actual or expected climate stimuli as drivers of current and/or anticipated human actions has, however, turned out to be difficult. In a review of climate change adaptation literature published between 2006 and 2009, Berrang-Ford et al. (2011, p. 28) highlight that "[a]daptive activities are occurring in response to a mixture of climate change and other motivating factors", and that climate change was seen as the sole driver of adaptation actions in just 19 per cent of the cases reviewed in developing countries and in 26 per cent of those from developed countries (Ford et al., 2011). This very closely follows findings from literature published before 2006 (Adger et al., 2007).

A major point of work on adaptive processes in communities across the world is hence to associate and/or disassociate human decision-making and actions with/from climate perturbations, and a relatively large body of literature revolves around the issue of singling out climate as a driver of change (e.g. Adger, 1999; Adger et al., 2009; Belliveau et al., 2006; Eakin, 2000, 2005; Leichenko and O'Brien, 2008; Mertz et al., 2009, 2010; O'Brien and Leichenko, 2000; Reid and Vogel, 2006; Roncoli et al., 2001; Thomas et al., 2007; Tschakert, 2007). Evidence from the Sahel indicates that although households are aware of climate variability and change, they often point to economic, political and social rather than climate factors as the major reasons for change (Mertz et al., 2009, 2010; Nielsen, 2009, 2010; Nielsen and Reenberg, 2010a, 2010b; Tschakert, 2007). The complexity and intertwinement of drivers is also found in Southern Africa (Reid and Vogel, 2006; Thomas et al., 2007; Ziervogel et al., 2006; Ziervogel and Taylor, 2008), Asia (Adger, 1999; Coulthard, 2008), and Latin America (Eakin, 2000, 2005). In order to capture actual adaptive processes at various response spaces (Thomas et al., 2005) it therefore seems crucial to understand adaptation as more than just adjustments to some climate stimuli. Human beings do not only navigate a changing biophysical reality when adapting to climate change, but also a changing social, political and economic one and often in novel and surprising ways.

2.2. Global environmental change research and social navigation

A range of approaches aimed at engaging seriously with human agency, assumptions, beliefs, values, commitments, loyalties and interest and their intertwinement with wider political, economic and social contexts in global environmental change research have been proposed. O'Brien (2011) suggest the emerging science of deliberate transformation as a way to complement and supplement current research on adaptation by focusing our attention on understanding, contesting and creating change rather – and in contrast to much adaptation literature – merely accommodating it. Understanding change and human adaptation as potentially creative and/or transformative are also important aspects of ecosystem stewardship, adaptive governance and resilience research. An important notion in this research, and particularly in the latter, is, for example, the idea of adaptability (Walker et al., 2004). Understanding adaptability, or the capacity of a social–ecological system to learn, adjust, and continue to develop within a particular context, imply that we understand how social variables such as identity, values, networks, political and power relations either constrain or facilitate learning, but also the wider socio-economic context in which this plays out (Chapin et al., 2006). The explicit focus on non-environmental factors is also a central premise of political ecology research exploring the relationships between social, political, economic and historical factors and environmental issues and changes (Watts, 1983; Robbins, 2004). Understanding human–environmental relationships requires, in other words, that we expand our research "from investigating human action in relation to a certain. environmental issue, like climate change, to the challenge of multilevel collaborative societal responses to a broader set of feedbacks and thresholds in social–ecological systems" (Folke et al., 2010, p. 4).

To help capture individual and collective social responses to broader and often non-environmental feedbacks and thresholds in climate change research we propose drawing on theory dealing with human subjectivity and practice. We agree with Hulme (2008, 2009) and O'Brien (2010) that research of global environmental change and human adaptation has to a very large extent been based upon objective studies of measurable phenomena and