



COLLEGE OF DEVELOPMENT STUDIES
CENTER FOR ENVIRONMENT AND DEVELOPMENT

THE CONTRIBUTION OF LAND CERTIFICATION TO
SUSTAINABLE LAND MANAGEMENT: EVIDENCE FROM
MESKAN WOREDA, SNNP REGION, ETHIOPIA.

BY
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JULY, 2019
ADDIS ABABA, ETHIOPIA

ADDIS ABABA UNIVERSITY

COLLEGE OF DEVELOPMENT STUDIES
CENTER FOR ENVIRONMENT AND DEVELOPMENT

The Contribution of Land Certification to Sustainable Land Management:
Evidence from Meskan *Woreda*, SNNP Region, Ethiopia.

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The Thesis Submitted to Center for Environment and Development
Presented in Partial Fulfillment of the Requirements for the Degree of
Master in Environment and Sustainable Development

July, 2019

Addis Ababa, Ethiopia

ADDIS ABABA UNIVERSITY
COLLEGE OF DEVELOPMENT STUDY
CENTER OF ENVIRONMENT AND DEVELOPMENT

A thesis Submitted to the Center of Environment and Development Studies, Addis Ababa University in partial fulfillment for the requirement of degree of Master of Arts Environment and Development Studies Specialization in Environment and Sustainable Development.

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Certification

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Abstract

The contribution of Land Certification to Sustainable Land Management.

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AAU, 2019.

Land certification is the current issue and the government implemented vastly to ensure landholders tenure security at national level. However, there is little knowledge about the contribution of land certification for SLM (Sustainable Land Management), credit access and the perception of farmers about the security of land rights in the study area. Therefore, the initiation of this study was evaluate perception about contribution of land certification among landholders, analyze the contribution of land certification on sustainable land management practices and investigates effectiveness of land certification for access to credit and credit use for appropriate LMP. Primary data for the study were collected through household questionnaires, observation, focus group discussions and key informant interviews. Data were both quantitative and qualitative and analyzed by descriptive statistics such as tables, percentages, chi-square, and thematic. The result has shown that LC (Land Certification) had a strong association with land management practices and credit access. Land certification played a significant role to involve themselves in land management activities than before. However, the research found out most farmers was carrying out one season of land management. The practice of land management has been increased due to land certification but, the quality of land management practices has not considered the sustainability issue. LIFT (Land Investment for Transformation) project played greater in supporting and monitoring to farmers to apply environmental sustainable agricultural input and those farmers support by the project were more aware about environmental sustainable and they use credit effectively. Also, this research found that farmers were taking credit for off-farm activities (fattening. Milk production and poultry production. Due to this, they gave less priority to investing in the land like agricultural input purchased, irrigation activity as well as land management practices. This research recommended that the woreda environmental office should support and monitor the activity of SLM practices done by farmers.

Keywords: credit access, land certification, land tenure security and sustainable land management practice.

Acknowledgements

First of all, my thanks to the almighty JESUS about at all. I am thankful to all the center of Environment and Sustainable Development members. I would like to express my sincere and deepest gratitude to my advisor Dr. Degefa Tolossa (Asso. Prof.) for his critical comments, unreserved assistance and encouragement from the beginning to the completion of my thesis, which shaped the paper as it appeared now. I would like to thank to Dr. Messay (Head of Food Security) for his important support and advices. Also, I thank to my examiner Dr.Belay Simene and Dr.Shimelis for their supportive and constructive comment.

I am thankful to the Ministry of Agriculture for giving this opportunity and financing my two years study. I am also extremely grateful to the director of Rural Land Administration and Use directorate Ato Tigistu G/Meskel and all my colleagues, for providing special support and encouragement to pursue my postgraduate study in the area of Environment and Sustainable Development which helped me to realize my long- term dream.

My Sincere thanks go to Agriculture office of *Meskan Woreda* of SNNPR Land Administration and Use experts gave me valuable information. My deepest thanks to Ato Menkir Girma, Wro.Geyon, Ato Shafi Husen, Ato Asmamaw and Ato Wolyu the head office to help me very well. I am also thankful for the farmers and key informants at the *Kebele* level for providing the required data during field work. I am also indebted to the *Kebele* cabinets who are working in the selected *kebeles* for collecting the needed data. I would like to the deepest thanks to my class mate Ato Nathan Metasebiya; he put his fingerprint in language edited of the paper also. Thank to my classmate Banchaymolu Tefera and Genet Lema. Finally, I would like to thanks to my family to support me, and they have prayed for me to be successful.

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Abbrevation

CSA	Central Statistics Agency
BoEPLUA	Buerea of Environmental Protection Land Use and Administration Authority
ELAP	Ethiopia Land Administration Program
ELTAP	Ethiopia Land Tenure Administration Program
EPRDF	Ethiopian People’s Revolutionary Democratic Front
FAO	Food and Agriculture Organization
FGD	Focus Group Discussion
GPS	Global Position System
FLLC	Firs Level Land Certification
LIFT	Land Investment for Transformation
LC	Land Certification
MFI	Micro-finance institution
RLAUD	Rural Land Administration and Use
REILA	Responsible and Innovated Land Administration
SLMP	Sustainable Land Management Practices
SNNPR	Southern Nation Nationalities and People’s Region
SLLC	Second Level Land Certification
USAID	United State Agency for International Development
EPLUA	Environment Protection Land Use and Administration Authority
MoA	Ministry of Agriculture
MWFED	Meskan Woreda Finance and Economy Development

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1. Introduction

1.1 Background to the study

Ethiopia is one of the gifted nations with regard to natural resources in Africa. Especially rural land is an endowment for the economic growth of the country. The vast majority of the country's population depends on agriculture. Hence, the overwhelming majority's means of subsistence is a big function of the size of land they are endowed with, and the level of security they feel about it (Holden and Yohannes, 2002, 573-590).

Therefore, land tenure security plays a vital role which encourages investment on land. Lorenzo et al. (2004:2) stated that African governments have adopted policies and programs aimed at increasing land tenure security for farmers after dependent, so as to foster agricultural investment and productivity. While, land registration in Africa is still at low levels and cannot sustain the transformation of Africa's agriculture (Byamugisha, 2016:3). But, the good news is that these national land certification and registration programs in Rwanda and Ethiopia have been successful (Byamugisha, 2016:3).

According to the report of Rural Land Administration and Use Directorate (RLAUD) (2018), the land certification has been put into operation in Ethiopia since 1998 and more than 22,248,908 million land registration and 14,525,984 million certificates have been delivered in six regions namely Amhara, Oromiya, Tigray, SNNPR (South Nation Nationality Peoples Region), Benishangul Gumuz, and Gambela. The new federal and regional land proclamations that form the basis for land reform, aim to increase tenure security and strengthen women's rights to land and to ensure more sustainable use of land resources (UN-HABITAT, 2008:3). Based on the power bestowed by the constitution and national land proclamation 456/2005, the four regions of Ethiopia including SNNPRS have enacted regional Land use and administration policies in accordance with the national land policy (USAID, 2004:9).

The Proclamation No.110/2007 of the SNNPRS, which restricts the formal transfer of rights on holdings less than 0.5 hectares, has a tendency to increase the number of landless youths in the region. SNNPR proclamation state: Article 10(1): “A holder of rural land shall be obliged to properly use and protect his land. When the land gets damaged the user of the land shall lose his user right.

SNNPR is one of the larger region which carries out land registration and certification. According to Gebremeskel (2011), about 84% of the holdings in SNNPRS are covered by the first level registration. The SLLC (second level land certification) was introduced in the region in 6 selected *woredas* by the ELTAP (Ethiopia Land Tenure Administration Program) in 2007 followed by ELAP (Ethiopia Land Administration Program) in 2008 in 2 *woredas* (Abza et al. 2015).

Also, the regional government allocated budget to extended land certification using handheld GPS (Global Position System) at different *woreda* in the region. Then, the REILA (Responsible and Innovated Land Administration) project introduced land registration by using the Ortho-photos map sheet (Aerial Photograph) in Meskan *Woreda* Wolensho 2 *kebele* as a piloted. At last, the LIFT (Land Investment for Transformation program has covered the rest *kebele* until the *woreda* complemented land registration. Side by side, the program has implemented economic empowerment activities. Land certification was implemented over the last five and six years yet, the knowledge about the contribution of certification to investments in land, credit access and the perception of farmers about the security of land right is little. Therefore, the main reason for conducting this study was to assess the contribution of land certification on sustainable land management in the Meskan *Woreda* of SNNPR of Ethiopia.

1.2. Statement of the problem

Adoption of sustainable land management affected by some of the significant factors include; access to information (education and extension), access to both input and output markets, social, human and physical capital endowments, credit availability, the profitability of the management technology, and property rights (Kirui, 2017).

The contribution of land certification to land management is one of the most important effects on the enhancement of the environment and increase productivity. Some research findings revealed the existence of land certification play a significant role in the use and management of natural resources especially investing in the land (Berhane & Abdi, 2005; Tolossa et al. 2009:3; Deininger, 2009:23; Adego et al., 2014:56). Certification significantly increases the probability that individuals will plant trees on their land, suggesting that certification does indeed provide an important incentive for increased and long term land investment (Tadesse, 2013: 24)

Land certification increases an individual's investment and secured land ownership considerably increased farmers' incentives to practice appropriate land management practices. (Deininger et al., 2009) stated that, one of the main motives of providing certificates is to increase land-related investments for land management and soil fertility management. Other researchers stated the majority of the households were engaged in one or more types of land management activities after they received land certificates (Abebe, 2015:20). According to Abebe, (2015:11), the extent of land certification contribution on land management practices have shown (90.7%) involvement in undertaking various land improvement activities on their parcels after they received land certificates. According to Dagneu et al., (2009) in Kilte Awela'elo wereda of Tigray region, showed that (85.2%) of households were involved in different types of sustainable land investment practices after land titling which shows (34.1%) growth before titling. Similarly, research findings have shown that land certification decreased land disputes. According to Abera, (2017) identified that 78.8% of certified landholders did not face land-related dispute after certification.

Currently, in Ethiopia, second level land registration and certification have been implementing massively to ensure the land right of farmers at the national level. Particularly the study area Meskan Woreda in SNNPR ensures tenure security accomplished through second level land registration and certification. Government and projects had involved during the land registration and survey. Even if, in the study area

there is little knowledge about the contribution of land certification to investing for SLM, credit access and the perception of farmers about the security of land rights. So far, in the study area the quality of LMP (land Management Practices) is low and credit is not used directly for LMP. Behind to this, the supporting and monitoring system of the project involved *kebele* and government involved *kebeles* made difference on land certificate contribution. Amsalu, (2017), studied land registration and certification in Meskan *Woreda*, SNNPRS: Process, status, and challenges by using qualitative methods. However, there is no further study on the contribution of land certification to SLM practices, and the previous study did not identify and describe the contribution of LC to LMP whether improve land in a sustainable manner or not.

Furthermore, some findings show certified landholders apply inappropriate land management practices (Adego et al. 2014:57). Also Gofu, (2016:25), shown that there is no evidence that land certification brought changes to the quality of investment and suggested it needs identify ways of certification towards more quality LMPs. This study was an attempt to contribute to endeavors of filling the knowledge gap of landholders about sustainable land management practices in Meskan *Woreda*.

On the other hand, there is a problem among farmers about using certificates as the collateral study was to show the effectiveness of land certificate as collateral to get credit for the adoption of SLM practices. Therefore, this study differs from the other is the concerning issues, and it was focused on the contribution of land certification to LMP as a sustainable manner, effectiveness of land certification for credit access to the purpose of SLM practices in Meskan *Woreda*.

1.3 Research question

This study will answer the following questions.

1. What are the perceptions of land certification among land holders?
2. How does land certification help farmers in access to credit and for what purpose farmers use the credit?

3. What type of land management practices farmers apply to manage their land before and after certification?
4. How do farmers understand appropriate sustainable land management practices?

1.4 Objective of the study

The general objective of this study is to assess the contribution of land certification to adopt the practices of sustainable land management.

Specific Objective

More specifically this study targeted to:

- ✓ Evaluate perception about contribution of land certification among landholders.
- ✓ Analyze the contribution of land certification on sustainable land management practices.
- ✓ Investigate effectiveness of land certification for access to credit and credit use for appropriate LMP.

1.5 Scope and limitation of the study

Thematic area of the study focus on the contribution of land certification to sustainable land management in Meskan *Woreda*. It touched the issue of farmers' perception about LC, SLMP before and after land certification and the role of land certification to credit access in terms of purpose. It covered three sample *kebeles* out of the 40 *kebeles* which implemented land certification. In addition, its major targets were rural household respondents of sample *kebeles*, the *woreda* land administration experts and *kebele* key informants. During the survey, it was face political instability in *woreda* and *kebele* and the farmers have frightened to provide evidences. While, the researcher deals with the *kebele* administrator and respondent about the purpose of the survey and give the solution to the limitation.

1.6 Significance of the study

The finding of this study will have number of significances. It will be helped to the reader to understand the contribution of land certification beyond tenure security which imply sustainable development. It will make possible the farmers to believe land

certification lead incentive to promote investments on land. It will be revealed to policy makers the solution through which the recommendation of the contribution of land certification to sustainable land management and used as background for policy amendment. It will be an initiation idea for those who want to carry out further studies on contribution of land certificate at different nation.

1.7. Ethical Issues

The researcher has kept all ethical standards while conducting this research. For getting permission of the concerned government authorities, a recommendation letter from the Center of Environment and Sustainable Development of the Addis Ababa University was delivered to *woreda* and *kebele* offices. Ethical issues were discussed with all participants. All of the participants involved in the study with their willing. Frequent discussions on the objective of the study especially with landholders have resulted in two merits; avoided suspicions of landholders and has facilitated the provision of honest information. For confidentiality, all of the study participants have given codes.

2. Related Literature Review

2.1 Concepts of tenure security

“Land tenure security can be defined to exist when an individual perceives that he or she has rights to a piece of land on a continuous basis, free from imposition or interference from outside sources, as well as ability to reap the benefits of labor and capital invested in that land, either in use or upon transfer to another holder” (Zevenbergen, 2013:3). Security defined as long-term, continuous rights free from imposition or interference from outside, along with the ability to reap benefits of labor and investment either in use or upon transfer to others (Arnot, 2011:5)

The existing Rural Land Use Proclamation 456/2005 of the Federal Democratic Republic of Ethiopia states that :“Holding Right" means the right ... to use rural land for' purpose of agriculture and natural resource development, lease and bequeath to' members of his family or other lawful heirs, and includes the right to acquire [sale, exchange and bequeath same]property produced on his land. “Holding Certificate" means a certificate of title issued by a competent authority as proof of rural land use right' (Proclamation No. 456/2005: 3-4).

Land registration is a way of recording by which matters concerning ownership, possession or other rights in land as legal form (usually with a government agency or department) to provide evidence of title, facilitate transactions and to prevent unlawful disposal(Proclamation No. 456/2005: 3-4).

Land certificate defines on (Proclamation No. 456/2005: 3-4) is a document issued by the land registry to the owner of registered land as a proof of ownership with no mortgage on it. The land certificate is the prima facie evidence of the truth of the matters contained in the certificate.

2.2 Theories on a property right

Secure individual property rights over land or secure and long-term use rights on land induce exertion of higher levels of labor and management effort and higher levels of investment to protect or enhance land fertility (Feder and Feeny, 1991:135-153). There are four basic categories of property rights in land: none (or open access), communal property, private property, and state (or crown) property. Under open access, rights are left unassigned. The lack of any exclusivity implies the lack of an incentive to conserve, and therefore often results in degradation of scarce resources (Feder and Feeny 1991:135-153)

Demsetz, (1973:16-27) written property right paradigm theory as, what is owned are rights to use resources, including one's body and mind, and these rights are always circumscribed, often by the prohibition of certain actions. This theory uses the means of own land commonly as the right to use and transfer rights, but have the restriction to the right to throw soil at a passerby, to use it to change the course of a stream or to force someone to buy it.

The bundle of property rights associated with a resource is divisible. "Property" is state or privately owned. Some rights to some uses of the resource may be state-owned and others privately owned. While it is true that the degree of private control is increased when additional rights of use become privately owned, it is somewhat arbitrary to pass judgment on when the conversion to private control can be said to change the ownership of the bundle of rights from the public to private (Demsetz, 1973:16-27). According to Schlager and Ostrom (1992, 254) stated that property rights may be enforced by customary authorities or by a user group, which manages the distribution of rights or members of that group defined or enforce rights among themselves.

The Bundle of rights

The bundle of rights implies a different type of rights on the land. According to Schlager and Ostrom (1992) developed the distribution of rights among different user groups and between individuals under various tenure regimes. In Ethiopia, it is useful to take into consideration the concept of bundles of rights which are developed. This comprises a set of rights that may include the right to use a resource, the right to manage it, and the right to transfer (assign or reassign) management and use rights.

2.3 Land tenure system in Ethiopia

Under the feudalistic system characterizing Ethiopia's political and economic landscape until 1975, the elite held all land and farmers' tenure security hinged upon the quality of tenant-landlord relations. The feudalistic system was ended and replaced by a socialist state (*Derg*) in 1975 with the overthrow of Emperor *Haile Selassie*. The *Derg* government embarked all land was nationalized and redistributed to farmers via peasant associations. Eligibility and access to land were contingent on a physical presence on the land. Land rights were defined on a usufruct basis with no transfer rights to sell, lease, and mortgage.

In 1991, the *Derg* was overthrown and replaced by the Ethiopian People's Revolutionary Democratic Front (EPRDF). The 1995 constitution introduced a few improvements in tenure security, e.g., a requirement that a farmer exposed to expropriation have the right to compensation for any investments made on the land and an extension of the time farmers were allowed to lease out the land. However, the new government, to a large extent, maintained the land policy of the *Derg*: the land was defined as public property, which farmers were forbidden to sell or to use for other means of exchange, and farmers were required to leave the land if it was needed for public purposes. As a consequence, the 1995 constitution is believed to have only partially resolved the tenure insecurity problems of rural landholders (Birhanu and Abdi, 2005).

Furthermore, land tenure insecurity had forced farmers to induce short term exploitation of land resources. And over long term conservation, contributing to land degradation as farmers were frightened and unwilling to invest in their land holdings, for instance by planting trees and undertaking soil and water conservation measures. Tenure insecurity on-farm productivity and the environment have adverse effects.

Federal and regional governments of Ethiopia were taken further steps to enhance tenure security and improve the utilization of land. Especially, the Rural Land Administration and Use Proclamation were drafted in 1997 (and revised in 2005 by the Ministry of Agriculture and Rural Development) to give farmers who hold title certificates the right to pass land rights on to their family members, to lease out plots to other farmers and investors based on the land administration rules without being displaced, and to use land as collateral (Birhanu and Abdi 2005). In 2002, the regional states received greater legislative powers, enabling them to form their own land-related policies, and new regional structures for land administration (such as the Environmental Protection Land Use and Administration Authority, EPLUA) were established. The main objectives of the certification program were to improve tenure security through land registration and titling, to promote better land management and investment, and to reduce conflicts among farmers over land boundaries and user rights.

2.4 Ethiopia rural land administration and use proclamation and its implication

The Federal Rural Land Administration and Land Use Proclamation No. 456/2005 defines rural land administration as follows: Rural land administration means a process whereby rural landholding security is provided, land use planning is implemented, disputes between rural landholders are resolved and the rights and obligations of any rural landholder are enforced, and information on farm plots and grazing landholders are gathered analyzed and supplied to users. The objectives of this provision are clearly rural landholding security, land use planning, resolution of disputes, the enforcement of the rights and obligations of rural landholders, and the gathering, analysis, and dissemination of information on farm plots and grazing landholders. Rural land use is

further defined as "a process whereby rural land is conserved and sustainably used in a manner that gives the better output".

The Proclamation states the responsibility of the Ministry of Agriculture and the responsibility of the regions. Article 17(1) of the Proclamation provides that “each regional council shall enact rural land administration and land use law, which consists of detailed provisions necessary to implement this Proclamation”. Accordingly, various regional rural land administration and use proclamations have been issued. They include:

- ✓ BenishangulGumuz Regional State Land Administration and Use Proclamation No. 85/2010;
- ✓ Oromia Rural Land Use and Administration Proclamation No. 130 /2007;
- ✓ Tigray Land Administration and Use Proclamation No. 136/2007;
- ✓ The Revised Amhara Regional State Rural Land Administration and Use Determination Proclamation No. 133/2006.
- ✓ The State of Southern Nations, Nationalities and Peoples Land Administration and Use Proclamation No. 110/2007;

These proclamations share common features in offering wider discretion to regulatory offices in the allocation of rural land and the eviction of small hold farmers. Yet, commendable progress has been made in the realm of land registration and the issuance of landholding certificates even if there is the need for another stage of registration ahead. Institutional arrangement of the rural land administration and use at Federal level under MoA, Regional level, Zonal level, *Woreda* /District/ level and *Kebele* level under agriculture and environmental protection sector.

2.5 Trend and Status of land registration and certification in Ethiopia

Registration and certification of rural lands is the milestone element in rural land administration and use laws of Ethiopia, in the drive to improve tenure security among farming households in order to improve long-term investment on land and enhancing

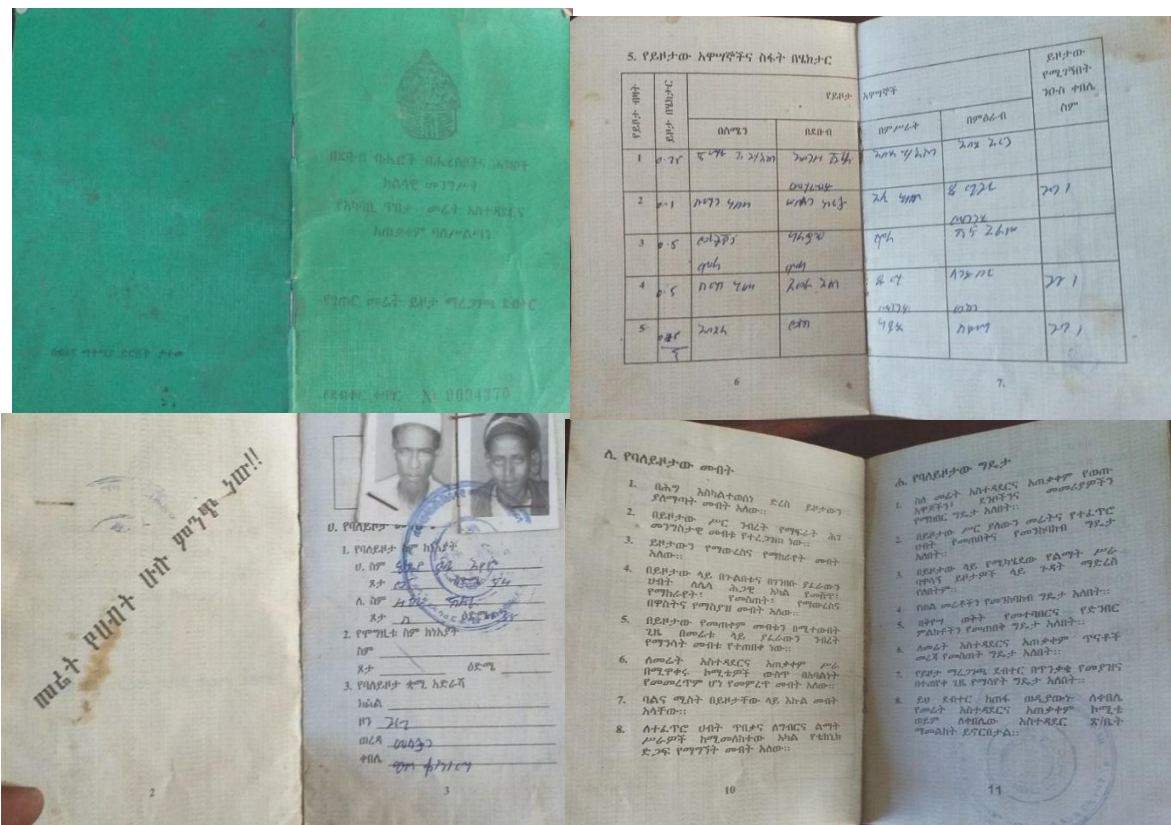
land use right transactions (Gebremeskel, 2011). The trends of land certification in Ethiopia shown as follow:

The first level of land certification

Land registration in Ethiopia started in 1998 to increase the tenure security and certify the use rights of rural households. As the name implied at the first time land registered in the document and disseminated certificate "Green Book" to landholders. This trial was started in Tigray followed by Amhara (2002), and Oromia and the SNNP regions (2004). According to Bezu and Holden, (2014) stated about first level land certification, parcel details were agreed to by parties participating in the process and recorded on paper forms. Also, FLLC included information of the head of household, parcel area, parcel location, land productivity, and the names of adjacent landholder (Bezu and Holden, 2014). As the researcher suggested that first-level certification has had a positive impact on a variety of economic outcomes (Deininger et al, 2011). On the other hand, Bezu and Holden (2014), shown that FLLC was an initiative step to tenure security of rural farmers, but the researchers shown FLLC with limitations that prevented it from being a viable long-term solution.

As stated by Cotula *et al.* (2017), the shortcoming of first-level certification process did not map individual plots, limited spatial detail compromised the security of the land right, and thus investment and the lack of computerized land registries so, certification did not enable effective management and updating of registration records.

The status of FLLC was in Tigray, Amhara, Oromia, and SNNP regional states were registered landholdings of almost 97, 87, 85 and 84 percent, respectively, of first level certification of land registration in which there was no cadastral surveying and no parcel index maps attached to the certificates (Gebremeskel, 2011).



Source: Own observation, 2019.

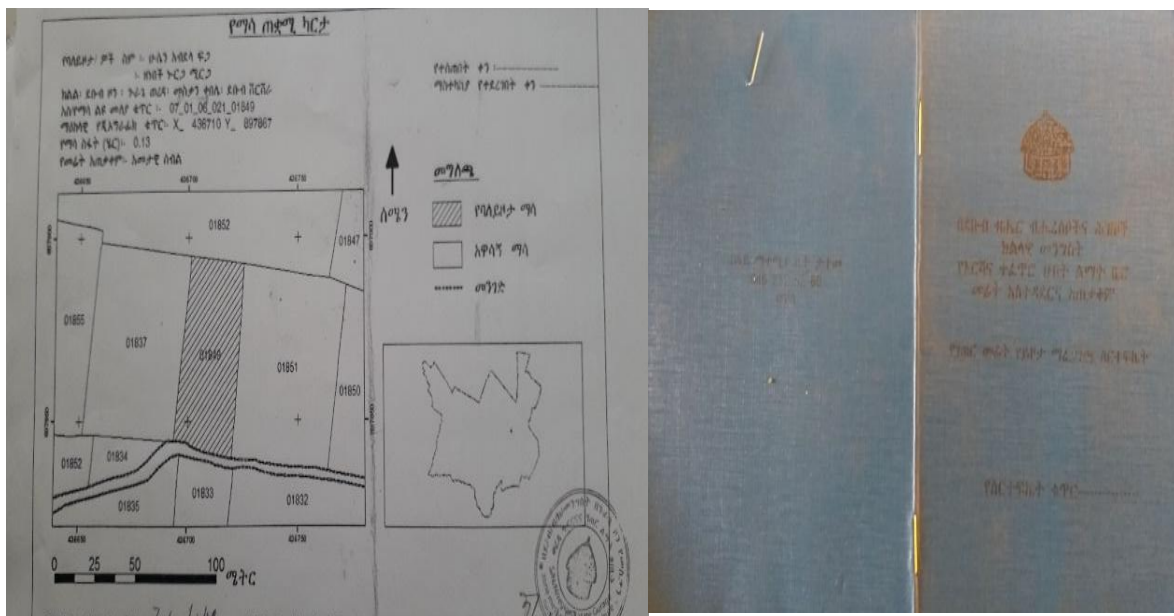
Figure 2.1: First level land certification

Second level land certification (SLLC)

The aim of SLLC was to address the shortcoming of FLIC. Gebremeskel, (2011) report stated that surveying of the parcels of land held by farmers and issuing landholding certificates with parcel maps attached was immediately provided tenure security to landholders should be put in place. According to Bezu and Holden, (2014) stated that second-level certification was brought radical change on tenure security of landholder and related impacts, due to technological improvements of the second-level certification process relative to first-level. This included, land parcels are delineated more exactly and because of the computerized process for second-level certification aids in maintaining permanent records and legacies of use rights that were not possible with the

paper-based system of the first-level. Moreover, SLLC is parcel base registration which means each plot has a certificate. Also, Bezu and Holden, (2014) concluded that second-level certification is expected to motivate improvements in livelihoods and development benefits thus including land transactions and access to financing; land disputes and conflict; land management and soil conservation; agricultural investment and productivity outcomes. As mentioned above, this study strongly agreed and it attempted to show the contribution of LC to SLMP.

Currently, more than 22,248,908 million land registration and 14,525,984 million certificates have been delivered in six regions (Amhara, Oromiya, Tigray, SNNPR, Benishangul Gumuz, and Gambela) based on cadastral survey RLAUD report (2011). The study area was one of the first *woreda* completed second level land registration and certification before 2007 E.C.



Source: Own observation, 2019.

Figure: 2.2. Second level land certification

2.6 Concepts of sustainable land management

Sustainable land management is the foundation of sustainable agriculture and a strategic component of sustainable development and poverty alleviation (Alemu,2016:502-506). Sustainable land management is important for sustainable development because it facilitates land users to maximize the benefits from their land while maintaining the ecological support functions of the land resources (Kirui,2017:15). The efforts directed at addressing the causes of land degradation or addressing the constraints to SLM adoption, however, have been largely insufficient. Recent reliable estimates show that the adoption of sustainable land management practices in sub-Saharan Africa is very low – about 3% of total cropland (World Bank. 2010).

The research accepts Kaliba and Rabele, (2004) categorized that, investments on SLM as long term and short term investments according to the time duration those investments benefit farmers and land as well. Short term investments refer to investments in land for short term benefit usually for one to two year that include crop rotation, fallowing, construction of soil bunds, application of inorganic fertilizers and construction of traditional ditches whereas long term investments include construction of stone bunds, terraces planting of perennial trees and application of organic manures whose benefit last for more than two years.

This research was agreed with these concepts and when the survey was carried out, it was considered the type of land management practice that is used to sustainable land management. It was investigated the current land management practices applied by farmers and the understanding of farmers about sustainable land management and their trends.

2.7 Tenure security nexus sustainable land management

Roth and Haase (1998), described the tenure security of land as the land holders' perception about their rights to plots of land and free from imposition or interference

from outside force continuously. Also, Roth and Haase (1998) have shown the relation of land tenure security with the initiative to invest in land. According to Deininger (2003), secure property rights will increase the incentives to invest in land and also provide them with better credit access which will help them make such kind of investments. There are many pieces of evidence to show that the secure and easily transferable property right is major factors to make a higher level of investments in terms of SLM, access to credits and allow economic diversification and growth. Land rights also enhance the gender equality and bargaining power by women, improve governance, reduce conflict potential, and lower transaction costs for productivity-enhancing land transfers through either rental or sale (Deininger et al., 2008). As mentioned above, this research agreed on tenure security decreases wastage of money, land-related dispute, time and resources spent for the dispute resolution process. So, more labors engaged in development practices. But, the concerning issue of the research is mainly focused on sustainability practices to manage the plot of the farm.

Tenure security plays a vital role in determining the incentives to carry out various Sustainable Land Management Practices (SLMP). According to Hurni (2000), LMP deals with the application of productivity-enhancing farm practices such as terracing, fallowing, planting trees, organic manure, construction of soil and water conservation structures, fencing the farmland. It is argued that land certification has a positive impact on long term investment and sustainable land resource management, households' participation in land management practices such as terracing, application of farmyard manure, construction of water harvesting structures, tree planting, and others have shown an improvement in the study area after land certification (Adgo et al., 2014: 56). According to Kaliba and Rabele, (2004) stated that SLM as long term and short term investments according to the time duration those investments benefit farmers and land as well. Long term investments include construction of stone bunds, terraces planting of perennial trees and application of organic manures whose benefit last for more than two years. One of the concerning issues of this research was analyzing the contribution of land certification to sustainable land management practices and the following discussion is devoted to this issue.

2.8 Global experience about contribution of land certification

In a different part of the world many countries were pursued rural land certification and the researcher have been witness to the positive implication of tenure security for a land investment, agricultural productivity, soil conservation, land management practice, etc. For instance, more-secure land tenure have the positive impacts of an investment and land values in rural areas have been demonstrated in China (Jacoby et al., 2002), Thailand (Feder et al. 1988), Eastern Europe (Rozelle and Swinnen 2004), and Africa (Holden, Deininger, and Ghebru 2009).

Impacts of land certification in many African countries have shown different results on the programs on access to credit, smallholder investment, and overall production. Research has shown in Ghana, Kenya, and Rwanda on land tenure did not show increased investment in land or improved agricultural yields when comparing restrictive land laws to a more flexible policy allowing land transfers Holden and Ghebru, (2012). However, a positive relationship between certification/ titling and investment or productivity Smith (2004) cited in Place (2009), in Zambia where land certification led to increased fixed investments and more profitable enterprise choices. Another explanation in Uganda the likelihood of new investment on certificated land was found to be twice that of investments on merely occupied plots by owner-cum-occupants (Deininger *et al.*, 2008). Similarly, in Mozambique agricultural production of long-term land-related investment in the form of soil conservation structure was enhanced by land certification (Holden and Ghebru, 2012).

In Ethiopia numerous studies advocate land certification programs encourage landholders to persuade land management practices for instance: tree planting, construction of stone terraces) and ultimately improved land productivity (Deininger *et al.*, 2011; Holden *et al.*, 2009). A researcher found out land certificates have an enduring positive effect on land conservation investment. Even if the types of investments, specifically absence of significant effect on tree planting, is evidence against the claim

that investment can be made as a need for demarcation and suggest that certification brings changes on the quality of investment (Gorfu, 2016:25).

Moreover, they were involved in the use of crop rotation, intercropping and compost/manure/ preparation to increase the soil fertility management after certification. Hence, a positive relationship is observed between land certification and investments in land management practices and soil fertility management.

Suggestion from Adgo *et al.* (2014:56) even if land certification improves land management practices and maintenances of soil and water conservation structures, more households are cultivating steep slope areas, which implies the absence of proper land use systems. Therefore, there is an urgent need to develop and implement land use plans that prescribe to which purpose a given plot of land has to be devoted.

Kirui, (2017:7-15) concluded that securing land tenure and access to relevant agricultural information pertaining to SLM will play an important role in enhancing the adoption and the number of SLM adopted. This implies that policies and strategies that facilities secure land tenure are likely to incentivize investments in SLM in the long-run since benefits accrue over time. There is a need to improve the capacity of land users through education and extension as well as improve access to financial and social capital to enhance SLM uptake. Local institutions providing credit services, inputs such as seed and fertilizers, and extension services must not be ignored in the development policies.

In SNNPR some studies implied as to the positive impact of land certification to secure women land right, planting a tree, land management practices, etc. For instance, finding by Abera, (2017:61) showed that the majority of the households involved in one or more of land management activities such as tree planting, terracing and fodder trees planting on grazing land. Taddese, (2013:24) also found out the value of certification to farm households increased tree planting and the ultimate accrual of any benefits from such investments. While his study recommended that further studies are being done on certification is a determinant factor in land investment decisions. Additionally in

Meskan Woreda, Amsalu, (2017:91) observed the tenure security level of women, elders , orphan and disables and suggested that only Some of the holdings are registered and certificates were produced in the name of the women, elders, orphans and disabled persons, and they have been getting fair benefit from investments on their lands. In general, evidence implied that further studies are needed in the area of land certification impact. The aim of this study differs from the previous mentioned, mainly concerned with land certification contribution as a sustainability issue of land management practices.

2.9 The relationship between land titling and credit access

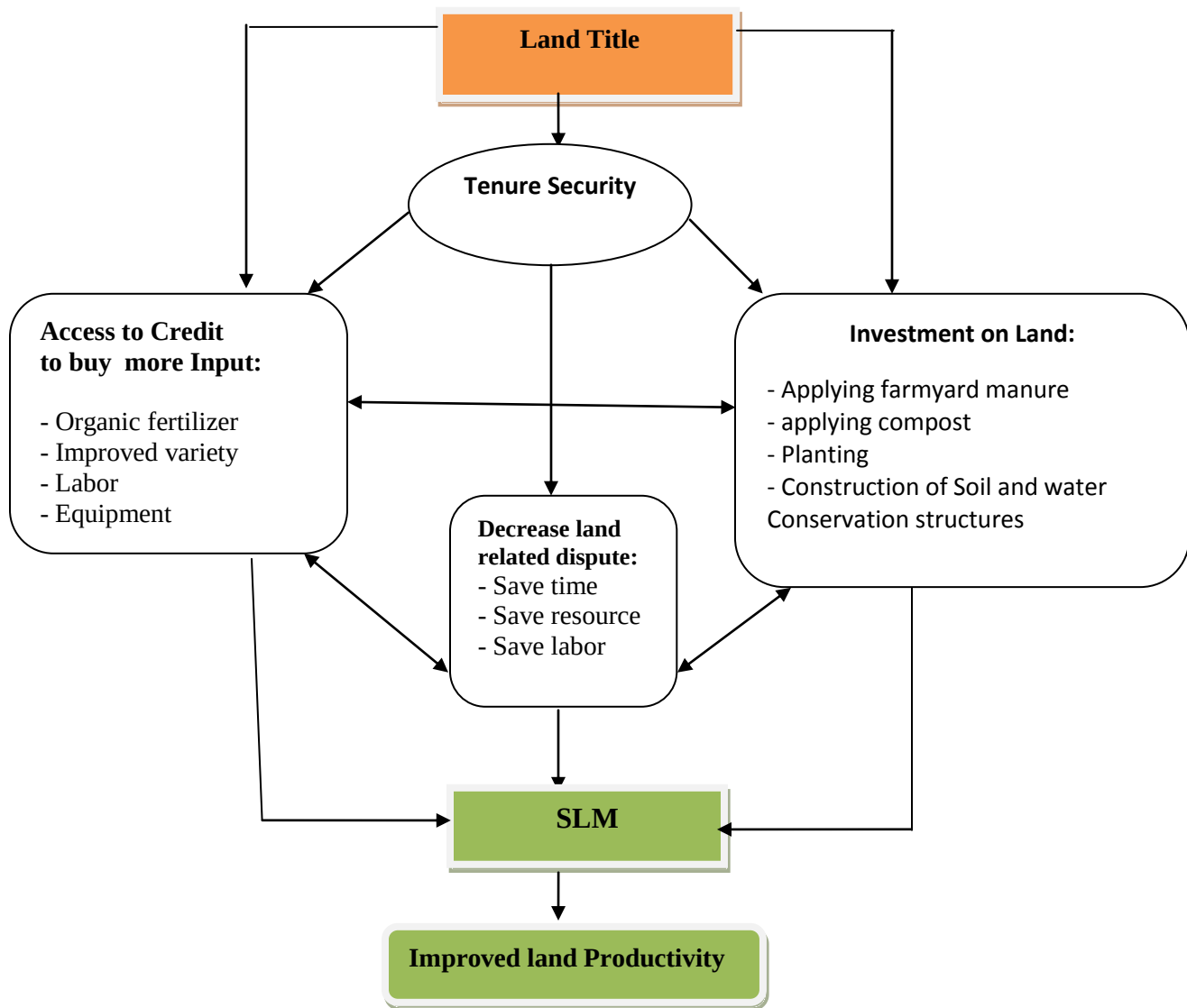
The study has been shown that lack of an adequate document validating property rights in land is a barrier to credit access. Sanjak (2012), stated that land titling programs provide ownership rights to landholders, and used as a legal document to an expansion of credit access from a formal institution. However, the researcher put other significant factors (such as income level, availability of credit in the market, and viability of the borrower's business plan) determine whether or not one obtains a loan.

The research agreed on, the land title will make credit available to farmers and other poor entrepreneurs, helping them move out of poverty, has shaped expectations of programming to improve land rights. Parcel-based land certification linked loan product that allows rural farmers in Ethiopia to go beyond income smoothing and invest in productive agriculture. However, other research has not seen land titling credit access apply to the purpose of sustainable land management practices directly or indirectly. This research could show the purpose of land certificate based credit access.

2.4 Theoretical framework of analysis

An evolutionary theory of land rights, state delivery of private ownership titles as an effective response to the insecurity of tenure and the main incentive for investment in land (Delville, 2009). Also, Kirui,(2017:15) concluded that securing land tenure and access to relevant agricultural information pertaining to SLM will play an important role

in enhancing the adoption and the number of SLM adopted. Land certification has a positive impact on long term investment and sustainable land resource management, households' participation in land management practices such as terracing, application of farm yard manure, construction of water harvesting structures, tree planting, and others have shown an improvement in the study area after land certification (Adgo et al., 2014: 56). The research agrees increased security of tenure has a vital role to solve the land-related dispute, farmers are encouraged to engage their labor to invest in their land in sustainable and productive ways rather they have spent their labor to the court process. In addition, the research concept of Kaliba and Rabele, (2004) expressed sustainable land management as long term investments include construction of stone bunds, terraces planting of perennial trees and application of organic manures whose benefit last for more than two years. This study assumed that sustainable land management as long term land investment and those farmers were applying more than three type of land management practices on farm plots. Also, farmers can use their land use right as a guarantee to apply for larger, individual loans with credit and saving institutes for the purpose of investment in land as sustainable manner. Farmers' were able to buy improved agricultural inputs and equipment, additional labor and other land management activities to increase their land productivity.



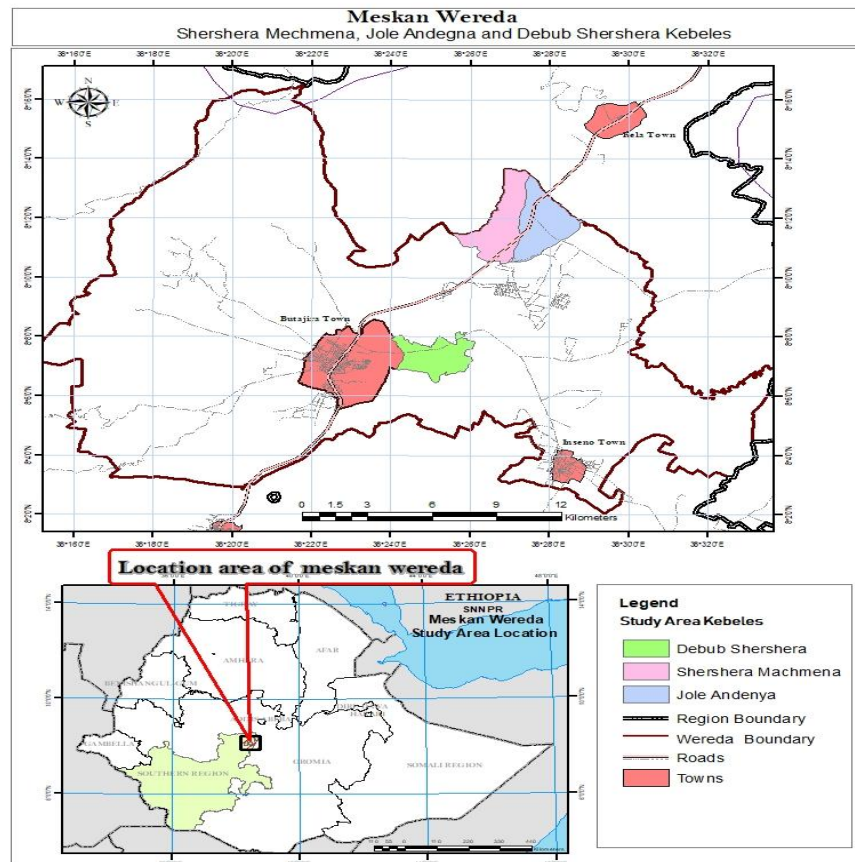
Source: Own design, 2019

Figure: 2.3: Analytical framework

3. Research Methodology

3.1 Location and biophysical description of the study area

Meskan *woreda* is one of the 15 *woredas* in Gurage Zone, SNNPR. Butajira town is the capital city of the *woreda* and located at 130 kilometers south of Addis Ababa. The *woreda* bordered with Sodo *woreda* in the North- East, Kokir-Gedebano in the North- West, Muhurna- Aklil in the West, Mareko & Silte in the South and Aliche in the South- West (MWFEDD 2016:2). The sample kebeles are Jole 1st, Shershera-Mechimena and Debub-Shershera and thus Jole 1st and Shershera-Mechimena located border to Sodo *woreda* and Debub-Shershera is located in the West of Meskan *woreda*.



Source: MoA RLAUD, 2019.

Figure 3.1: Location of Meskan *Woreda* in SNNPR

Agro-climatic zone:

About 80% of the Meskan *woreda* lies under *Woina Dega* and the remaining 20% is characterized by *Dega* agro climates having the altitude range of 1501m-3500m elevation above sea level (MWFEDD 2016:4-6). The average annual temperature of the *woreda* ranges from 10.5 to 17.5°C and its average annual rainfall ranges from 1000-1200mm (MWFEDD 2016:4-6).

3.2 Socioeconomic profile of the study area

Population: According to CSA (2007), data the *woreda* has about 202,236 total populations with 0.9:1 ratio of men to women. The *woreda's* population growth of 2.9% per annual with an average 4.9 persons per household which was reported as one of the *woredas* with the highest fertility rate recorded in *Gurage* zone (MWFEDD, 2016:12). About 40,185,135 (92%) of the *woreda* population lives in rural areas whose livelihood directly depend on land (MWFEDD 2016:12). The total area of the study *woreda* is 36,619,324 hectare (RLAUD, 2018 report). The average land holding size of the *woreda* is 0.006 hectare and this show land per house is low.

Economic: The livelihood of the people in the *woreda* depends on subsistence agriculture. MWFEDD (2016:12) indicated that about 92% of the *woreda* population depends on agricultural crops such as maize, wheat, barley, sorghum, avocado, *mango*, banana, *teff*, *chat*, red pepper, and others. The rest of the people were engaged in trade, service sectors and employment in the public or private sectors while the rest depend on temporary income (laborers) or remained unemployed.

3.3 Research methods

This part deals with the research design, sampling procedure, sampling technique, source of data, method of data collection, and method of analysis.

3.3.1 Research design

In this study, applied a mixed research design of both qualitative and quantitative methods in combination to assess the contribution of land certification to sustainable land management practices in Meskan *woreda*. In order to address the stated objectives

the study needs the collection of statistical (numerical) data for the quantitative analysis and to describe existing conditions of the *woreda* by using qualitative data. Also, the retrospective cross-sectional research design was used for collecting the essential data to assess land certificate contribution to SLM practices and credit access.

3.3.2 Sample size determination and sampling technique

According to the Meskan *woreda* Land Administration Office report 675 households have taken landholding certificate in the selected *kebeles*. Therefore, the sample size is the total number of units that are to be selected as sources for the information to be collected and analyzed in the research. The sample size was determined according to Yemane, (1967) simplified formula at a 95% confidence interval. It is used to determine the number of representative sample households that should be included in the survey sample size of the respondent was select based on the formula given as:

$$n = N/1 + N(e)^2 ,$$

n= Sample Size,

N= Total Population and

e= Precision level at 95% ($\alpha=0.05$) confident interval for normal distribution data.

Therefore the sample size: N=675 and e, at $\alpha=0.05$

$$n=1,603/1+1,603(0.05)^2, n= 251$$

Table 3.1 Distribution of sample respondents proportional to size

No	Selected kebeles	Total households in each kebele	Sample
1	Jole-Andegna	250	93
2	Debub-Shershera	225	84
3	Shershera-Mechimena	200	74
Total		675	251

Study site selection

Meskan is one of the pilot *woreda* among the other *woreda* in the region regards to completed land registration and certification. Therefore, this study was to try to show the contribution of land certification on the adoption of SLM practices. For this reason, the study selected Meskan *woreda* purposively among non-probability sampling techniques. Also, the land certification program pursued in the *woreda* by government budget program and project program. Both have followed the same procedure while different monitoring and supporting system in the *Kebeles*, in addition the project *kebeles* have different topography. Due to this reason, the study was select purposively three *kebeles*: Jole-andegna and Shershera-mechimena from LIFT out of 26 *kebeles*, these two *kebeles* have different topography (slop) and Debub-shershera from the government out of 14 *kebeles*. To answer the qualitative question the study was selected key informant and participants for focus group discussion by purposive sampling technique. In addition, the *woreda* data base system made list out of all landholders in the sample *kebeles* those have land certification; due to this, the study selected respondents for a quantitative approach by using a simple random sampling technique.

3.3.3 Research approach, data sources and methods of data collection

This research employed both qualitative and quantitative research approaches. Also, the study used both primary and secondary data sources, which complement each other. A primary source of data was collected using the following data collection techniques:

3.3.3.1 Tools and technique of primary data source

The primary data was collected using both quantitative and qualitative data collection methods. The quantitative data collection method was HHs (House Holds) survey. The qualitative data were gathered by employing FGDs (Focus Group Discussions), Key Informant Interviews and field observation. The tools of data collection were prepared such as questionnaires and checklist/guideline (Appendix 1).

Households Survey

A household survey was conducted using structured questionnaires designed in line with stated research objectives and research questions. As determined in sample size, in this study 251 HHs out of 675 were participating in a structured interview. It was basically conducted to collect data to identify factors and to evaluate its contribution to land management in the study area. The data to collect using this method was including personal background information of respondents. For collecting such data the researcher employed five enumerator who were train and trained as to how to fill the household questionnaire.

Focus group discussions (FGDs)

FGD was conducted to understand farmers' perception about land certification contribution to tenure security, availability of credit access by using land certification as collateral, and contribution of land certification to sustainable land management. One FGD was conducted per *kebele*. The total number of members in one FGD was 9 participants. The FGD participants were selected purposively from each *kebele* model farmers and *Kebele* Land Administration Committees (KLACs).



Source: Own observation, 2019.

Figure 3.2: Some of Focus Group Discussion Sessions

Key Informant Interview (KII)

KII was conducted to assess the major driving factors of land management and legal issues concerning land certification system, the effectiveness of land certification for access to credit & its impacts on land management was explored based on qualitative techniques. Participants of KII were selected purposively from *woreda* and *kebeles*, Credit and Saving Institution and *Woreda* Land Administer.

Field Observation

I have observed the contribution of the land certificate on sustainable land management practices on the ground like soil and water conservation structure and land coverage. I was taking various descriptive notes of what is happening. Photographs were taken during field observation. The study was a focus during the observation only land-related issues related to certified landholders and their land, credit institution services to farmers and operation of the land administration office.

3.3.2.2 Secondary data source

Secondary data sources which were collected from journal articles, books, legal documents (proclamations, regulation, and directives), statistical abstracts, study reports, thesis and dissertations among others. These sources of secondary information were access from the internet, university libraries, institutions, and organizations. Historical data on demographic and socio-economic variables were obtained from various statistical abstracts.

3.3.2.3 Baseline data

To make a change in the community, one of the first things was to identify the trends of the community in the first place. Try to found out how prevalent any problems and positive tendencies are, how often things happen, the duration and intensity of most incidents, etc. Therefore, to measure the contribution of land certification to the adoption of SLM practices, the study was to use recall data of the trend on land management

practices before and after land certification. This data was collected from, recording data of *Woreda* office, in-depth interview of key informant and recall data from an informant.

3.4 Method of data analysis

Socioeconomic data influence the understanding of landholder about the contribution of land certification on sustainable land management. In view of the fact that the data collected are qualitative and quantitative in nature, the data analysis of this research depends on both quantitative and qualitative approach. The primary data collected from the sampled household was processed by using the Statistical Package for Social Scientists (SPSS v.22). The survey data were analyzed and interpreted by using descriptive statistics such as, frequency distribution, percentage, crosstabs, p-value and used chi-square test. And, the qualitative data obtained through key informant interview, field observation and focus group discussions were analysed by thematic and narrative analysis, it makes to sort-out and reflections upon them, enhance them and present them in a revised shape and triangulate with the quantitative data.

3.4.1 Perceptions of contribution of land certification among landholder

This study was to apply qualitative data analysis to answer the objective of evaluating the understanding of landholders about the contribution of land certification beyond tenure security. Data that are related to concepts, opinions, knowledge, values, and behaviors of participants in a social context. So, qualitative analysis helps to understand social phenomena in natural (rather than experimental) settings, giving due emphasis to the meanings, experiences, and views of the participants (Gujarati, 2004). Finally, the qualitative data obtained from participants and observation was analyzed in the form of narrative and thematic.

3.4.2 Contribution of the land certificate to sustainable land management

For this objective, descriptive statistics were applied. The descriptive statistics were used to analysis the contribution of land certification on sustainable land management before and after the certification in percentage, frequency distribution, p-value, and chi-square and qualified by summarizing. In addition, the descriptive analysis was qualified by qualitative data obtained from baseline data and recall data in thematic analysis.

3.4.3 Land certification for access to credit and credit use for appropriate LMP

For this objective descriptive statistics were applied. It was used to answer how much land certification is effectively used for access to credit to the purpose of sustainable land management practices directly or indirectly. The study analyzes the number of certified landholders have got credit access for the purpose of sustainable land management practices. This was analyzed by percentage, number of distribution, p-value, and chi-square and qualified by summarizing.

Table 3.3: Summary of methodology

No	Objective	Research design	Methods	Data Analysis	Measurement
1	Evaluate perception about contribution of land certification among landholders.	Mixed	Qualitative	By Employed thematic	-
2	Analyze the contribution of land certification on sustainable land management	Mixed and Retrospective Cross- sectional	Quantitative& qualitative	Descriptive statistic (frequency, crosstabs, Percent, Pearson correlation and Chi-square) & thematic	Number of LM practices apply on plot before & after LC
3	Investigate effectiveness of land certification for access to credit and credit use for appropriate LMP	Mixed and retrospective cross sectional	Quantitative and qualitative	-By Descriptive (Frequency, Percentage, crosstabs, Pearson correlation and chi-square) -By qualitative (thematic)	Number of HHs are use credit access

3.5 Data validity and reliability

Validity issue in mixed methods research may be related to the type of strategies. These may be related to sample selection, sample size, and follow up on contradictory results, the bias in data collection, inadequate procedures, or the use of conflicting research question (Creswell and Plano, 2007). Therefore, the study took care of the accuracy of the mentioned strategies. Regards on the reliability, the study was tested the score relation by Chi-square α at 1% significant level of confidence interval. Finally, both qualitative and quantitative data was triangulated each other which the data collected through interview, FGD, key informant interview, field observation, and document analysis.

4. Result and Discussions

4.1 Demographic characteristics of the sample households

The survey was carried out on rural landholders that have had land certification. The characteristics of households are directly/indirectly related to the contribution of land certification to sustainable land management. The characteristics of the households in which the surveys were done are discussed briefly under this section.

4.1.1 Sex, age and household head of the surveyed households

According to the survey from the sample of 251 HHs, 68.5 % are male and the remaining 31.5 % are female (Table 4.1). These households in terms of a household headed which positively influence them to the contribution of land certification to sustainable land management practice in relation to decision making. Out of the total samples, 61.4 % of them were jointly headed, 28.7 % female-headed, 7.2% male headed and 1.6 % guardians. Access to land is predominantly held by joint holders in the area. As observed, the contribution of female participation in sustainable land management plays a vital role; females have had a positive contribution to managing soil fertility by applying manure and compost on the plot.

Table 4.1: Respondent sex household head

Items		Frequency	%
Sex of respondent	male	172	68.5
	Female	79	31.5
	Total	251	100.0
Household Head	Male-headed	21	8.4
	Female-headed	72	28.7
	Joint holders	154	61.4
	Guardian	4	1.6
	Total	251	100.0

Source: Own field survey, 2019

The respondents were grouped into four age groups were identified (Table 4.2). About (36.7%) of the sample households were within 21-40 years old, (42.6%) between 41-60 years old, and (20.7%) greater than 60 years old. Most of the HHs (42.6%) was between 41-60 years old. The field observation and the survey result shows that the age between 41-60 years old of household heads in the study area are more experienced by farmland activities, and age between 21-40 years old of households was more educated on sustainable land management practices and they were productive. According to Ndagijimana (2019), confirmed that old farmers and those fully engaged in farming are more likely to invest in SLM than the younger ones and those partially engaged. The Chi-Square and P-value show in the survey here are an association between the age of the respondent and SLMP at 1% significant level.

Table 4.2: Respondents Age

Age categories	Frequency	%	Chi-Square Value	P-value
21-40	92	36.7	17.087	0.000***
41-60	107	42.6		
>60	52	20.7		
Total	251	100.0		

Source: Own Field Survey, 2019 P-value 0.000***significant at 1%.

Educational background

The result of the survey represented those sample households were found to be within six levels of education (Table 4.4), which include (33.9%) cannot read and write, (44.6%) can read and write, (15.1%) have completed elementary school, (4.8%) have completed high school, (0.8%) certificate holder and (0.8%) of the household was diploma holder and above. The result indicates that the majority of household heads in the study area can read and write. As the field observation showed that they have a strong understanding of securing land rights which played a significant role in invest in their farmland. According to Ndagijimana (2019) education is crucial to SLM, as it enhances

farmers' knowledge and skills with relations to the cause of land degradation and also the solution that lies within.

Table 4.3: Educational Level

Education Level Categories	Frequency	%
Can't read and write	85	33.9
Can read and write	112	44.6
Elementary school completed	38	15.1
High school completed	12	4.8
Certificate holder	2	.8
Diploma holder and above	2	.8
Total	251	100.0

Source: Own Field Survey, 2019

Characteristics of the household farm plot

It is observed that the distance of farm plots from homestead has a positive contribution to sustainable land management practices. Activities such as applying manure and compost for farm plots were more convenient for those living near their homestead area. As a result, 72.1% of farm plots took less than 5 minutes, 19.5% took 6-15 minutes, 2% took 16-25 minutes and 6.4% took >26 minutes distance walk from homestead area.

Table 4.4: Distance of plot of farmland from the homestead

Distance in minutes	Frequency	%
<5	181	72.1
6-15	49	19.5
16-25	5	2.0
> 26	16	6.4
Total	251	100.0

Source: Own Field Survey, 2019.

The status of soil fertility was increasing after land certification was put into motion. This survey categorized the status of soil fertility as fertile (Leme), moderately fertile and poor. Before LC was being put to use soil fertility status were 9.6%, 73.3%, and

17.1% fertile, moderately fertile and poor. After LC was put into place the soil fertility status has become 79.7% and 20.3% fertile and moderately fertile. According to the analyzed data, the soil fertility of the area increases by 70.1% after LC.

The slopes of plots of farmland in the study area were categorized as flat, moderately steep and steep. As the result shows 67.3% of the area is categorized under flat, while 30.3% and 2.4% are moderately steep and steep. This research find out topography of land influence farmers decision to carry out LMP or not. As observed, farmers where lived in shershera –Mechimena, carried out more LMP especially SWC and planting than farmers lived in Jole- Andegna and Debub-Shershera. The main reason of this difference among the three kebele is the topography of the land; so, the topography of Shershera-Mechimena kebele is steeper slope and moderate steep slope. According to the data from the *Woreda* Agriculture Office and from observation as well 86.1% of the survey area was covered by cropland, 30% of surveyed area was covered by perennials crop with vegetation and 2% surveyed area were covered by forest (shrubs). As the survey data shows in table 4.4, the forest coverage of the study area is very low.

In this study, the distance of farmers' farm plot from homesteads has grouped in to four. On the basis of the study table 4.4 shows, farm plot distance less than five minutes from the homestead is 72.1%, it distance 6-15 minutes is 19%, it distance 16-25 minutes is 2%, and its distance greater than 26 minutes is 6.4%. It's observed that most farmers applied compost and farmyard manure on farm plots near to their homesteads than the far one. And they were applying the SWC structure. The result supported by Assefa (2009), stated that distance from cultivation land to homestead influences the practice of soil and water conservation measures. It's concluded that the nearer the cultivation fields to the homestead, the frequent the land management and soil and water conservation measures and the higher will be the practice of conservation measures.

Farm Land Productivity: farmers were asked how they evaluate the level of their land productivity before and after certification. The survey result in table 4.5, represented that (64.5%) of the respondents confirmed that the productivity of their farm land shows an

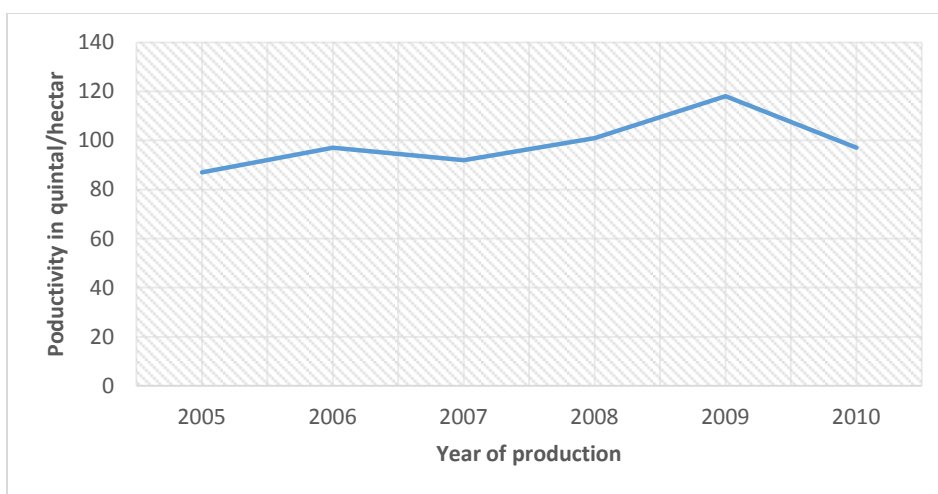
increasing trend after certification than before. This survey in line with Bezu and Holden, (2014) shown that land certification is expected to motivate improvements in livelihoods and development benefits thus including agricultural investment and productivity outcomes. Also, land certification programs encourage landholders to persuade land management practices and ultimately improved land productivity (Deininger *et al.*, 2011; Holden *et al.*, 2009). On the other hand, some respondents (35.5%) reported that there is no change in productivity of their farm land after certification. From the discussion, farmers explained that if they had used LC for credit access for the purpose of invest in land productivity, their land productivity increased. Else, if farmers put their LC in the box, they had not brought change on their land productivity. From this result, it could infer that, land certificate play vital role if farmers use appropriately for the purpose of land productivity.

Table 4.5: The land productivity of farm plot after land certification.

How evaluated the land productivity of your farm plot after land certification?	Frequency	%
Increased	162	64.5
No change	89	35.5
Total	251	100.0

Source: Own survey, 2019.

The data obtained from the *woreda* shows the level of land productive was differ from year to year. The figure 4.1 indicated that the level of land productivity of cereal crops were 87%, 97%, 92%, 101%, 118, and 97% in the year 2005, 2006, 2007, 2008, 2009, and 2010 respectively. From the discussion, the *woreda* agriculture experts explained that land certification is one of the increasing factors of land productivity, but, the main reasons of decreased land productivity in different years were a fluctuation of rain and prices of input.



Source: Own design, 2019.

Figure: 4.1. Level of land production.

4.2. Farmers perception about land certification

The survey result showed that farmers had a positive feeling about land certification in relation to tenure security; this meant that the farmer's ownership of their own land was no more an issue because they had confidence, land-related conflict decreased; no one could interfere as they pleased. Due to these, farmers spent their time, money, labor and resources on the land. Also, the farmers' response during the interview and group discussion indicated that land certification is used to develop farmers' confidence in land tenure security even though it did not completely eliminate the fear of the land being taken by the government at any particular time.

Table 4.6: Farmers perception about LC benefits

What is the benefit of your land certification?	Response	Frequency	Percent %
I gain confidence	Yes	247	98.4
	No	4	1.6
	Total	251	100
I can inherit the land	Yes	146	58.2
	No	105	41.8
	Total	251	100
No one can take my land	Yes	218	86.9
	No	33	13.1
	Total	251	100
Can be used as collateral	Yes	205	81.7
	No	46	18.3
	Total	251	100
Helps to Reduce Conflict	Yes	200	79.7
	No	51	20.3
	Total	251	100
More land can be rented and sharecropping.	Yes	143	57
	No	108	43
	Total	251	100

Source: Own field survey, 2019

This result is in line with the findings of Adegbo (2014), 98% of the households believed that land certification enabled them to develop confidence in their land holdings. Possible benefits of land certification are the reduction of border-related conflicts (91.8%), enabled inheritance of the land to children and other supporters (97%), secured land use rights (90.5%) and facilitated land rent and sharecropping (82.5%). Also, another finding was that after the use of LC farmers realized that they could credit by using the LC as collateral from formal credit and savings institutions. As the survey shows in (Table 4.6) below 98.4%, 58.2%, 86.9%, 81.7%, 79.7%, and 57% of the respondent from the sample LC benefited in terms of: gaining confidence, inheriting land, protection of their ownership, using land as collateral, and reduction of land-related conflict.

This research result supported by Adegbo, (2014) that certification is a step forward to ensure tenure security because land tenure security refers to the degree of confidence held by people that they will not be arbitrarily deprived of the land rights enjoyed and/or

of the economic benefit. So, this research confirmed that land certification gave high self-confidence during land transaction (renting, borrowing and sharecropping).

Furthermore, farmers said that “the benefits of land certification are beyond tenure security”. Land certification is an incentive of self-initiation to carrying out land management practices without anxiety. Even, they believed that land is the source of wealth so, they carried out long term investment. But they needed support from the government in material, financial and knowledge capacity building. And they reported that they have uncertainty due to a natural disaster.

Likewise, this study confirmed from group discussions and key informants, that certification has reduced land-related disputes such as border disputes, the claim of inheritance, and communal land dispute. The *woreda* land administration experts also mentioned that before land certification most farmers migrated due to different land dispute cases and their offices were swarmed. Land conflict cases and boundary dispute cases were what they dealt with quite often. As discussed, land certification brought a radical change towards farmers with regards to land in relation to the decreased dispute, confidence on ownership increased, land certificate base credit access increased and on-farm plot land management practices increased.

Also the survey found out, after land certification, cases come from the court and farmers have reduced. Before land certification came into the place farmland of elders and women were taken by others, whilst they rented out their land and the contractors also deceits them in taking part of in their land. Moreover, as the *woreda* land administration database expert expressed that, government support projects like LIFT and REILA plays great role by developed the system of enter land data in to database. The system used during any transaction carried out by farmers every contract and agreement has been recorded in the computer and updates the data. When the farmers carried out any transaction on their land, it will be registered on the database. Also, when farmers were carried out transaction like renting and borrowing money, land certificate used as collateral and the *woreda* database expert would employ land moratorium "*Merate Egeda*". So, the system has helping regards to preventing fraud and

crime like farmers sometimes may be collateral or rent the land twice in an impossible way. That mean farmers collateral the land certificate to a credit institution or other farmers for the purpose of borrowing or renting, this concern body to inform each other to be alert. Also, farmers said that” they were radiant because of LC, the procedure of LC and the transactions system”. Therefore, this research concluded that projects support have vital role to increased the farmers’ perception of LC.

According to the discussions with the key informants were responding to the questions about farmers' perception of land certification and its contribution to sustainable land management practices. They clarified that land certification benefited them with regards to tenure security, motivated them to carry out land management practices and source of income. Also, they revealed that before land certification there were different types of land-related disputes such as boundary conflict, claimant of inheritance and dispute and claim of land due to divorce. Therefore, the land certification has made things easier for them and most of the time farmers have spent their time on farm plots by carrying out land management practices.

4.3. Farmers understanding about sustainable land management practices

According to the finding, most farmers who experienced land management practices on their farm were more likely to apply farm yard manure and compost. The survey result shows that now all farmers have a piece of good knowledge about land management practices and can apply it on their farm plots. During the FGD discussions, some were asked the question of how to understand sustainable land management practices and what type of land management practices applied for better land management. And, the respondent said that *“land management practices are taken as mandatory because our land is our life”*. The result of the survey found out in (Table 7) shown that, 97.2% of respondents said that applying farmyard manure and compost is best for the sustainability of soil fertility, 90.4% of the respondent answered construction of soil and water conservation structure is better for the prevention of soil erosion, 51.8% of

respondent answered that adaptation of improving farming system provided sustainable land productivity, 51% of respondent answered that LUP provided sustainable land productivity and 40.2% of the respondent answered planting tree provided sustainable land productivity. It is concluded that most farmers understood sustainable land management as applying land management practices. Farmers were given priority to applying farmyard manure and compost next to soil and water conservation structure. Farmers had less opinion to planting tree especially Eucalyptus tree and few farmers were planting short root plants like fodder, Sesbania and Acacia (Girar).

Table 4.7: Farmers understanding about sustainable land management practices

SLMP in farmers understanding	Response	Frequency	Percent
Planting tree	Yes	101	40.2
	No	150	59.8
	Total	251	100.0
Land use planning	Yes	128	51.0
	No	123	49.0
	Total	251	100.0
Apply compost and manure	Yes	244	97.2
	No	7	2.8
	Total	251	100.0
Soil and water conservation structure	Yes	227	90.4
	No	24	9.6
	Total	251	100.0
Improving farming system	Yes	130	51.8
	No	121	48.2
	Total	251	100.0

Source: Own field survey, 2019

4.4. Sustainable Land Management Practices Before and After Land Certification

The survey of the study shows in (table 4.8) 86.1% of the respondents were involved in undertaking various land improvement activities on their parcels both before certificate and after they received land, 13.1% of the respondents were engaged after LC and 0.8% of respondents were engaged before LC. The respondent expressed that they had carried

out land management practices before LC, but too little land management practices are implemented.

During the discussion, farmers revealed that farmers who are engaged in land management practices were high due to the legally secured land holding rights. Thus, one can infer that land certification might be reduced anxiety of land related disputed, as a result farmers are being motive to engage to investment in their land. This concept has been supported by scholars that secured property right has a positive impact on agricultural productivity as it eliminates the anxiety and uncertainty of farmers for possible expropriation from their lands (Shimelles et al., 2009).

Table: 4.8 Percentage of farmers engaged to land management practices on farm plot before and after land certification.

When you applied land management practices on your farm?	Frequency	%
Both before and after LC	216	86.1
Only before LC	2	.8
Only after LC	33	13.1
Total	251	100.0

Source: Own survey, 2019.

The proportion of farmers who are engaged in land management practices was increasing due to land certification. On the basis of the resulting analysis, it can be inferred that land certification played a significant role to involve themselves in land management activities than before and this result shows the comparison of those farmers carried out LMP only before LC and farmers engaged to LMP due to LC. It shows the increment from 0.8% to 13.1% as the result of LC. . The idea has been supported by

scholars that advocate land certification programs encourage landholders to persuade land management practices for instance: tree planting, construction of stone terraces) and ultimately improved land productivity (Deininger et al., 2011; Holden et al., 2009).

However, the observation and discussions show that most farmers were carrying out applying compost, farmyard manure and SWC (soil bund). Farmers have a trend of applying farmyard manure on their plots before land certification but, farmers land held with disputed in court was not employ land management practices.

Mainly this research measured sustainable land management practices in terms of the number of land management practices applied on farm plots. As the result shown in table 4.9, 92% of the respondents were applying more than three types of land management practices after LC among SWC, planting, tracing, Applying compost and manure, fencing interchangeably, 57.4% of the respondents applied less than two types of, land management practices and 11.2% of the respondents did not apply LMP before LC. Based on the result, it could be confirmed that LC motivate farmers engaged to more than three types of LMP. And, this research concluded that farmers applied more than three types of LMP called SLMP, thus increase land productivity.

Table: 4.9. Number of land management practices applied on farm plot before and after LC.

How many LMPs were applying on your farm plots?	Before LC		After LC	
	Frequency	%	Frequency	%
Nothing	28	11.2	1	.4
One or two type of LMP	144	57.4	18	7.2
Above three type of LMP	79	31.5	232	92.4
Total	251	100.0	251	100.0

Source: Own survey, 2019.

This finding is similar to Belay (2010) whose research found out that the majority of the households who received land certificates were involved in one or more of land

improvement activities. Also, Assefa (2010) found out similar results in that the majority of the households who received land certificates were involved in one or more of land improvement activities.

Table 4.10: Land management practices on farm plot before and after land certification

What types of LMP apply on your farm plot?	Have you carried out any land management practices on your farm plot?								
	Response	Always		Only before		Only after		P-value	χ^2
		Frequency	%	Frequency	%	Frequency	%		
Terracing on the farm plot	Nothing	51	70.8	8	11.1	13	18.1	0.000***	37.583
	Both	39	83	8	17.9	0	0		
	Only before	12	33.3	16	44.4	8	22.2		
	Only after	68	70.8	10	10.4	18	18.8		
Planting tree	Nothing	80	75.5	8	7.5	18	17	0.000***	37.384
	Both	9	27.3	12	36.4	12	36.4		
	Only before	35	67.3	12	23.1	5	9.6		
	Only after	46	76.7	10	16.7	4	6.7		
Applied compost	Nothing	14	41.2	9	26.5	11	32.4	0.000***	97.891
	Both	68	98.6	1	2.4	0	0		
	Only before	7	16.7	16	38.1	19	45.2		
	Only after	81	71.8	16	15.1	9	8.5		
Applied farmyard manure	Nothing	7	21.2	19	57.9	7	21.2	0.000***	148.283
	Both	139	95.2	5	3.4	2	1.4		
	Only before	6	18.2	11	33.3	16	48.5		
	Only after	18	46.2	7	17.9	14	35.9		
Incorporated crop residue on farm plots	Nothing	196	84.8	2	0.9	33	14.3	0.741	3.521
	Both	2	100	0	0	0	0		
	Only before	12	100	0	0	0	0		
	Only after	6	100	0	0	0	0		
Construction of soil and water conservation structure(soil bund, stone bund and trench	Nothing	11	33.3	7	21.2	15	45.5	0.000***	67.494
	Both	39	84.8	6	13	1	2.2		
	Only before	9	27.3	12	36.4	12	36.4		
	Only after	111	79.9	17	12.2	11	7.9		

*** Significant at 1% confidence interval. Degree of freedom for each chi-square (χ^2) tests of association is 1.

Source: Own field survey, 2019.

In the study area, the farmers had been engaged in various types of land management practices, such as terracing on farmland, tree planting, application of compost and organic manure, construction of soil and water conservation structure their farmlands. Land management practices are all significantly associated (at $p < 0.01$) with land certification except the incorporated residue on farm plots; it's insignificant. The proportion of the farmers who applied these types of LMP has increased after land certification as shown in (Table 4.10).

As survey results indicated in (table 4.10), the magnitude of land management practices type that the households are engaged focuses on improving their parcel productivity. This research specifically categorized land management practices period of implementation by farmers; as land management practice implements both before and after LC, only before and only after and nothing was done. It shows 70.8% participated in terracing only after land certification, 76.7% participated in planting only after land certification, 71.5 % participated in applying compost only after land certification, 46.2% participated in apply farm yard manure only after land certification, 79.9% participated in Construction of soil and water conservation structure only after land certification. This indicated that farmers carried out such practices due to land certification. Also, it shows 33.3% participated in terracing only before land certification, 67.3% participated in planting only before land certification, 16.7 % participated in applying compost only before land certification, 18.2% participated in apply farm yard manure only before land certification, 27.3 % participated in Construction of soil and water conservation structure only before land certification. The percentage of participant in land management practices after land certification was increasing to compare with before. As a correlation value showed that after land certification correlates with terracing is significant at 1% 0.000* p-value, applying compost is significant at 1% p-value 0.000***, applying farmyard manure is significant at 1% p-value 0.000*** and construction of soil and water conservation structure is significant at 1% p-value 0.000***. The study showed on the table after land certifies the number of farmers engages in land management practices are increased as compared to before land certification and the farmers carried out more than two types of land

management practices applies to farm plots. The proportion of farmers who applied these types of LMP has increased after land certification. This indicates that land certification has played a vital role in motivating them to invest in their farmlands.

Also, this finding is in harmony with Abera et al. (2012) who found out that among land management practices, terracing, planting trees application of compost, application of farm yard manure and construction of water harvesting structure have increased after land certification. On the contrary, this research against Gorf, (2016) finding that stated there is no significant evidence land certificate contributes to planting trees. This research confirmed that land certificate had contributed to planting significantly at 1% (χ^2 , 84.384***).

However, this study found that even the farmers who have been involved in land management practices, the matter of sustainability of the land management activity is not yet qualified. Especially the soil and water conservation practices available for one season. It damaged by wind, livestock herd, and pedestrian. Also, other scholars found that certified landholders apply inappropriate land management practices (Adego et al. 2014:57). Land management practice because of the practice of soil bund terracing is not significant (Abebe, 2015:21). According to Gorf, (2016:25), found that there is no evidence that land certification brought changes to the quality of investment.

Besides, field observation, key informant response and FGD discussion result re-assured that the carrying out of land management practices by farmers increased from time to time due to tenure security. Farmers are motivated to invest and improve their farmland by carrying out different land management practices on farmland. Farmers carried out land management practices by their own initiation. And most farmers were employing land management activities like farmyard manure and compost regularly and soil and water conservation structure at the time of the rain season.

When the farmers were asked about their knowledge of sustainable land management practices, they stated the trends of land management practices. They reported that

previously farmers' incorporated crop residue for land productivity, currently this trend has stopped due to crop residue used to forage for livestock and fattening. However, farmers are applying soil and water conservation (soil bund) massively. As the farmers said that they saw their land as a child, if they do not care for a baby, the baby will not grow and will not be useful for them, the land also is just like that.

4.5. The contribution of land certificate to sustainable land management

As the survey shows, the degree of land certificate contribution was high to LMP directly and indirectly. Landholders were engaged in different land management practices due to tenure security. The (Table 4.11) shown that 98% SWC, 77.3% compost and farmyard manure and 33.9% fence were employed by the respondents. According to the analysis, the magnitude of land certification was high to SWC next to Applying compost and manure. As observed, farmers where lived in shershera –Mechimena, carried out more LMP especially SWC and planting than farmers lived in Jole- Andegna and Debub-Shershera. The main reason of this difference among the three kebele is the topography of the land; so, the topography of Shershera-Mechimena kebele is steeper slope and moderate steep slope.

In addition to this the research found out, farmers where lived in shershera-Mechimena and Jole-Andegna carried out more LMP especially SWC, applying compost and environmentally sustainable agricultural inputs than farmers lived in Debub-Shershera. During the discussion farmers revealed that “the main reason of this difference among the *kebele* is the supporting and monitoring system of the concerned body; mean LIFT project was support by encouraging the farmers to invest in land and apply environmental sound agricultural input in land”. The research concluded that, side by side LC with appropriate supporting from LIFT project brought initiation to farmers investing in land.

Table 4.11: The contribution of land certificate to sustainable land management

SLMP employed by farmers	Response	Frequency	%
SWC	Yes	246	98.0
	No	5	2.0
	Total	251	100.0
Applied compost and Manure	Yes	194	77.3
	No	57	22.7
	Total	251	100.0
Fencing	Yes	85	33.9
	No	166	66.1
	Total	251	100.0

Source: Own field survey, 2019

As the discussion showed that, land certification has brought long term changes specifically on land investment practices such as planting perennial crops like mango, avocado, and papayas, as well as physical and biological land practices, were implemented regularly. In addition, farmers mentioned that some farmers were planting plants that were available to soil fertility like fodder, Acacia (Girar) and Sesbania. Also, farmers were applying largely soil and water conservation structure especially soil bund. However, experts stated that the practice of land management has increased due to land certification but, the quality of land management practices is not considered sustainable. Most farmers were carrying out one season land management practices just like use and throw material. And they recommended that awareness creation is needed for farmers and also the government should be given priority to SLMP.



A: Fencing, B: Planting C: Apply farmyard manure D: Terracing and soil bund E: Stone bund

Source: Own observation, 2019.

Figure: 4.2: Some of land management practices from observation.

4.6. The contribution of LC to credit access, and credit access to SLMP

The finding of this research indicated that land certification had a positive contribution to farmers' credit access. Farmers could get credit access from legal credit and saving institute by land certification as collateral. This survey analysis in (Table 12) indicated that farmers have got credit access 16.3% before land certification. As respondent stated that the limitation of credit access reason is tenure security. The survey result showed that 49.8% tenure insecurity, 33.1% lack of awareness about the credit institution

process, 26.3% lack of monitoring and supporting. After land certification credit access grew to 35.1% and it is going to be fast the increment of credit access due to land certification.

Table 4.12: Credit access before and after land certification

Response	Before		After	
	Frequency	%	Frequency	%
Yes	41	16.3	88	35.1
No	210	83.7	163	64.9
Total	251	100.0	251	100

Source: Own field survey

Also, credit access had a positive contribution to farmers carrying out sustainable land management practices. The scholar supported this idea as farmers' access to credit is positively associated with an investment in sustainable land management practices such as soil and water conservation practices, as well as chemical and organic fertilizer (Ndagijimana, 2019). The scholar also shows that the credit does not only contributed itself as a means to buying expensive chemicals, but farmers used it also for manpower payment to construct soil conservation practices such as contour line and diversion ditches, as well as to purchase organic fertilizer (Ndagijimana, 2019). Thus it shows that land certificate base credit access has been directly applied to land management practices.

On the contraries, this study in (Table 4.13) shows that in the study area farmers were using most of the land certificate base credit access for off-farm activities such as fattening, poultry production, and milk production. Farmers had devoted credit access to land management practices indirectly meaning that farmers' income was increasing and could invest in their farmland. The p-value and the chi-square shows that off-farm activity is a significant relationship with land certification at $p < 0.01$ (0.000***). Also, the fisher exact taste shows that Purchasing Input (Fertilizer, seedling, herbicides) significant level at 0.05. The Fisher exact test statistic value of Investment on land(soil conservation, planting, fencing is < 0.00001 and the result is significant at $p < .05$

Table 4.13: Land certification based credit access

For what purpose you took credit?	Have you gate credit access?					Chi-square
	Response	Yes	No	total	Fisher exact P-value	
Purchasing Input (Fertilizer, seedling, herbicides, etc)	Yes	30	221	251		228.750
	No	88	163	251	0.05	
Investment on land (soil conservation, planting, fencing)	Yes	12	239	251		
	No	88	163	251	0.00001.	
Credit to off-farm activity	Yes	83	168	251		
	No	88	163	251	0.000***	
	Total					
Credit for house expenditure	Yes	2	249	251		
	No	88	163	251	0.00001.	

The Fisher exact test statistic value is < 0.00001 and the result is significant at $p < .05$; P-value at 1% (0.000***) Significance level.

Source: Own field survey in 2019.

Besides this, during the discussions, an idea was raised about land certification and its use as a guaranteed asset to farmers. As reported by the *woreda* Omo Micro Finance and Agar credit and saving institution stated that the rate of credit applier is increasing from time to time and they got credit access according to the business plan. Farmers were empowering themselves by getting credit access from legal credit institution and they were engaged in investment on land. Most farmers took credit for off-farm activity and few to investing in the land like agricultural input purchased, irrigation activity as well as land management practices like payment for manpower, fencing, etc.

The *Woreda* Land Administration Office reported that the LIFT project facilitates farmers' credit access based on their land certificate document. And the project does fill

Also, during the discussion with key informant the idea raised about credit access was the other contribution of land certification that farmers benefited largely. As the result, the farmers expressed that they are using land certification as collateral to get credit access and mostly were applied for the purpose of income generation activity like fattening, poultry production and milk production as well as purchasing of input and investing in land slightly.

As mentioned in the above, land certificate base credit access used directly or indirectly, for land management practices. Albeit, farmers borrow money to buy oxen for fattening purposes, maybe after three months, they can be sold with a profit. So, if farmers can be profitable, they may be able to invest in their plots of land. However, this research found out farmers did not use credit directly to sustainable land management practices.

5. Conclusion and Recommendations

Conclusion

Land certification plays a vital role to implement land management practices in general but the sustainability issue is under question. This study endeavored to survey the contribution of land certification to appropriate investment in land management practices on farm plots as sustainable manner, farmers understanding about LC and LC base credit access of samples of rural households in the Meskan *Woreda* of SNNPR of Ethiopia. The study was used both primary data from a sample household /survey and FGD/ and secondary.

The findings of this research differ from the previous findings in that the extent of objective that land certification contribution with, related to sustainable land management practices and credit access. Landholders' perception about LC to LMP was high in the previous studies. In addition, this study found that government support projects like LIFT and REILA plays great role by developed the system of enter land data in to database. Therefore, this research concluded that projects support have vital role to increased the farmers' perception of LC. It is founding the quality of land management practices implementation as sustainable manner is very low as well as credit access to land investment is low in this finding.

Therefore, according to the objective of this study it can be concluded that certification has a positive contribution to land management practices and credit access. The result of this study shows that land certification has brought tangible changes in farmers' perception of land tenure security and its contribution. As a previous study concluded that land certification increases individuals' investment and secured land ownership has a tendency to significantly increased farmers' incentives to practice appropriate land management practices. In the contrary, this study observed that the appropriateness or quality of land management practices is low. Only little farmers apply appropriate LMP that farmers support by project carried out more applying compost and environmentally sustainable agricultural inputs than other farmers. Mean that, LIFT project was support by encouraging the farmers to invest in land and apply environmental sound agricultural

input in land”. The research concluded that, side by side LC with appropriate supporting from LIFT project brought initiation to farmers investing in land. But, the movement from government to support and monitoring to farmers regards to SLMP is very low.

In line with the previous studied, this study also concluded that the majority of the households were engaged in one or more types of land management activities after they received land certificates. But, this study conclude that, farmers apply only one type of LMP not ensure Sustainability, so it must be apply more than three type of LMP on the plots.

This study confirmed that, credit access is the other contribution of land certification that farmers benefited largely in general. According to the previously studied confirmed that, farmers have used credit access for the purpose of investing in land. On the contrary, this study shows that farmers are using land certification as collateral to get credit access for the purpose of income generation activity like fattening, poultry production and milk production largely. However, LIFT project does fill an agreement with the MFI that the credit access would be available for the purpose of environmentally sustainable agricultural inputs. Only project *kebeles* were more advantageous and those *kebele* farmers have gotten priority in terms of credit access and support from the project. But, purchasing of input and investing in land is little. Government involvement is very low regards to supporting and monitoring to farmers to investing land and applies SLMP. They use credit access to sustainable land management practices indirectly. The survey also stated that only a few numbers of farmers were engaged in investing in land especially planting of perennial crop.

Recommendations

1. Farmers had knowledge about LMP, but they were implementing low quality of land management practice and the sustainability issue is under question. So, the *woreda*, environment and land administration office should give enough training on SLMP to farmers and need appropriate supporting and monitoring.
2. Government should extend and adopt the good experience of project supporting and monitoring system to farmers regards to applying environmental sustainability agriculture input and to use LC base credit for the purpose of investing in land.
3. The *Woreda* Environmental protection office gave more attention to campaign LMP rather individual LMP on farm plots, therefore, should be give support to those farmers employ LMP in the farm plots.
4. Farmers were implementing one season land management activities. Therefore, they should do a land management activity as sustainable manner and they should maintain frequently.
5. Farmers were fearful to borrow money from credit institutions to land investment due to lack of supporting. Therefore, the government, *woreda*, and *kebele* together should take part in awareness creation and supporting.
6. Most farmers borrowed money for the purpose of fattening, milk production and poultry production; only a few numbers of farmers borrowed money for the purpose of investing in land. Therefore, the concerning government bodies should encourage farmers to engage in different activities like investing in land agricultural input purchased irrigation activity as well as land management practices like payment for manpower and fencing.
7. Further study should need on SLMP and credit access for investing in land by the *woreda* environment and agriculture office.

6. References

- Abebe, M. (2015). *The Contribution of Land Certification to Land Management Practices-The Case Study of Dandi District, West Shewa Zone, Oromia National Regional State* (Doctoral dissertation, St. Mary's University).
- Abera, K., (2017). The Impacts of Land Certification on Sustainable Investments and Land Management . Duna Wereda Hadiya Zone, SNNPR, Ethiopia.
- Abza, T. G., Abebe, G. A., & Bennett, R. M. (2015, May). Implementation challenges of the rural land administration system in Ethiopia: issues on land certification and information system. In *16th Annual World Bank Conference on Land and Poverty 2015: Linking land tenure and use for shared prosperity* (pp. 1-44). The World Bank.
- Adgo, E., Selassie, Y., Tsegay, A., Abate, S., & Ayele, A. (2014). Impact of land certification on sustainable land resource management in the Amhara region, Ethiopia. *Retrieved September, 21, 2015.*
- Alchian, A. and Demsetz, H. (1973)."The Property Rights Paradigm."*The Journal of Economic History*, Vol. 33, No. 1,.
- Amsalu, Me., (2017). Land Registration and Certification in MeskanWoreda,SNNPR: process, status and challenges of Economic History 33 (March): 16-27.
- Arnot, C. D., Luckert, M. K., & Boxall, P. C. (2011). What is tenure security? Conceptual implications for empirical analysis. *Land Economics*, 87(2), 297-311.
- Assefa, D. (2009). Assessment of upland erosion processes and farmer's perception of land conservation in Debre-Mewi watershed, near Lake Tana, Ethiopia. *A Thesis Presented to the Faculty of Graduate School of Cornell University in Partial Fulfillment of the Requirements for the Degree of Masters of Professional Studies. 104p.*
- Belay, A. (2010). The effects of rural land certification in securing land rights: a case of Amhara region, Ethiopia. *Unpublished thesis submitted to the international institute for geo-information science and earth observation, the Netherlands.*
- Berhanu, A., & Abdi F., (2005). *Land Registration in Amhara Region, Ethiopia: Securing Land Rights in Africa*. Research report 3, iied, Russell Press, Nottingham, UK.

- Bezu, S., & Holden, S. (2014). Demand for second-stage land certification in Ethiopia: Evidence from household panel data. *Land Use Policy*, 41, 193-205.
- Bourque, B. (2004). "Cross-Sectional Design." In *The SAGE Encyclopedia of Social Science Research Methods*. Michael S. Lewis-Beck, Alan Bryman, and Tim Futing Liao. Thousand Oaks, CA:), pp. 230-231.
- Byamugisha, F. (2016). Securing land tenure and easing access to land. *Background Paper for African Transformation Report*, 1-34.
- Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research*. Sage publications.
- Central Statistics Agency (CSA). (2007). the 2007 Population and Housing Census of Ethiopia.
- Cotula, L., Toulmin, C., & Hesse, C. (2004). *Land tenure and administration in Africa: lessons of experience and emerging issues*. London: International Institute for Environment and Development.
- Dagneu, M., Fitsum, H., & Nicck, C. (2009). Implications of Land Titling on Tenure Security and Long-term Land investment: Case of Kilte Awela'elo woreda, Tigray. *Ethiopia Proceedings of: Sustainable Land Management Research and Institutionalization of Future Collaborative Research*, 264-274. Mekelle University.
- Demsetz, H. (1967). Towards a theory of property rights, *American Economic Journal*, 347–359. *Ownership, Control and the Firm*.
- Deininger, K., Ali, D. A., & Alemu, T. (2009). Impacts of Land Certification on Tenure Security, Investment, and Land Markets: Evidence from Ethiopia, *Environment for Development Discussion Paper Series*, EfD DP 09-11.
- Deininger, K., Ali, D. A., Holden, S. and Zevenbergen, J. (2008). Rural land certification in Ethiopia: process, initial impact, and implications for other African countries. *World Development* 36(10):1786-1812.
- Deininger, K., Daniel A., and Tigstu, G. (2011). Impacts of land certification on tenure security, investment, and land market participation: Evidence from Ethiopia. *Land Economics*, 87(2), 312-334. doi:10.3368/le.87.2.312.
- Deininger, K., Jin, S., Adenewu B., Gebreselassie S., and Berhanu N. (2003). Tenure security and land-related investment: Evidence from Ethiopia. *World Bank Policy Research Working Paper No. 2991*.

- Delville, P. (2010). Tenure security, formalization of rights, land regulation institutions and investments. For a broader conceptual framework. *Land Tenure Journal*, 1(1).
- ELD Initiative. (2013). The rewards of investing in sustainable land management. Interim Report for the Economics of Land Degradation Initiative: A global strategy for sustainable land management.
- Federal Democratic Republic Ethiopia (FDRE),(1995). the Constitution of the (FDRE).
- Federal Democratic Republic Ethiopia (FDRE),(2005). Federal Democratic Republic of Ethiopia Rural Land Administration and Use Proclamation, Pro.No.456/2005. Addis Ababa.
- Feder, G & Feeny, D. (1991). Land tenure and property rights: theory and implications for development policy . The World Bank Economic Review.
- Gebremeskel, T., (2011). Experience and future direction in Ethiopian rural land administration. In *Proceedings of the Annual World Bank Conference on Land and Property, Washington, DC, USA* (pp. 19-20).
- Ghebru, H.and Holden, S. (2015). Technical efficiency and productivity differential effects of landright certification: A quasi-experimental evidence. *Quarterly Journal of International Agriculture* , pp. 54 (1): 1-31.
- Giri, S. (2010). *The effect of rural land registration and certification programme on farmers' investments in soil conservation and land management in the Central Rift Valley of Ethiopia* (Doctoral dissertation, MSc Thesis, Wageningen University, Wageningen UR).
- Gorfu, S. A. (2016). *The impact of Ethiopian land certification on land conservation, maintenance and tree planting* (Master's thesis, Norwegian University of Life Sciences, Ås).
- Alemu, M. M. (2016). Sustainable land management. *Journal of Environmental Protection*, 7(04), 502.
- Gujarati, D. (2009). Basic Econometrics.5th Front Matter Introduction. New York: The McGraw–Hill Companies .
- Gujarati,D. (2004). Basic Econometrics.4th Front Matter Introduction. New York: The McGraw–Hill Companies.

- Holden, S., & Yohannes, H. (2002). Land redistribution, tenure insecurity, and intensity of production: A study of farm households in Southern Ethiopia. *Land Economics*, 78(4), 573-590.
- Hurni, H. (2000). Assessing sustainable land management (SLM). *Agriculture, Ecosystems and Environment* 81, 83–92.
- Jacoby, H.G., Guo L., and Rozelle, S. (2002). Hazards of Expropriation: Tenure Insecurity and Investment in Rural China. *American Economic Review* 92 (5): 1420–77.
- Kaliba, A. R. M., & Rabele, T. (2004). Impact of adopting soil conservation practices on wheat yield in Lesotho. *Managing nutrient cycles to sustain soil fertility in sub-Saharan Africa*, 593-608.
- Kirui, O. K. (2016). Economics of Land Degradation, Sustainable Land Management and Poverty in Eastern Africa.
- Maddala, G. (2002). Introduction to Econometrics. University of Florida and Ohio University MacMillan Publishing Company. New York.
- MWFEDD. (2016). The 2015/16 Socio-economic information of Meskan Woreda prepared in booklet format; Amharic version.
- Ndagijimana, M., Kessler, A., & Asseldonk, M. V. (2019). Understanding farmers' investments in sustainable land management in Burundi: A case- study in the provinces of Gitega and Muyinga. *Land Degradation & Development*, 30(4), 417-425.
- Place, F. (2009). Land Tenure and Agricultural Productivity in Africa: a Comparative Analysis of the Economic Literature and Recent Policy Strategy and Reform.
- RLAUD. (2018), Annual Report.
- Roth, M., & Haase, D. (1998). Land tenure security and agricultural performance in Southern Africa: basis, broadening, access and strengthening input market systems. *Madison, Land Tenure Centre, University of Wisconsin*.
- Rozelle, S., & Swinnen, J. F. (2004). Success and failure of reform: Insights from the transition of agriculture. *Journal of economic literature*, 42(2), 404-456.

- Sanjak J. (2012). land titling and credit access – understanding the reality, USAID property rights and resource governance briefing paper #15.
- Schlager, E. and Ostrom, E. (1992). Property-rights regimes and natural resources: Conceptual Analysis. .
- SNNPR. (2004). Rural Land Administration and Utilization: Implementation Rule. *Pro. No, 16/2004* .
- SNNPR Council. (2007). The Amended SNNPR Rural Land Administration and Utilization . *Pro. No, 110 DebubNegaritGazet* . Hawssa.
- SNNPR Council. (2003). SNNPR Rural Land Administration and Utilization Proclamation . *Pro.No, 53/2003. 74* .
- SNNPR. (2007). SNNPR Rural Land Administration and Use Proclamation No.110/2007. *SNNPR NegaritGazeta 13/10* . Hawassa.
- Taddese, A. (2013). *Potential impact of land certification on rural households' land-related investment intentions in Southern Ethiopia* (Master's thesis, Norwegian University of Life Sciences, Ås).
- Tenaw, S., Islam, K. Z., & Parviainen, T. (2009). Effects of land tenure and property rights on agricultural productivity in Ethiopia, Namibia and Bangladesh. *University of Helsinki, Helsinki*.
- Tolossa, D. (2003). Issues of land tenure and food security: the case of three communities of Munessa Wereda, South-Central Ethiopia. *Norsk Geografisk Tidsskrift-Norwegian Journal of Geography*, 57(1), 9-19.
- Delville, P. L. (2006). A conceptual framework for land tenure security, insecurity and securement. *Land reform, land settlement and cooperatives*, (2), 24.
- Tyler Norris Associates, Redefining Progress, and Sustainable Seattle. (1997). The community indicators handbook: Measuring progress toward healthy and sustainable communities. Boulder, CO: Tyler Norris Associates.
- UN-HABITAT. (2008). *Land Registration in Ethiopia: Early Impacts on Women Summary report*.
- USAID. (2004). *Ethiopia Land Policy and Administration Assessment: Final Report*.

Wooldridge. (2010). *Econometric analysis of cross section and panel data*. MIT press.

World Bank. (2010). *Managing land in a changing climate: an operational perspective for Sub-Saharan Africa. Draft version Report No.: 54134-AFR*. Washington D.C: WB.

Yamane, T. (1967). *Statistical: An Introductory Analysis*, 2nd edition. New York: Haper and Row.

Zevenbergen, J., Bennett, R. M., & Simbizi, M. C. D. (2014). Land tenure security: Revisiting and refining the concept for Sub-Saharan Africa's rural poor. *Land use policy*, 36, 231-238.

Appendices

Appendix 1

Questionnaire of the Household Survey

Objective of the questionnaire Survey and Direction

Dear respondent, the main objective of this survey is to collect real information on the contribution of land certification to sustainable land management practices. I confirm you that all data will be treated as secret. Your proper and honest response is crucial for the accomplishment of the research work. I confirm you that no information will be communicated with your name and personal data will be kept confidentially.

Direction: Please think of the time before and after Land Certification and land management practices you accomplished so far. You will be asked questions about what you did on your land holding with respect to land management practices. Please answer with circle except for the questions which requires to write the responses. Dear enumerator, please answer with “**circle**” except for the questions which requires to write the responses.

Part I: General Information

Name of Enumerator			
Date of Data Collection			
Region: SNNPR	Zone: Gurage	Wereda: Meskan	Kebele:
Code of respondent			
Checked by	Date checked		

Part II: Respondent Background Information

No	Question Item	Response Option	Skip
1	Respondent sex	1) Male 2) Female	
2	Respondent's Age years	1) <20 2) 21-40 3) 41-60 4) >60	
3	Marital status	1) Married 2) Single 3) Divorce 4. Widowed	
4	Household type	1) Male headed 2) Female headed 3) Joint male and female headed 4) Guardian	
5	Educational level	1) Can't read and write 2) Read and write 3) Elementary school completed 4) High school completed 5) Certificate holder 6) Diploma holder and above	
6	Total household size	1) Under 15 years old _____ 2) 15 years and above _____	
7	Total land holding in hectare and plots	1) Before certification _____ hectare and number of plots _____ 2) After certification _____ hectare and number of plots _____	
8	Distance of farm plot from homestead(walk distance)	1)< 5minutes 2) 6-15minutes 3) 16-25 minutes 4) > 26 minutes	

Part III. Land certification to sustainable land management practices

No	Question Item	Response Option	Skip
9	Have you carried out any land management practices on your farm plot before land certification?	1) Yes 2) No(If your answer for Q. NO. 9 is no, you can Skip Q10	
10	If the answer for Q9 is yes, what type of land improvement practices you did? It is possible more than one answer.	1) Terracing on farm plots 2) Planting trees on farm plot 3) Application of compost 4) Farm yard manure 5) Incorporating crop residue on farm plots 6) Construction of other soil and water conservation structure (Trenches, dam, water harvesting structures etc.) 7) Other (specify) _____	
11	Have you carried out any land management practices on your farm plot after land certification?	1) Yes 2) No (If your answer for Q. NO. 11 is no, you can Skip 12	
12	If the answer for Q11 is yes, what type of land improvement practices you did? It is possible more than one answer.	1) Terracing on farm plots 2) Planting trees on farm plot 3) Application of compost 4) Farm yard manure 5) Incorporating crop residue on farm plots 6) Construction of other soil and water conservation structure (Trenches, dam, water harvesting structures etc.) 7) Other (specify) _____	
13	Why do you carry out SLM Practices?	1) To ensure plot of land 2) To prevent soil erosion 3) To improve soil fertility 4) For fuel consumption 5) Other (specify)	
No	Question Item	Response Option	Skip
14	Are the land improvement practices (if any) carried out on your farm plot initiated by yourself?	1. Ye s 2. No	
15	Did you carry out regular maintenance of soil and water conservation structures regularly?	1) Yes 2) No	
16	Do you have accesses to extension program?	1) yes 2) No	
17	If you answer is yes for question NO.16, what type of support do you get from the extension services?	1) Technical advice from DA 2) Training on soil and water conservation. 3) Training on how to apply input 4) Other	

		(Specify)_____	
18	Did you have any credit accesses before certification?	1) Yes 2) No	
19	If you answer is yes for question NO.18, for what purpose do you use the credit?	1) To purchase input (fertilizer, seedling , herbicides etc) 2) For investing on land (soil conservation, tree planting, fencing.... 3) Credit to off-farm activity 4) Credit for house expenditure 5) Credit for school payment	
20	If you answer is no for question NO. 18, what you have seem the problem of credit access?	1) Lack of awareness about procedure of credit and saving institution 2) Tenure insecurity 3) Lack of supporting and monitoring	
21	Do you have any credit accesses after certification?	1) Yes 2) No	
22	If you answer is yes for question NO.21, for what purpose do you use the credit	1) To purchase input (fertilizer, seedling , herbicides etc) 2) For investing on land (soil conservation, tree planting, fencing.... 3) Credit to off-farm activities 4) Credit for house expenditure 5) Credit for school payment	
23	Do you get appropriate supporting and monitoring services on credit services?	1) Yes 2) No	
24	If you answer is yes for question NO.23, who give this services and?	1) Woreda Agricultural office 2) The Project that carried out land registration 3) Credit and saving institute 4) Kebele Administration	
25	What tasks are facilitated by the service providers?	1) Awareness creation 2) Facilitate training	
26	Which certificate is more available guarantee for credit access	First level (Specify why?)_____ Second level (Specify why?)_____	

Part IV: Perception of farmers towards land certification and its contribution

No	Question Item	Response Option	Skip
27	Do you believe that land certification have benefits?	1) Yes 2) No , If your answer for Q. No.27 is no you can Skip Q28	
28	If your answer is yes for Q27, What is the benefit of your land certification? (It's possible more than one answer)	1) No benefit 2) I got confidence 3) I can inherit my land 4) No one take my land 5) Can be used as collateral 6) Help to reduce conflict 7) More land rent and share cropping	
29	Do you believe that land certification have positive contribution to apply land management practices on your plot?	1) Yes 2) NO (If your answer for Q. NO. 29 is no, you can Skip Q30	
30	If your answer is yes for question NO. 29, what you make on your plot?	1) soil conservation(soil bund, stone bund and trench) 2) Tracing 3) Apply organic fertilizers 4)Fencing	
31	How do you understand SLM? (Multiple response is possible)	1) Planting trees 2) Use land use plan 3) Apply manure/ compost 4) Make soil conservation structure 5) Use improve farming system	

Part V: Land Certification and Land Productivity

No	Question Item	Response Option	Skip
32	What were the statuses of your farm plots fertility before Certification?	1)Fertile (Leme) 2)Moderately fertile 3)poor	
33	What are the statuses of your farm plots fertility after Certification?	1)Fertile (Leme) 2)Moderately fertile 3)poor	
34	What are the slope categories of your plots of farm land?	1) Flat 2) Moderately steep 3) steep	
35	What are your plot lands covers?	1) Forest/shrub 2) Crop 3) Wet land 4) Grass land 5) Others-----	
36	How did evaluate land productivity of your farm plot before and after land certification?	1) Increased 2) Decreased 3) No change	

Semi- structured questionnaires for *woreda* experts.

1. How do you evaluate farmers' attention towards landholding certificates?
2. How did farmers understanding about contribution of land certificate in addition to tenure security?
3. How do you explain farmers' motivation towards applying SLMP on their farm plot before and after LC?
4. What do you think about the contribution of land certification for SLM?
5. How do you evaluate the land productivity before and after LC?
6. How do you evaluate the effectiveness of land certification based credit access towards SLMP?

Interview Check List for Key Informant

1. How do you assess farmer's perception towards land certification?
2. How do you evaluate the extent of land related disputes before and after land certification?
3. How do you evaluate adoption of land management practices before and after land certification?
4. What do you know about sustainable land management practices?
5. Did you believe that land certification help to carry out SLMP in farmer farm plot in your kebele?
6. What is the use of your trends for sustainable land management?
7. How do you evaluate farmers use certificate as collateral to the financial institute and can get credits to buy farm inputs to increase farm productivity?

Appendix 2

Glossary of local term

- Dega:*** Cold weather (MWFEDD, 2016).
- Derg:*** Military regime in Ethiopia from 1974-1991 (FDRE, 1995)
- Kebele:*** The lowest unit of administrative hierarchy in the Ethiopian government Structure (MWFEDD, 2016).
- Merat Egeda:*** Prohibition from any transaction (Meskan Woreda Land Administration Office, 2011).
- Quintal:*** It is equivalent to 100Kg (MWFEDD, 2016).
- Woina Dega:*** Temperate weather (MWFEDD, 2016).
- Wereda:*** An administrative unit somewhat equivalent to a district. A woreda consists of several peasant associations (MWFEDD, 2016).
- Zone:*** An administrative unit somewhat having different district. A Zone consists of several Wereda (MWFEDD, 2016).

DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of Degefa Tolossa (Asst. Professor). All sources of materials used for the thesis have been properly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

Name

Eyerusalem Feleke Dibawo

Signature and Date
