



Green niche actors navigating an opaque opportunity context: Prospects for a sustainable transformation of Ethiopian agriculture



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ABSTRACT

Identifying trajectories of agricultural development that enable substantial increases in food production is of prime importance for food security and human development in Sub-Saharan Africa in general, and Ethiopia in particular. To ensure long-term welfare for people and landscapes, it is imperative that such agricultural transformations sustain and enhance the natural resource base upon which agriculture depends. To understand the prospects for a sustainable transformation of Ethiopian agriculture we develop a new conceptual framework for sustainability transformations that combines insights from the social-ecological transformations literature with research on socio-technical transitions and institutional entrepreneurship. Using this framework, we analyse the agricultural development trajectory currently envisaged by the government, as expressed in policy narratives and public institutions. We also explore the opportunity context facing non-state actors who promote sustainable intensification (referred to as green niche actors), as well as the strategies they employ to navigate this context and lever change in the direction they perceive as desirable. We find that current policies for agricultural development are primarily dominated by a narrative of *Agriculture as an engine for growth*, which focuses on the role of external inputs and commercialisation in boosting agricultural production so as to drive economic growth. While another narrative of *Natural resource rehabilitation* exists in policy, it sees natural resource management as a means of reducing degradation rather than a crucial component of enhanced and sustainable agricultural production, and the policies largely decouple issues of natural resources from issues of agricultural production. Institutional structures in the agricultural sector are found to reflect these discursive patterns. Further, the general institutional context in the country is characterised by strong government domination and rigid structures, which indicates an opaque opportunity context with limited opportunities for niche actors to have an impact. Given these challenging conditions, green niche actors adapt their strategies to fit the existing opportunity context and choose to collaborate closely with the government and the extension system. While this strategy offers the possibility of a direct impact at potentially large scale, it also leads to a range of trade-offs for the green niche actors and ultimately reduces the prospects for a sustainable agricultural transformation. In conclusion, an adaptation of the regime's proposed development trajectory for Ethiopian agriculture is, under current conditions, a more likely scenario than a more fundamental sustainability transformation, although options remain for more transformative action. Through the case of Ethiopian agriculture, this study adds insights into how transformation processes could play out in non-Western contexts where a strong state plays a dominant role, thus broadening the scope of empirical applications of the emerging research field on social-ecological transformations. We also demonstrate how the multilevel perspective from the transition literature and the concepts of opportunity context and situated agency from the literature on institutional entrepreneurship can be fruitfully merged with the social-ecological transformations literature, thereby moving towards a more comprehensive conceptual framework for analysing sustainability transformations.

1. Introduction

Despite rapid economic growth and increasing crop yields in agriculture over the past decade (Dorosh and Rashid, 2013), Ethiopia

remains one of the world's poorest countries, marked by significant food security problems and recurrent famines (Berhanu, 2012). Similar to large parts of Sub-Saharan Africa smallholder agriculture is the primary livelihood source, engaging 85% of the Ethiopian population

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(MoARD, 2010), and dominating farming systems are non-mechanised and rainfed. Yield levels for cereals have increased from an average of 1.2 ton/ha in 2000–2004 to 2.1 ton/ha in 2010–2014 (FAO, 2017). Meanwhile, population has grown at an average rate of 2.7% per year between 2000 and 2015, and is projected to almost double by 2050 compared to 2015 (UNDESA, 2017). A transformation of current agricultural systems is widely perceived as critical for poverty reduction, increased human well-being, and economic development (see e.g. ILRI, 2011; ATA, 2016; Bachewe et al., in press). While a combination of different strategies will be important to satisfy the growing demand for agricultural produce – including reduced post-harvest losses (FAO, 2011) and a more equal distribution of existing agricultural production (Alexandratos and Bruinsma, 2012) – intensification of current production systems will remain a key issue in the decades to come, for Ethiopia and Sub-Saharan Africa in general.

However, different agricultural intensification trajectories are possible. With a growing recognition of the negative environmental side-effects that conventional agricultural intensification often leads to (Pretty et al., 2000; Tilman et al., 2002) and an increasing understanding of the importance of a wide range of ecosystem services for maintaining agricultural systems over time (Costanza et al., 1997; Millennium Ecosystem Assessment, 2005), there is a strong case for sustainable agricultural intensification (Godfray et al., 2010; Pretty et al., 2011). As an alternative to the “Green Revolution” approach, which emphasises the use of high-yielding varieties, chemical fertilisers and pesticides, mechanisation, and irrigation (Matson et al., 1997), sustainable intensification focuses on producing more food from the same area of land in a way that is sustainable over long periods of time, including in the face of change. This includes nurturing the functioning of the agricultural ecosystem, building up levels of natural capital, and using only the external inputs absolutely necessary (The Royal Society, 2009; Rockström et al., 2016). While recognizing the critique of the sustainable intensification concept for being overly broad and all-encompassing under some of its definitions (see e.g. Petersen and Snapp, 2015), we consider the definition provided here to entail a fundamental departure from conventional intensification, and we use the concept as an umbrella term for technologies and approaches that would imply an alternative development trajectory for Ethiopian agriculture.

An increasing body of empirical evidence shows that sustainable agricultural practices can indeed raise productivity and meet various sustainability criteria (Pretty, 2008; Conway et al., 2010; Tilman et al., 2011; Pretty et al., 2011; Garnett et al., 2013; Ponisio et al., 2015). For instance, Milder et al. (2012) reviewed 219 studies of five types of agro-ecological farming systems, examining the impact on agricultural yields and nine ecosystem services, with results pointing towards win–win or neutral-win outcomes for yield and ecosystem services at the farm level, with enhanced effects at landscape level from a mosaic of farms under agro-ecological management. Other reviews show significant yield increases of a wide variety of sustainable intensification approaches (e.g. Pretty and Bharucha, 2014), and point to the key importance of soil and water conservation for both mitigation and adaptation to climate change (Delgado et al., 2011). However, despite this large body of research demonstrating the agronomic potentials of sustainable intensification technologies, they are often found to have limited success outside project-supported locations, with low spontaneous adoption and adaptation (Fujisaka, 1994; Barrett et al., 2002; Shiferaw et al., 2009; Sreedevi and Wani, 2009). Moving these ideas and technologies from isolated success stories to achieve a broader systemic impact has thus proven challenging. Research on social-ecological transformations deals precisely with this challenge of understanding how systemic change towards sustainability happens, and how local sustainability initiatives can expand their impact to a larger scale (Westley et al., 2011; Moore et al., 2014). In this paper we use the case of Ethiopian agriculture to add empirically grounded insights and a set of conceptual advances to the rapidly emerging field of research on sustainability transformations. More precisely, we analyse dominant perspectives on

agricultural development, as expressed in government policy narratives and institutions, as well as the opportunity context faced by proponents of sustainable intensification (hereafter referred to as green niche actors), and how they navigate this context, to understand the prospects for a sustainable transformation of Ethiopian agriculture.

2. Theoretical framework

To analyse the prospects for this type of transformation, we develop a new conceptual framework that combines concepts from the literatures on social-ecological transformations (e.g. Olsson et al., 2006; Westley et al., 2013; Moore et al., 2014), socio-technological transitions (e.g. Rotmans et al., 2001; Geels, 2002; Markard et al., 2012), and institutional entrepreneurship (e.g. DiMaggio, 1988; Fligstein, 1997; Maguire et al., 2004), combining the respective strengths of these three perspectives. Although stemming from different fields and using somewhat different terminologies, transition and transformation scholars are both concerned with radical change processes towards sustainability, and as illustrated by this study, these two strands of research could benefit from greater cross-fertilization (see also Olsson et al., 2014). The study also draws on the concepts of opportunity context (Dorado, 2005) and situated agency (Koene, 2006) that originate in studies on institutional entrepreneurship, as a response to recent calls for an increased understanding of the interplay between actors and the contexts in which they are situated (Westley et al., 2013).

2.1. Using a social-ecological transformation lens on agricultural development

Research on social-ecological transformations focuses on deliberate processes of change, whereby the system starts developing along a new trajectory (Walker et al., 2004). Drawing on e.g. Enfors (2013) and Moore et al. (2014), we conceptualise these different development trajectories as being distinguished by their i) structure, in terms of capitals, practices, institutions and actors; ii) internal dynamics – in particular the interactions between humans and the environment – that push the system in a certain direction; and iii) social, economic and ecological outcomes in terms of e.g. ecosystem services and distributed human well-being that are generated by these structures and dynamics.

A key assumption of the transformation literature is that social and ecological systems cannot be understood in isolation from one another, but are fundamentally interlinked (Berkes and Folke, 1998; Folke, 2006). Agricultural systems are prime examples of such coupled social-ecological systems (Enfors, 2013). A social-ecological perspective recognizes that the capacity of ecological systems “serves as the foundation upon which prosperity and development ultimately rests” (Folke et al., 2016), and the economy is understood as a sub-system of society, in turn a subsystem of nature. The social-ecological perspective also acknowledges that humans and our societies and economies depend on resources and services from nature. Similarly, ecological processes and patterns cannot be understood without considering the human influence on these (Folke et al., 2016).

The focus of this study is the Ethiopian smallholder agricultural production system and its associated resources, practices, actors and institutions in the ecological, social and economic domain. This system has over time developed along a trajectory that is in general terms characterized by low levels of agricultural production, especially measured per capita, and degradation of land (primarily due to erosion), with widespread poverty as a consequence (Dorosh and Rashid, 2013; GIZ, 2015). While there is broad agreement about the need for transformation in the Ethiopian agricultural sector (see e.g. ILRI, 2011; ATA, 2016), one could imagine this system being transformed in a number of different ways, either through conventional intensification strategies, or as we focus on here, through sustainable intensification approaches. These kinds of transformations would entail very different configurations of resources, practices, actors and institutions with

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