



# Investments in land management in the north-western highlands of Ethiopia: The role of social capital



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## ABSTRACT

In the north-western highlands of Ethiopia investments in land management (LM) have not always been successful. The objectives of this study were to assess farmers' perceptions about implementation approaches of soil and water conservation (SWC) practices and to explore the relationship between the different dimensions (factors) of social capital and investments in LM practices. Simple descriptive statistics were applied to analyse the implementation approaches, while factor analysis was used to reduce the social capital variables to six non-correlated factors for subsequent analysis. The Ordinary Least Square (OLS) model was used to analyse the effects of social capital dimensions on investment in three LM practices: bunds, compost and fertilizer. The study showed that the majority of the farmers state that they prefer the mass mobilization approach (which embodies social capital) to implement SWC practices. But farmers also pointed out several shortcomings of the mass mobilization approach (e.g., inefficient in labour utilization, lack of benefit sharing mechanism). The OLS model shows that the different dimensions of social capital affect investments in the LM practices differently. In particular, cooperation and trustworthiness positively influence investments in bunds and fertilizer use, while the extent of participation in formal institutions has a positive effect on fertilizer use and compost. Understanding and making use of these relationships could help in designing and implementing LM policies, strategies and programmes.

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## 1. Introduction

Agricultural development in Ethiopia is hampered by many factors, with land degradation being one of the key threats to the sustainability of agricultural production in the country (Anley et al., 2007; Girma, 2001). Among the different land degradation processes in Ethiopia, soil erosion by water presents the most severe threat to food security, environmental sustainability and prospects for rural development. In response to the extensive degradation of its resource base, the Ethiopian government has implemented various measures to mitigate the problem of soil erosion and enhance the production potential of its agricultural land. Towards that end, integrated watershed management at community level and the construction of soil and water conservation structures through mass mobilization have been promoted as a strategy for improving and conserving the natural resources base (MoFED, 2010).

Land degradation problems are often characterized by strong interactions between up- and downstream parts of a landscape. This circumstance makes the integrated watershed management approach an appropriate option for effective and sustainable resource management (Bewket, 2003). Furthermore, mobilization of the community for natural resource management (NRM) is a crucial issue for combatting degradation problems through community participation at watershed level.

In the north-western highlands of Ethiopia adoption rates of soil and water conservation (SWC)<sup>1</sup> and land management (LM) measures vary considerably and this is due to many different factors as shown in Teshome et al. (2014) and Teshome et al. (2015). A detailed cost-benefit analysis indicates that SWC measures can be profitable in many situations (Teshome et al., 2013). This shows that farmers do often not adopt the LM measures despite their finan-

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<sup>1</sup> SWC in this paper refers to "bunds", including stone bunds, soil bunds and *Fanya juu* bunds (made by digging a trench and throwing the soil uphill to form an embankment); whereas LM, in addition to bunds, also includes compost, chemical fertilizer, etc.

cial profitability, and suggests that other factors beyond individual capabilities influence the investment behaviour of farmers. One of these factors could be the availability of social capital (Beekman and Bulte, 2012; Adimassu et al., 2012; Shiferaw et al., 2009). “Investments” in this paper refers to decisions made by smallholder farmers at household level to invest in LM practices.

SWC investments can yield public as well as private benefits. Conservation investments undertaken by one agent imply increased availability of water and less soil runoff for other agents in the watershed (Bouma et al., 2008). However, because there is strong physical interdependency between the upstream and downstream parts of a watershed and between adjacent farms with respect to hydrology and soil erosion (Teshome et al., 2015; Bewket, 2003), effective and sustainable implementation of integrated watershed management requires strong collaboration between upstream and downstream households as well as between owners of adjacent farms. For example, conservation on one farm will have little impact when farm land in upstream areas or on adjacent farm plots is not conserved. This implies that, in order for the benefits of SWC investments to be realized, attention needs to be given to building cooperation in efforts to avert the problems of erosion. Such collaboration is influenced by the level and the type of social capital at the community and household level (Willy and Holm-Müller, 2013). Similarly, structural social capital, especially in the form of connections beyond the village, is associated with more extensive adoption of innovations (e.g., organic fertilizer and compost). This form of social capital is creating access to knowledge, information and resources (van Rijn et al., 2012). Thus, different dimensions of social capital have different impacts on LM practices. On the other hand, when social capital is weak in a social system, natural resource degradation can easily be exacerbated. This failure of social capital calls for some kind of government intervention. One such intervention is collective action through mass mobilization (Taylor, 1998).

Willy and Holm-Müller (2013) indicate that social capital influences the household and community level investment behaviour of farmers. This is because social capital is a community and individual level attribute/an individual good and a collective good (Narayan, 1997; Portes, 1998; Putnam, 2000; Ostrom and Ahn, 2007). Despite the availability of different forms of social capital (e.g., networks, institutions and social norms) in rural Ethiopia, most investment or adoption studies in Ethiopia have not seriously investigated the role of social capital in LM investments (e.g., Tesfaye et al., 2013; Kassie et al., 2009; Bewket, 2007). This paper focuses specifically on the role that social capital plays in decisions regarding LM practices.

The objectives of the study were to assess the farmers’ perceptions about the implementation approaches of SWC management activities, to examine the level of social capital dimensions<sup>2</sup> among three watersheds, and to explore the relationship between the different dimensions of social capital and investments in LM practices.

## 2. Social capital and LM investments

Social capital is one of the institutional factors affecting socio-economic development (Narayan and Pritchett, 1999; Woolcock and Narayan, 2000). Social capital refers to the norms and networks that enable people to act collectively (Woolcock and Narayan, 2000). Woolcock (2010) also explains social capital in simple terms as “not what you know, it is who you know”. There are a variety of perspectives on the forms and features that constitute social capital within a population.

According to Dasgupta (2000) and Uphoff (2000) there are two interrelated categorical forms of social capital: structural and cognitive. The structural form is associated with various configurations of social organization, rules, precedents and procedures as well as social networks that contribute to cooperation, such as formal and informal institutions. The cognitive form is derived from mental processes and resulting ideas, reinforced by culture and ideology, e.g., trust and adherence to norms.

Szreter and Woolcock (2004) however distinguish three dimensions of social capital – bonding, bridging and linking. Bonding social capital refers to trusting and cooperative relationships between members of a network who perceive themselves as being similar in terms of their shared social identity. Examples of bonding social capital include immediate family, close friends and neighbours. Bridging social capital, by contrast, comprises relations of respect and mutuality between people who know that they are not alike in some socio-demographic or social identity. This category includes loose friendships and workmates. Linking social capital refers to norms of respect and networks of trusting relationships between people who are interacting across explicit, formal or institutionalized powers or authority gradients in society (vertical networks).

Adding to this, Pretty (2003) posits that social capital has four important features: relations of trust; reciprocity and exchanges; common rules, norms, and sanctions; and connectedness in networks and groups. Social capital is, therefore, an accumulation of various types of social, psychological, cultural, cognitive, institutional, and related assets that increase and improve mutually beneficial cooperative behaviour (Uphoff, 2000). However, social capital is not the same across locations (Putnam, 2000). Some communities have stronger social capital than others, and some households have more social capital than others. This may be due to the difference in investments in social interactions as well as differences in endowments of social capital in the community where they live (La Ferrara, 2002).

The LM investment and adoption behaviour of farmers are shaped and fashioned by the level and type of social capital (Willy and Holm-Müller, 2013; Nyangena, 2008; Cramb, 2005; Isham, 2002). This is because social capital influences farmers’ collaboration, preferences, transaction costs and information exchange (Grootaert et al., 2004; Grootaert and van Bastelaer, 2002). The use of social capital for enhancing the adoption of sustainable natural resource management practices is twofold: first, the diverse single capacities of individual members can be merged into new collective ones; second, strong networks will facilitate self-supportive and continuous capacity development, thus enabling people ‘to collaborate and change situations in a profound manner’ (Nielsen, 2012). Moreover, social capital give the opportunity for harmonization among the community members for the adoption of natural resource management practices by giving members the opportunity to define their interests, to exchange information and knowledge and to mobilize resources through social learning and interaction (Dessie et al., 2012).

In particular, rural communities that are characterized by strong social capital have been found to have faster rates of technology diffusion and improved environmental management (Dessie et al., 2012; Njuki et al., 2008; Cramb, 2006). Social networks are especially important for small-scale farmers who have less access to formal institutions. These networks enable farmers to overcome economic constraints and thus facilitate adoption of technology (Di Falco and Bulte, 2013; Wossen et al., 2013; Baumgart-Getz et al., 2012; Bandiera and Rasul, 2006; Posthumus, 2005). This is because social networks facilitate the exchange of information, relax labour and financial constraints of farmers, reduce transaction costs and increase farmers’ bargaining power (Kassie et al., 2013).

<sup>2</sup> We used the terms ‘dimension’ and ‘factor’ interchangeably.

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