

## **Farmer's Attitude towards Soil Conservation on Cultivated Lands: The Case of Guliso Woreda, Western Wellega Zone, Oromia Regional State, Ethiopia**

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### **Abstract:**

*In Ethiopia land is a source of income and means of production on which the livelihood of 85 percent of the population depends. Due to this the development and welfare of the population is directly linked with the exploitation of land. The natural resource base is central to the livelihood of a high proportion of Ethiopia's population and distinctively critical to the national economy. Land degradation is a key social factor that deciding options for practice land management. Therefore understanding farmers' awareness on soil erosion and their attitude toward soil conservation practices are important for promoting sustainable land use. The major objective of the present study was to assess farmers' awareness on soil erosion and their attitude towards soil conservation on cultivated land in Guliso Woreda West Wellega zone, Oromia Regional State. The descriptive method was employed in this study. It was observed that farmers of the study area have good awareness of causes and consequences of land degradation on their plot of land particularly about soil erosion. They practice mixed cropping, crop rotation, afforestation, contour plough and practice SWC widely, while fallowing and agroforestry are not widely practiced because of small size of land holding and low awareness about the importance. The factors that affect farmers' soil conservation practices are farmers' experience, small size of their land holding, educational attainment, gender, lack of training, poverty,*

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*socio-economic problems, government policies and strategies and physical factors. A combined approach by government as well as the communities are needed to overcome different problems and bring about an ecofriendly and economic solution.*

**Key words:** land degradation, farmers awareness soil conservation soil erosion

## **Introduction**

Land degradation, a decline in land quality caused by human activities, has been a major global issue during the 20th century and will remain high on the international agenda in the 21<sup>st</sup> century (Eswaran *et al* 2001). Land degradation is a serious problem in worldwide with its most severe negative implication on the rural communities annually \$42 billion income and 6 million hectare of land are lost globally due to land degradation and decline in agricultural production .The degradation is caused by soil erosion, loss of soil fertility and soil cover and chemical pollution. Furthermore, over cultivation, overgrazing, and deforestation are the underlying causes of land degradation in rural areas.

The problem is more diverse in Africa; where 43% of the land is affected by land degradation ranging from moderately to severely due to human activities and it threatens million of people by starvation (UNDP, 2004). According to Getachew and Demele (2000), the most pressing environmental problems in the least developed countries are prevalent in rural areas, where the bulk of the populations live and whose livelihood depends on agriculture and related activities. Natural resource base (land, water and forest) is essential to the survival and livelihood of the majority of the people in Ethiopia.

The problems manifest itself in the form of soil and water degradation and loss of biodiversity (Aklilu 2006). Land degradation can be defined as the process that lowers the quality of land to be productive mainly because of human

activities that come from lack of inappropriate environmental knowledge, attitude and practices. It is caused by a combination of natural and human processes. The human processes that cause land degradation are a result of inappropriate land use practices namely over cultivation, overgrazing and deforestation (Gaim 1996, 34).

In Ethiopia land is a source of income and means of production on which the livelihood of 85 percent of the population depends. Due to this the development and welfare of the population is directly linked with the exploitation of land. The natural resource base is central to the livelihood of a high proportion of Ethiopia's population and distinctively critical to the national economy. Eighty five percent of Ethiopian populations depend on land for survival. Agriculture accounts for 50 percent of GDP and 85 percent of foreign exchange earnings (MoARD 2007). Because of these complex and interrelated problems, land degradation in Ethiopia is increasing at a rapid rate. The pressure of population on land pushes landless peasants into forest to cultivate marginal lands that are not suitable for agriculture and this in turn accelerates the rate of deforestation and soil erosion. This is true almost in all parts of the country. Like the other parts of the country, in the study area land degradation is increasing at a faster rate by over cultivation, overgrazing, deforestation and soil erosion.

Sustainable land management in the Ethiopian context defined as the use of renewable land resources for agricultural and other purposes to meet individual and community needs, while simultaneously ensuring the long-term productive potential of these resources and the maintenance of their environmental functions through systematic use of indigenous and scientific knowledge or technologies.

Land degradation is one of the major challenges in agricultural production in many parts of the world, especially in developing nations like Ethiopia. Since more than 80% of the country's labor forces are farmers, 90% of the exports are

agricultural commodities and one half of the GDP is generated from this sector (Teshome 2010). Ethiopia has adopted Agricultural Development Led Industrialization (ADLI) Policy. It gives heavy emphasis to sustainable agricultural development, food security and the improvement of life in the rural areas. The policy recognizes that sustainable agricultural production depends on appropriate natural resource management, and support for peasant agriculture is taken as the center price of this policy.

The present study was designed to identify factors that determines farmers' soil conservation and farmers' soil conservation measures.

## **Research Methodology**

The study was conducted at Guliso Woreda in West Wellega zone of the Oromia Regional State. It is one of the 21 woredas of west wellega zone of Oromia Regional State. Geographically the Woreda, is located between 9°21'- 9°21' North latitude and 35°6'- 35°33' East longitude.

## **Sample Size and Sampling Technique**

The researcher purposively selected three kebeles namely Galewo Gute, Kurfesa Birbir and Enanani Korme. 505,484 and 413 households respectively, totally 1402 households living in these three kebeles, because of they are homogenous characters the researcher was taken 210 households which is 15% of the total households and the researcher add another 16 respondents in the interview and focused group discussion, generally the total sample size of the study was 226 respondents for the sample size to represent the remaining total households, Once the sample size were determined, the sample households from each kebeles was selected by random sampling method.

The relevant data required for the study were obtained

from both primary and secondary sources. Quantitative and qualitative data were collected. Primary information are collected through using the tools of data collection techniques through Questionnaire, key informant interviews, focused group discussion and field observation. The secondary data is a data which are collected by using already available sources of information such as published and unpublished documents. The collected data was summarized and analyzed using the qualitative and quantitative data analysis.

## Results and Discussion

### Farmers' Awareness of Soil conservation measures

The results of Table 1 indicates that all the respondents were aware of the mixed cropping, 93.8% of respondents were aware about the importance of application of Crop rotation, 83.4% respondents were aware about afforestation, 66.2% respondents were aware about fallowing, 61.4% respondents were aware contour plowing, 51.9% respondents were about agroforestry and 48.6% respondents were aware terracing.

The results of focused group discussion regarding the awareness of farmers on land management practice indicated their awareness towards the practices in study area (Table.2). The major factors that are affecting them from implementing them were shortage of land holding, education and training, poverty, socio-economic problems, lack of good relationship between farmers, developmental agents and woreda agricultural office and regional level.

No	Practices	Aware		Not Aware	
		Freq.	(%)	Freq.	(%)
01	Mixed cropping	210	100	-	-
02	Crop rotation	197	93.8	13	6.2
03	Afforestation	175	83.4	35	16.6
04	Fallowing	139	66.2	71	33.8
05	Contour plowing	129	61.4	81	38.6

06	Agro forestry	109	51.9	101	48.1
07	Terracing	102	48.6	108	51.4

**Table.1 Percentage Distribution of Respondents Awareness Soil conservation measures**

Source: Field Survey, 2013

### **Respondents' Sources of Information on land degradation and Land Management.**

Table 2 shows the information sources of the respondents on land management practices of the study area. They have different sources of information and different farmers utilizes it based on their interests and approaches.

N0	Respondents Sources of Information	Frequencies	Percentage
1	Friends and relatives	165	78
2	Developmental Agents (DA)	137	65.2
3	kebele leaders	130	61.9
4	Electronic media (TV, radio, etc)	91	43.3
5	Trainings in SWC	46	21.9
6	Others	19	9

**Table. 2 Percentage Distribution of Respondents in their Information sources about land Management practices**

Source:-Field Survey (2013)

### **Farmers' Land Management Practices**

The results presented in Table 3 indicated that above, 93.3% of the respondents are practicing always 'mixed farming' and 69% of the respondents' were practicing 'crop rotation'. Less than half of the respondents sometimes practice afforestation, terracing and contour plowing 41.9%, 28% and 33.8% respectively. Due to shortage of land size, most of the respondents never practice 'fallowing' and 'agroforestry' respectively.

The farmers preferred mixed farming system and crop rotation practice due to small land holding and large family size. Secondly it is also important for soil fertility of the land and it is utilised to get different types of crops at a time.

No	Practices	Always		Sometimes		Never	
		Freq.	%	Freq.	%	Freq.	%
01	Mixed cropping	196	93.3	14	6.7	-	-
02	Crop rotation	145	69	65	41	-	-
03	Afforestation	38	18	88	41.9	84	40
04	Fallowing	15	7.1	27	12.9	168	80
05	Contour plowing	71	33.8	86	40.9	53	25.2
06	Terracing	48	22.8	101	48.1	61	29
07	Agroforestry	18	8.5	56	26.7	136	64.8

**Table. 3 Percentage Distribution of respondents land management practice**

Source: Field Survey, 2013

### **Soil Conservation Measures**

The farmers of the study area participated in soil and water conservation method in their kebeles and individual farming land. The result revealed from focused group discussion the majority farmers participated in water shade managements. While some of the farmers refuse this practice of the conservation measure because of they have small land holding size and low socio economic problems. These farmer suggested things that expected from the government such as financial, material support, continuous training, experience sharing and incentives should be given for the community to understand and implement the SWC measures. Therefore, persuasion rather than coercion seems a better way. Indeed, cooperation and participation are essential if progress on limiting soil erosion is to be made.

### **Farmers knowledge and Attitude towards land degradation and Land Management.**

A Likert – type attitude scale was used to measure the knowledge and attitude of farmers about land degradation and land management practices. The scale goes from 1 unfavorable

attitude, 2 undecided and 3 (favorable attitude) for a positive statement and vice versa for negative statement. Table 4 presents the statement making up attitude scale by code. There are 15 statements have been divided into two blocks (A1-A9) as farmers attitude and knowledge regarding land degradation and (C1 –C6) are farmers' knowledge of land management system on the basis of similarity of issues.

Code	Statements
A1	Land degradation is mostly affected rural population
A2	Land degradation leads to poverty and famine
A3	Over cultivation results in land degradation
A4	Overgrazing accelerates soil erosion
A5	Overusing the land means damaging the very basis of human life.
A6	In my view soil erosion is major agent for land degradation in rural area.
A7	Resource management should mainly be the responsibility of the government rather than the local community
A8	It is important to use animal dung and crop residue as fuels rather than using it as compost
A9	It is far more important to care for the present generation than to think for the benefit of future generation
C1	It is possible to manage grazing land by moving the stock from one pasture to another
C2	Growing two or more crops in the same piece of Land can reduce land degradation problem
C3	Terracing helps us to reduce run-off and rate of erosion
C4	Contour plowing is important in sloppy areas Because it reduces the rate of soil erosion
C5	Tree planting is good for proper land use
C6	It is preferable to keep the land under forest cover rather than securing an additional piece of farmland by deforestation

**Table 4 Statements making up the attitude by code**

Source: Instrument developed by the author, (2013).

## Farmers' knowledge and Attitude towards Land degradation

Table 5 shows that farmers' attitude towards land degradation. A Great degree of similarity is observed in the responses of the farmers' knowledge regarding to land degradation. There are nine statements (A1, A2, A3, A4, A5 and A6, A7, A8 and A9). The majority (more than 93.3%) of the respondents agree on statements (A1) "Land degradation is mostly affecting rural population". The respondents agree statements of (A2 and A3), Land degradation, it leads to poverty and famine and Over cultivation results in land degradation are 67.6% and 85.2% respectively. The statements of (A4, A5, and A6) 'are Overgrazing accelerates soil erosion, Overusing the land means damaging the very basis of human life and soil erosion is major agent for land degradation in rural area were statements got the agreement of 62.4.0% ,79.5% and 85.2% of the respondents respectively.

Statements	Agree		Undecided		Disagree	
	Freq.	Percent	Freq.	Percent	Freq.	Percent
A1	196	93.3	-	-	14	6.7
A2	142	67.6	23	11	45	21.4
A3	173	82.4	9	4.3	28	13.3
A4	131	62.4	15	7.1	64	30.5
A5	167	79.5	7	3.3	36	17.1
A6	179	85.2	-	-	31	14.8
A7	143	68	-	-	67	32
A8	64	30.4	-	-	144	68.6
A9	23	11	-	-	187	89

**Table.5 Percentage Distribution of the Respondents Attitude towards Land degradation**

Source: - Field Survey (2013)

From this one can conclude that the level of farmers' knowledge about land degradation is high. One can also assume that this may lead to favorable environmental attitude and responsible

environmental behavior. Increased knowledge about the environment and its associated issues lead to favorable attitudes, which in turn lead to actions promoting better environmental quality.

### **Farmers' knowledge and Attitude towards Land Management practices**

The last group of statements deals with attitude of land management practice as indicated in Table 6 shows the results of six statements relating land management practice enjoyed a high degree of agreement. The majority (more than 75%) of the respondents agree on statements (C1, C2, C3, C4 and C5). About 76.7 % of the respondents agree the statement (C1). 85.2 %, of the respondent agree with the statement that growing two or more crops in the same piece of Land can reduce land degradation problem (C2). More than 90% of the respondents have good attitude about the statements (C3) terracing helps us to reduce run-off and rate of erosion and (C4) Contour plowing is important in sloppy areas. 84% of the respondents agree (C5) Tree planting is good for proper land use and 59.8% the respondents agree in (C6) Statements It is preferable to keep the land under forest cover rather than securing an additional piece of farmland by deforestation.

Statements	Agree		Undecided		Disagree	
	Freq.	Percent	Freq.	Percent	Freq.	Percent
C1	172	76.7	12	5.7	26	12.4
C2	179	85.2	7	3.3	24	11.4
C3	191	91	-	-	19	9
C4	210	100	-	-	-	-
C5	177	84.2	11	5.2	22	10.5
C6	125	59.8	-	-	85	40.5

**Table 6 Percentage Distribution of the Respondents attitude towards Land Management.**

Source: - Field Survey (2013)

## Summary and Conclusion

Land degradation is the process of reducing or depleting the productive capacity of land caused by improper and poor farming system, improper land use system, deforestation soil erosion, high population pressure and over grazing. However, awareness of farmers in the importance of land management practices like agroforestry, afforestation and fallowing are found to be too low. Even though, trainings, schools and mass media, are believed to be among the most important tools for awareness rising in environmental protection and natural resource management, the extent to which this tools has been used and the result of such use has not been adequately investigated. Assessment of the source of information of farmers in land management practices shows that only small proportion of farmers indicated trainings, schools and mass media as a source.

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