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The colour of maize: Visions of green growth and farmers perceptions in northern Laos

Maarit Helena Kallio[a,b,c,*], Nicholas John Hogarth[a,b,c], Moira Moeliono[d], Maria Brockhaus[b,c], Robert Cole[e], Indah Waty Bong[d], Grace Yee Wong[f]

[a] Viikki Tropical Resources Institute (VITRI), University of Helsinki, Finland
[b] Helsinki Institute of Sustainability Science (HELSUS), University of Helsinki, Finland
[c] Faculty of Agriculture and Forestry, University of Helsinki, Finland
[d] Center for International Forestry Research (CIFOR), Bogor, Indonesia
[e] Department of Geography, National University of Singapore, Singapore
[f] Stockholm Resilience Centre, Stockholm University, Sweden

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ABSTRACT

The rapid expansion of hybrid maize in the uplands of northern Laos is viewed by the government as meeting policy aims related to green economic development. Yet, growing evidence of negative consequences of maize expansion are emerging. Based on farmers' perceptions, we study: (1) farmers' reasons for adopting and abandoning maize, and; (2) implications of commercial maize expansion on local livelihood security and inclusiveness (food supply, income, risk coping, and ability to join maize growing), and environmental sustainability (productivity, and soil and forest quality) over time (2013 and 2016). Results show that maize has advantages in terms of labour allocation, and it provides much-needed cash income. Yet, swidden is the main food provider and an essential safety net for unforeseen risks (including maize crop failures or price fluctuations). The way that maize was produced did not meet the criteria of green economic development due to its negative effects on the environment (soil and forest degradation) and socioeconomic sustainability (household differentiation, increased economic risks, debts, and food insecurity). By providing a local perspective, this study encourages a critical reflection of the underlying assumptions and conceptualization of the green economy approach in Laos, and argues for policies and measures that consider a more holistic perspective of human wellbeing and the environment.

1. Introduction

Green economy can be defined as an economy that aims to'*improve human well-being and social equity, while significantly reducing environmental risks and ecological scarcities'* (UNEP, 2011: 16). It is based on the sometimes simplistic assumption that synergies between development and sustainability can be created, and that economies can at the same time be growing, inclusive, and environmentally sustainable (e.g. UNEP, 2011; Brockington and Ponte, 2015). The green economy pushes the concept of sustainable development further by claiming that environmental policy can be a driver for growth (Jacobs, 2012). The focus on growth has led to green economy being widely embraced, however these assumptions are still largely at the stage of rhetoric rather than actual implementation of transformative policies, or action on the ground (Anderson et al., 2016; Amaruzaman et al., 2017; Pham et al., 2017). Further, the lack of specificity in how a green economy sustains (green) growth can lead to trade-offs that are at the expense of the poor (Dercon, 2014). The green economy framing has been especially popular in the context of economic development in lower-income countries, which are often both rich in natural resources, and open to processes of technological "leapfrogging" (Ministry of Energy and Mines of Lao PDR and Ministry of Energy and Mines of Lao PDR and UNDP, 2017).

The Lao People's Democratic Republic (henceforth referred to as Laos) is on the list of lower-income countries, and has abundant natural resources–including large forest areas, especially in the uplands–that provide the potential for 'green' natural resource-based economic development. Since the shift from a centralized economy to the New Economic Mechanism in 1986 through the Transforming Land to Capital discourse emerging in 2005 and now the green economy policy, Laos has sought to commodify land for development predominantly

* Corresponding author at: Viikki Tropical Resources Institute (VITRI), Helsinki Institute of Sustainability Science (HELSUS), Faculty of Agriculture and Forestry, University of Helsinki, P.O. Box 27, Latokartanonkaari 7, FI-00014, University of Helsinki, Finland.
E-mail address: maarit.kallio@helsinki.fi (M.H. Kallio).

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through agriculture intensification and concession models (Kenney-Lazar et al., 2018). Indeed, the green economy concept, or green growth, is adopted in Laos in various ways (e.g. media reports, policy announcements, draft green growth strategy, and projects). For instance, The Eighth five-year National Socioeconomic Development Plan 2016–2020 (8th NSEDP; Ministry of Planning and Investment (MPI), 2016) outlines a strategy for poverty reduction by inclusive economic growth (including reduced economic vulnerability), and enhanced environmental management (protection and utilization) according to green growth and sustainability principles. Agricultural intensification and commercialization are intended to play a key role in achieving these aims, and increased and modernised production of commodities is hoped to lead to pro-poor and green value chains (Ministry of Agriculture and Forestry (MOF), 2010; Goal 2). Simultaneously, the government is actively trying to stop traditional shifting cultivation practices (a practice commonly known as swidden farming) (Ministry of Agriculture and Forestry (MOF), 2010: Goal 3), which is viewed by the authorities to be one of the main drivers of deforestation and forest degradation, and thought to be holding back rural development (GoL, 2005). At the same time, food security is stated as a first priority (Goal 1) in the Agricultural Development Strategy 2011–2020 (Ministry of Agriculture and Forestry (MOF), 2010), and sustainable forest management stated as being essential for biodiversity conservation and providing ecosystem services and forest products (Goal 4).

The forested uplands of Laos – where the majority of the country's poorest people live (Heinimann et al., 2013) – have been the target of several government policies for decades (the latest being Green Development policies). These policies introduce more intensive and/or commercial agricultural systems to reduce poverty and improve government revenue through taxation (Land for Capital policy), control land and forest use through tenure reform (Land and Forest Allocation (LFA) program implemented since the mid-1990s) and resettle upland people to areas close to roads and public services (implemented in three different waves since the 1970s) (Dwyer, 2007; Lestrelin and Giordano, 2007; Fujita and Phanvilay, 2008; Fox, 2009; Baird, 2011; Castella et al., 2013; Vongvisouk et al., 2016). All these policies are directly and indirectly aimed at stopping shifting cultivation. Most of the people living in these upland areas are at least partially involved in shifting cultivation of rice, but at the same time, have experienced varying levels of transformation from subsistence-based to market-oriented economy and society (Cramb et al., 2009; Castella et al., 2013; Messerli et al., 2015; Ornetsmüller et al., 2018). This process was further accelerated by cycles of booms and busts of mono-culture cash crops, the latest being hybrid maize (*Zea mays*), the focus of this paper.

Actively promoted by district and local authorities, and facilitated by external trends such as global demand and prices, investments from traders, and strengthened cross-border relations with Vietnam (with high demand for maize); maize was for some time considered as a lucrative income-generating alternative to upland rice and thus supported poverty reduction goals of the government (Viau et al., 2011; Vongvisouk et al., 2016; Cole et al., 2017; Ornetsmüller et al., 2018). However, there is growing evidence of negative consequences of such policies in terms of increasing the socioeconomic differentiation between households, further marginalization of some vulnerable groups, and environmental degradation and deforestation (e.g. Lestrelin, 2010; Viau et al., 2011; Vongvisouk et al., 2016; Cramb et al., 2017; Phompila et al., 2017; Ornetsmüller et al., 2018).

While the Lao government ambitions related to green economy, and particularly related to the expansion of commercial agriculture (outlined in the Agricultural Development Strategy 2011–2020), are well publicized (e.g. Ministry of Agriculture and Forestry (MOF), 2010; Ministry of Planning and Investment (MPI), 2016), the perspectives of farmers in these processes still requires better understanding.

In reality, human activities and the environment often have complex and non-linear feedbacks (Berkes and Folke, 1998). At the more local level, the dynamism of a changing environment and adaptive behaviour of households in pursuit of their livelihood security should be understood together. This is also highlighted, in part, through the smallholders' decision-making process of multiple activities for pluralistic objectives influenced by their perceptions (Boonstra et al., 2016). Such decisions are often a mismatch with the social and ecological conditions, and are underlined by what Elster (2007) terms as desires, abilities, and opportunities; "*Desires define what, for the agent, counts as best. Opportunities are the options or means that the agent 'can' choose from*" (p 165). And abilities refer to the capacities people to take advantage of certain opportunities. In the context of maize expansion in northern Laos, a range of factors outlined above have had significant influence on the rapid, if not full, transformation from swidden rice farming to commercial maize. As a result, traditional shifting cultivation systems in northern Laos were changing, and the crop-fallow cycles shortening (Hett et al., 2011; Castella et al., 2013; Vongvisouk et al., 2014). The upland communities have responded to these changing circumstances using the range of assets they have available (natural, physical, human, financial, and social capital) and within the policy and access constraints (Ellis, 2000). They are adopting, expanding, intensifying, diversifying, or abandoning maize (see Ornetsmüller et al., 2018) based on their pursuit of livelihood desires or ambitions based on their opportunities and abilities. These actions have a range of impacts on the land and environment, and on expected and unexpected livelihood outcomes for different types of households and individuals (Thongmanivong and Fujita, 2006; Castella et al., 2013; Vongvisouk et al., 2016; Ornetsmüller et al., 2018), which may not be fulfilling the criteria of green economy.

This study uses primary data collected in three upland villages of Huaphan Province to investigate local perceptions of land-use and livelihood changes in 2013 (when maize was booming[1]) and in 2016 (when most of the farmers had abandoned maize). It aims to assess how this agricultural intensification and commercialization (a key action stated by the government for green growth and poverty reduction; Ministry of Agriculture and Forestry (MOF), 2010), relates to the holistic goals (socioeconomic and environmental sustainability) of green economic development (Ministry of Planning and Investment (MPI), 2016). More specifically, the study identifies farmers' perceptions related to: (1) the reasons for adopting, expanding and abandoning commercial maize; (2) concurrent land-use changes; (3) the implications of commercial maize expansion (and related land-use changes) on local livelihood security and inclusiveness (food supply, income, ability to cope with risks, ability to join maize expansion), as well as on environmental sustainability (crop productivity and soil and forest quality). Although the focus is on maize expansion and decline, the study also looks more broadly to past events, land-use practices, economic activities and socio-demographic trends to provide context for understanding how changes influence land-use and livelihoods in the studied swidden communities.

The development and impacts of maize expansion are highly context specific (Ornetsmüller et al., 2018), and are changing rapidly (Vongvisouk et al., 2014; Ornetsmüller et al., 2018). In fact, the process of maize expansion differs from district to district and also within districts, depending on factors such as distance to markets, traders' interests, land-use history, and time of crop expansion (Willi, 2011; Viau et al., 2011; Ornetsmüller et al., 2018). This paper builds on the earlier research on maize expansion and land-use change in northern Laos (see Thongmanivong and Fujita, 2006; Hett et al., 2011; Viau et al., 2011; Willi, 2011; Lestrelin et al., 2011; Lestrelin et al., 2013 Castella et al., 2013; Vongvisouk et al., 2014, 2016; Ornetsmüller et al., 2018), and provides additional insights from a district still understudied on the subject (Xone). Despite the flurry of different policies, the reality is that the forest and land continued to be degraded, partly due to maize

[1] ASEAN-Swiss Partnership on Social Forestry and Climate Change (ASFCC), Phase 1 (2010-2013), and Phase 2 (2014-2016).

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