Geoforum 71 (2016) 33–43

Contents lists available at ScienceDirect

Geoforum

journal homepage: www.elsevier.com/locate/geoforum

Yielding to high yields? Critiquing food security definitions and policy implications for ethnic minority livelihoods in upland Vietnam

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ARTICLE INFO

Article history:
Received 3 August 2015
Received in revised form 20 February 2016
Accepted 2 March 2016
Available online 15 March 2016

Keywords:
Hybrid seeds
Maize
Food security
Livelihoods
Ethnic minorities
Vietnam

ABSTRACT

Agricultural intensification is at the core of the current agrarian transition in Southeast Asia. New crop varieties promise higher productive outputs, but depend on significant increases in chemical inputs. In the highlands of northern Vietnam, we find that adopting hybrid maize is inevitably associated with an increasing dependence on cash for direct and indirect inputs and investments. This reliance on the cash economy is a new reality for semi-subsistence ethnic minority Hmong households, and provides evidence of the advancing agrarian transition in Vietnam's remote northern highlands. While livelihood outcomes of hybrid seed adoption include increased maize yields, local farmers highlight numerous drawbacks, including unstable input prices, limited storage periods, pest concerns, and the increased reliance on cash. Strong preferences for the taste of traditional local maize, as well as concerns over regular harvests, lead many households to resist the full adoption of new hybrid varieties and redirect hybrid maize to livestock feed and household alcohol production instead. Thus while state policies extoll the virtues of high-yielding hybrid maize for poverty reduction, we find that food availability is an overemphasized element of household food security and upland agricultural development policies. Food security interventions must move beyond conceptualizing food security as a result of food availability alone, and also incorporate cultural acceptability of food, better understandings of hybrid maize cultivation challenges, and respect the seed diversity on which local livelihoods and food security rely.

1. Introduction

Noteworthy transformations are taking place throughout rural Southeast Asia linked to increasing market integration, the unrelenting commoditization of production, land grabbing, and the closure of land frontiers (Nevins and Peluso, 2008; Borras et al., 2011; Hall et al., 2013). With increasing demand for timber, biofuels, and food products, substantial land conversions are taking place alongside an unprecedented intensification of rural land use. Numerous actors from individual smallholders to large transnational corporations are involved, with these dynamics combining to intensify and deepen the agrarian transition at a scale unprecedented in Southeast Asia. Some individuals and households have benefitted significantly from increased commoditization and global market links, others have engaged only selectively in new market opportunities, while further groups have been disadvantaged by infringements upon indigenous rights, reduced resource access, and intensifying cultural clashes (Moore, 1998; Caouette and Turner, 2009). These sweeping changes are also closely connected to the challenges of food security, biodiversity, environmental degradation, and climate change (Misselhorn et al., 2012).

In the midst of this agrarian transition, Vietnam has been considered a poverty reduction and development success story after reaching lower middle-income country status in 2009. Surpassing a number of poverty-related Millennium Development Goals, the national poverty rate has fallen from 58% in 1993 to less than 3% in 2015 (World Bank, 2009a, 2012, 2015). Moreover, Vietnam now fluctuates between being the world's third or fourth largest rice exporter. While this all sounds extremely positive at the macro level, there are still real and increasing disparities in socio-economic wellbeing and persistent food security challenges (Nguyen Viet Cuong et al., 2015). Notably, ethnic minority households in Vietnam's northern uplands are seldom reaping the rewards of the country's agrarian transition and economic growth. The 2010 Vietnam Household Living Standard Survey (VHLSS) indicated that poverty rates were highest in the Northern Midland and Mountains region (29.4%), with ethnic minority Hmong households among the poorest at 48.7% (GSO, 2010a).[1] While the govern-

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[1] The 2010 poverty line was VND 3.12 million per capita per year (US$162 in 2010). Clearly, poverty rates are an incomplete story, given that many upland ethnic minorities maintain semi-subsistence livelihoods.

http://dx.doi.org/10.1016/j.geoforum.2016.03.001
0016-7185/

ment has implemented upland poverty reduction and food security policies, little is known about the impacts of these policies on local people's long-held livelihood strategies and approaches to food security.

In its quest to enhance national food security, Vietnam's government is promoting intensified maize cultivation. National maize output rose significantly between 1961 and 2004 (Gerpacio and Pingali, 2007), and this trend continued with 2004 production levels at 3.43 million tonnes (yield: 34, 617 ha) rising to over 5.19 million tonnes (yield: 44,354 ha) in 2013 (FAOSTAT, 2015). This rise has been buoyed by technological innovations such as high-yielding hybrid seeds,[2] strongly endorsed by the government. Production is further encouraged to feed the domestic 'livestock revolution' (Gerpacio and Pingali, 2007; FAOSTAT, 2015). Concurrently, maize remains a staple crop for many upland subsistence producers and, due in part to subsidies and state propaganda,[3] hybrid maize varieties have been widely adopted to replace lower yielding locally-bred or 'traditional' varieties (landraces), including wild, open pollinated varieties (Zeven, 1998; Dang Thanh Ha et al., 2004; Erenstein, 2010; Stromberg et al., 2010). This continuing rise in demand for maize for food and animal feed is expected to result in further crop substitution, commercialization of existing maize-based production systems, and expanded and intensified maize cultivation, particularly in the agriculturally marginalized northern uplands (Gerpacio and Pingali, 2007).

Approximately 6.2 million people in small-farm households in Vietnam's northern region are food insecure or at risk of food insecurity (FAO, 2004). Hmong ethnic minority households in the four most mountainous border provinces (Sơn La, Lai Châu, Hà Giang, and Cao Bằng) are considered among the poorest and most vulnerable to food insecurity (FAO, 2004; Minot et al., 2006). Given the pace of the agrarian transition occurring throughout the region, researchers have suggested that the rapid modernization and commercialization of upland farming in such remote areas is *unlikely* to reduce poverty for many reasons – including inadequate market institutions, insufficient insurance, and weak communal safety nets (Pandey et al., 2006). Through our own fieldwork we have found that Hmong livelihoods in Hà Giang province rely heavily on maize cropping systems. However, limited scholarship is devoted to food security and livelihoods in this province, and to date, none focuses on the challenges and constraints to local Hmong household food security as Vietnam advances its agenda for industrialized agriculture.

This paper investigates how ethnic minority Hmong households in Hà Giang province, northern Vietnam (Fig. 1), are adapting to the introduction of state-supported hybrid maize seeds and the impacts this agricultural intensification program is having on local food security. We have three core objectives. First, to understand the role of state actors in the introduction and adoption of hybrid maize seeds in Hà Giang province. Second, to investigate the successes and challenges for Hmong household livelihoods adopting hybrid maize. Third, to examine the degree of agency Hmong farmers reveal in their negotiations over hybrid maize adoption. But before we address these objectives, why is this not just another paper on the Green Revolution? First, hybrid varieties (see footnote 2) are not the same as the original Green Revolution high yield varieties (HYVs) of wheat and rice. Second, while some upland semi-subsistence farmers in this case study sell hybrid maize for livestock feed or as maize alcohol, rather than consuming it, this market involvement is nowhere near the same degree as farmers typically targeted by Green Revolution technologies (hence a distinction from lowland Vietnam and many other areas of Asia). Third, as Bonnin and Turner (2012) found for hybrid rice in a neighboring upland province, the introduction of hybrid seeds and associated technologies is not presently leading to important social differentiation as occurred earlier in India with HYVs.

To address our objectives, we next propose a conceptual framework that draws on food security, sustainable livelihoods, and agency debates, before introducing the actors at the core of this investigation. We examine how the hybrid maize program has been implemented in these uplands, the official actors involved, and their understandings of the benefits and drawbacks for local communities. We then turn to local farmer interpretations of this intervention, focusing on four causal factors of livelihood vulnerability identified during interviews. We find that farmers are flexing their agency in the face of state agricultural programs, determining the limits of adoption with regards to their astute knowledge of environmental limitations as well as cultural acceptability. Accordingly, we argue that food security interventions must move beyond commonly conceptualizing food security as a result of food availability alone. Consideration must also be paid to the local seed diversity on which livelihoods and food security rely, cultivation challenges, and to more fully recognizing the importance of culturally acceptable food.

This research is based on data gathered during field research in Hà Giang province. During May–July 2013 the first author completed unstructured/conversational interviews with 51 Hmong maize cultivators in six communes (Đồng Văn, Phố Cáo, Phó Bảng, Tả Phìn, Thài Phìn Tủng and Lũng Cú), in Đồng Văn district, Hà Giang, regarding their adoption (or not) of hybrid seeds and associated livelihood dilemmas. Twelve semi-structured interviews were also completed with agricultural extension officers, state officials, and NGO representatives. These data are supplemented by information gathered in 2009 and 2010 by the second author during interviews with over thirty Hmong farmers and marketplace traders in Hà Giang province regarding rural livelihoods.

2. Conceptualizing food security, sustainable livelihoods, and the role of agency

Understanding the core dimensions of food security is critical to examining the impacts of state policies on semi-subsistence agricultural livelihoods in Vietnam's northern uplands. Food security can be considered an ideology, reflecting our normative sensitivities about hunger, inequalities in access to food and the means to produce it, and power differentials in the food system (Maslow, 1954; Maxwell, 1996). Maxwell (1996) has explored the development of post-modern undercurrents in food security debates during the decades following the 1974 World Food Conference when 'food security' was defined as the "availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices" (UN, 1975, 14). Since then, Maxwell (1996) has identified three main transitions: from global and national to household and individual scales; from a 'food first' perspective viewing food as a lower-order human need to a preoccupation with long-term livelihood security (resilience) as a necessary condition

[2] Hybrid seeds are produced from selectively crossing two inbred and genetically different parental (P) lines. Female plants of the first (F1) offspring generation produce hybrid seeds, which are planted. The resulting hybrid plants possess heterosis or 'hybrid vigor', tending to produce higher yields. Yet, the seeds from these hybrid plants are significantly less productive if planted again; therefore farmers must purchase new hybrid seeds yearly (IRRI 2015). By contrast, random open-pollinated varieties (OPVs), and farmer-developed crop varieties (farmer-saved seeds) produce biodiverse landraces adapted to local environments (Zeven 1998; Gerpacio 2001; Vernooy 2003). A central problem of hybrid seeds in the paradigm of sustainable agriculture is the fact that they are essentially a genetic 'dead-end'.

[3] State propaganda to promote hybrid maize seed adoption includes posters extolling the virtues of hybrid maize pasted on the sides of road-side stalls and state buildings throughout the uplands, announcements made over village loudspeaker systems, and calendars distributed to farmers.