

*Full Length Research Paper*

# **Access to land and agricultural based livelihoods in Northwestern Ethiopia: Implications for land use**

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**Land has been curtail national asset and seen as central to economy, the social and political spheres of community as well as the overall society. The objective of this paper has been to assess the implication of accessing land and agricultural based livelihoods of smallholder on land use. The underpinning research involved both primary and secondary data. Primary data were generated using household surveys, focus group discussions and observations. The study revealed that unlike the northern, central highlands and southern parts of Ethiopia, access to land in the northwestern lowlands has emanated from traditional open access regimes. Here, increasing demand for land, formalization process of rural land ownership and access occurring since 2003 combined with poor soil and water conservation practices have negatively affected the productivity of land. Long-standing traditions of agricultural extensification practices coupled with shifting cultivation and open grazing have failed to remain viable strategies of smallholder farmers. Consequently, smallholder farmers have experienced unwise population induced agricultural intensification practices, resulting in decreasing land productivity. Based on the evidences from this study, it is concluded that unless proper measures are taken, the current agricultural based livelihood strategies are not in line with sustainable land use practices.**

**Key words:** Agriculture, land use, livelihood, strategy.

## **INTRODUCTION**

Land, which is the central to economy, social and political spheres of community, society and the nation at large is regarded as crucial asset. For farming households, whose livelihoods are partly or entirely dependent on agriculture and based on traditional production system, land play pivotal role (Hirut and Giovarelli, 2013) in shaping and directing livelihoods and it may cause multiple difficulties for livelihood strategies (Ellis and Allison, 2004) and utilization agricultural and natural resource management (Shimelles et al, 2009). As noted

by Espinosa (2014), land tenure is Africa's most precious and coveted asset. This is true in Ethiopia as land is in high demand and is mainstay of smallholder's livelihoods. On the other hand, livelihood activities determine the land use (Haines-Young, 2009). There are different ways of accessing land and different land suitability depending on the purpose and use of both these factors have implication on land use, land cover, livelihoods and natural resources conservation.

Ethiopia is one of the few countries in Africa that has

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not made significant changes in its basic land policy for over three decades; except for occasional land redistributions to accommodate the growing population (Samuel, 2006; Deininger et al., 2016). The long time for redistribution of land along with increasing demand for land, and the consequence of population increases, have resulted in the domination of customary land right. With regard to property rights to land, Crewett et al. (2008) identified several different property regime classification in Ethiopia including: open access (no rights defined), public (held by the state), common (held by a community or group of users), and private (held by individuals or "legal individuals" such as companies). A study conducted by Kamara et al. (2004) shows that property rights over natural resources in most of Africa originated as communal systems with households having exclusive rights to the use of croplands and shared rights plus access options to rangelands, forests and water resources. The northwestern lowlands of the Ethiopia, has a huge potential to access more cultivable land. This open access land has been unexploited until recent times.

While more usually, the land tenure system of the country operates with public ownership and usufruct right of the beneficiaries, traditional land holding systems and property regimes differ in this region and have resulted in unique land use. In addition, the landlessness is becoming the emerging challenge to rural areas, where agriculture has been the major source of livelihoods. Taking existing evidence from Sub-Saharan Africa, Ellis (2005) predicted that the next generation will not be so lucky and intergenerational tensions about the future disposition of land rights will prevail. The issue of land use and associated natural resources are becoming very pressing socio-economic problems in the study areas. Issues stem from deep rooted traditional systems of accessing land access and use combined with livelihood activities associated with nearby natural resources in these agrarian based production systems. Poor land administration systems exacerbate the situation. For agrarian communities, agricultural based livelihoods strategies and activities are functions of land and associated resources. This paper aims to shed light on agricultural based livelihoods strategies and activities of smallholders and the implication for land use.

## METHODS

The study was conducted in the northwestern lowland of Ethiopia bordering Sudan, where diverse agricultural based livelihoods strategies have been conducted. Both primary and secondary sources were exploited to generate qualitative and quantitative data. Taking households as unit of analysis, 146 households were randomly sampled from 2,786 having population of 12,903 in the district. The following techniques and tools were employed to generate data. For primary data, household surveys from randomly taken 146 households using questionnaire, focus group discussions (FGDs) of different representations of the community (21 participants in three groups) and key informant interview with

experienced individuals (3) and 2 government officials for detailed qualitative investigation were conducted. Key informant interviews and focus group discussions were administered using independent checklists. Observation of vegetation, settlement patterns, farming systems and natural resources conservation practices and housing condition were conducted by visiting different villages of the district as part of data collection process. Published and unpublished secondary data were also used to substantiate the primary data.

The quantitative data generated from primary sources were analyzed with the support of the Statistical Package for Social Sciences (SPSS) version 20. The analysis was mainly carried out using descriptive statistics including means and frequencies. Descriptions, narration and contextualization were also used to analyze the qualitative data to consolidate the quantitative results.

## RESULTS AND DISCUSSION

### Access to land and property regime

The land size and productivity per a given plot are decreasing in the study area, whereas the needs to satisfy household demand are increasing, which could be explained with fundamental economic questions about production and populations. The paradox leads to question how farm households meet their demands under limited land and declining trends productivity while ensuring sustainable land use system.

The Ethiopian land tenure system and rights has experienced different forms under various historical, economical and political circumstances. The farm households in the district have experienced different ways of accessing land and land use for agricultural based strategies. Unlike southern parts of the country, existing land tenure of the northern area has evolved from *rist* system, which is hereditary land use right transferred from ancestral holdings. But, in the study area access to land and right to use land were described and several perspectives became evident. People have migrated from highlands in search of unlimited access to land for crop cultivation and livestock production using free grazing since late 1970's. The existing property right of land in the northwestern areas including the study area originated from open access (no defined rights) regime. The same land ownership had been dominantly experienced until 2003, when the massive government sponsored resettlement program (alternative ways of land redistribution) was started and continued for more than a decade.

This study questions why land in most of the lowlands of northwestern Ethiopia has become pressing social, economic, environmental and political issue where relatively the resource abundantly exists. Qualitative data from household surveys and observations indicate that traditionally defined land holding of the farming community for longer period of time before formal land tenure system were evoked, was important strategy of continuing to access land based on long term historical ownership. Higher population pressure, exacerbated by the resettlement program and the livelihood strategies of

farming community- mixed farming of crop and animal production are some of the reasons behind the complex and increasing problems of land use/access and access to surrounding natural resources. Since 2003, the government has changed local farm households' access to land, a practice of claiming certain plot/s with access confirmed by the traditional community leaders to legalize formally via government land registration and certification processes. Despite the fact that the regional government had attempted to complete the second level land certification (SLLC) as part of the first Growth and Transformation Plan (2010/2011 to 2014/2015), land in this study area has not been yet completed, only the first level land certification (FLLC) processes has been undertaken. The failure is partly due to limited implementation capacity of local government and the complexity of the process. As noted by Gizachew et al. (2015), compared to other regions with similar plan, Amhara Regional State has not achieved significant land reform or legalized the use of rural land. Consequently, the smallholders of study area have become the victims of this insufficient rural land registration and certification process with increasing natural resource problems and land related socio-economic disputes among community members. Similar with the findings by Vhughen and Aman (2013), smallholders who are not beneficiaries of the land certification, are suffering from tenure insecurity, which has direct implication on sustainable land use system.

From randomly taken sample households, the plot size per household is found to be 10.03 ha, which is by far greater than the Amhara National Regional State. The interesting finding regarding the ownership of land is the variation between households, between 1 ha minimum to 45 ha per household maximum. The modal land size of households in the study area is 10 ha per household, which is also the maximum plot size per household allowed by government for lowland (*kolla* agro ecology) and is owned by 28.9% of sampled households.

The plot/s that farm households in the study areas owned in term of meeting the needs of households significantly vary from one another. Though, the size of cultivable land per household is more than the national average, 73.3% of households reported that the annual product output is only just meeting household consumption with a few households, 18% able to produced surplus for sale.

### Conservation practices

Sustainable agricultural production is determined by proper utilization and management of land with more emphasis on soil and water conservation. The practice of crop production in this area is shifting cultivation by rotating among different plots of cultivable land after one is fallowed or become at good productivity level. The

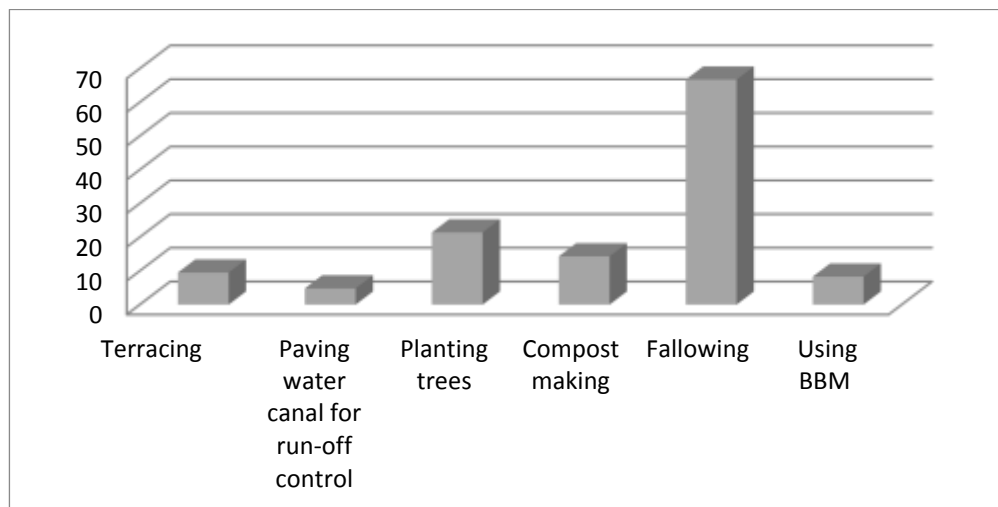
study has revealed that 59% of farm households use shifting cultivation as chief strategy of crop cultivation which includes mainly sorghum, sesame and rarely cotton and legumes. Moreover, analysis also revealed that the practice of shifting cultivation is decreasing from time to time and no longer serves as the key land use and natural resources management strategy due to decreasing trends in plot size per households, which resulted from population increase and strategic land redistribution made by the government. Additionally, it could be also explained that a decrease in natural forest coupled with shrinking of cultivable land compromised the capacity of shifting cultivation, as the farming practice requires forest and fallowing time to recover soil fertility.

The productivity and sufficiency in meeting demands of farm households are important factors, which have direct implication for land use and natural resources conservation including soil and water. Regarding productivity, farm households in the study area have experienced the downward spiral trend. As it has been reported by 91% of households, the productivity of farm land is decreasing for all type of crops cultivated (sorghum, sesame, cotton and legumes). Whether the farming communities in the study area are practicing the soil and water conservation was one of the questions that the study addressed. The data obtained from observation of different plots and focus group discussions with representative of the study population indicated that soil and water conservation practices to enhance or maintain productivity is mainly dominated by fallowing. Fallowing as one of soil productivity enhancement mechanism is practiced by 66.7% of farm households. However, as it has been pointed in the above discussion, fallowing plots as one of productivity enhancement soil conservation technique is not used as it was before because of households are reducing the number of plots to a single plot in many cases and the size of land per households is also becoming less and less as the demand from newly established households increase from time to time.

Terracing, paving water canal for run off control, planting trees and using broad bed maker (BBM), as soil and water conservation strategies and fertilizer application as per recommended rates for soil productivity enhancement are not practiced in the study area and if any, it is not significant and limited to few households. Regardless of the huge potential of the area to easily produce and utilize organic fertilizer, the proportion of households applying to their farm to enhance productivity of soil and get higher output per a given plot is experienced by only 15.1% of households in most cases it experienced using cow dung (Figure 1).

### Livelihoods strategies: Implication on land use

In the areas, where land resource still exists, the livelihood strategies of people determine land use pattern



**Figure 1.** Soil and water conservation practices (n=146).  
Source: household survey data (2015).

and management. Evidence from different sources including local government official documents indicated that 262,104 ha of the land in the study area is convenient for cultivation of different crops, of which nearly 35% has been used for cultivation of different locally growing crops. Following the larger livestock population of the area, about 11% of the total area has been used for open grazing.

Agricultural based livelihood strategies (Scoones, 2009; Frankenberger et al., 2002; Ellis, 1999; Gillespie et al., 1994) which include agricultural extensification, intensification, diversification, and migration have direct land use implication. In connection with it, (Girma and Hassen, 2011) noted that land use and cover change is determined by different combinations of a number of proximate causes and underlying driving forces in varying geographical and historical contexts. The decision of the farming households based on priority of production and available alternatives have also potential impacts on land use strategy. In a broader sense, the livelihood activities can be categorized in two:-farming and non-farming activities (Ellis, 1999).

In agricultural based livelihoods, crop and livestock production are the most important components. In the study area, mixed farming involving crop production as the major and livestock production as minor activity are the chief livelihood activities, which comprises more than 78.1% of sampled households. Other farmers involved in mixed farming livelihood with primary production of animal domestication as primary and crop cultivation as a secondary agricultural based livelihood activity was practiced by 8.2% of sampled households. Sole crop cultivation and animal domestication activities are exercised by 5.5 and 2.7% of farm households respectively.

Agricultural extensification- bringing more land into production using different locally grown crops was found to be the dominant livelihoods strategy of the area studied. Bringing more land into production coupled with the shifting cultivation system is changing the land use of smallholders'. The areas including unproductive, hilly sides and marginal land are being utilized to increase production. Consequently, the land is becoming exposed to deforestation and soil degradations, which compromise sustainable agricultural development (Figure 2).

Agricultural intensification is becoming the emerging population induced livelihood strategies of smallholders in the area as land size per household is shrinking over time. By intensification attempts are made to have more products in limited plot size by increasing input technology and labor intensification. However, as it was noted by Adugnaw (2014) that low agricultural technologies and lack of awareness are causing the natural resources degradation in Ethiopian highlands, the areas studied has experienced poor soil and water conservation, limited fertilizer utilization culture of smallholders, weak agricultural extension system and erratic rainfall which are all contributing to decrease in soil fertility and productivity.

Agricultural diversifications, in which farm households use different agricultural based livelihood portfolios, are important strategies. The livelihood activities in northwestern of country under this broader agricultural based strategy are crop and animal production complementing each other. Nonetheless, increasing in shortage of land has compromised diversified crop cultivation of farming community as different crops require independent land and proper agronomic management practices. Livestock domestication is important and still dominated by a traditional way of



**Figure 2.** The top of mountain area being cultivated, June, 2015.

farming. From randomly taken households, the average cattle ownership is found to be 14.96 Tropical Livestock Unit (TLU) excluding small ruminant, swine and poultry per household. The free grazing system to feed the larger livestock population in the area is also the threat affecting sustainable land use and causing natural resource degradation as observed in the form of deforestation, land fragmentation, soil erosion and loss of fertility. Due to weak livestock extension system strategies to integrate crop-livestock components of farming systems has had little attention or support in the best ways to manage the crop-livestock interactions. The interesting thing with all livelihoods strategies on the productivity of land is found to be decreasing from year to year. 93.2% of sampled households have reported that the productivity of land is decreasing from time to time and is very significant in sole cropping system of cultivation in which up to 30% production drops per cropping season in a given plot is common.

## Conclusion

Land ownership and the pattern of use over times have experienced different modalities under different geographical, historical and political context. The way of accessing land and livelihood strategies and activities pursued by smallholders under rain fed agriculture have land use implications. Unlike the central highlands and the northern regions of Ethiopia in which land ownerships have originated from ancestral holdings, the northwestern lowlands are explained by traditional open access property rights to land and it is the base for currently existing land use and ownerships. The traditional open access origin of property regimes of land has challenged currently working land use and administration and

resulted in a huge disparity in holding among households. This is the reason that land certification process in the case of studied areas is not yet completed. Consequently, the land and related problems and disputes have escalated over time.

The long-standing traditional agricultural based livelihood strategies of smallholders with poor soil and water conservation practices would not be viable means of living. The complexities arising from transition from traditional to modernized property rights to land and increasing land shortage has diverted smallholders livelihood strategies from agricultural extensification and diversification to population induced agricultural intensification. However, that agricultural intensification in the absence of appropriate agricultural technologies such as improved seeds, recommended fertilizer application, under poor practices of soil and water conservation and traditional management practices as observed in the study areas, results in deforestation, decrease in productivity of land and production losses. This could lead to conclude that unless proper land administration and use is in place based on context specific planning and implementation, the current agricultural based livelihood strategies of the area could not ensure sustainable land use.

## CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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