



Sustainable Agriculture  
and Rural Development  
**MOUNTAIN POLICY PROJECT**



**G L O B A L  
M O U N T A I N  
P R O G R A M**

# **Assessment of the Strengths and Weaknesses of Policies, Institutions and Processes (PIP) to Support Sustainable Agriculture and Rural Development in Selected Mountain / Highland Regions (Tigray and Amhara) in Ethiopia**

*(Final Report)*



**Global Mountain Programme**

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<sup>1</sup> The various bureaus and offices and persons met are presented in Annex 1.

<sup>2</sup>The team is composed of Drs Demese Chayalew and Bekele Hunde, lead consultant and assistant respectively, Getachew Adugna survey supervisor, and the enumerators: Michael Getachew, Hiwot Dessalegn, and Sisay Tesfaye.

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**ABBREVIATIONS AND ACRONYMS**

ACSI	Amhara Credit and Saving Institution
ADLI	Agricultural Development Led Industrialization
ANRS	Amhara National Regional State
ARD	Agriculture and Rural Development
BoARD	Bureau of Agriculture and Rural Development
BoE	Bureau of Education
BoTI	Bureau of Trade and Industry
BoWRD	Bureau of Water Resources Development
BoWUD	Bureau of Works and Urban Development
CSA	Central Statistical Authority
DA	Development Agent
DeCSI	Dedebit Credit and Saving Institution
E.C.	Ethiopian Calendar
EEPCo	Ethiopian Electric and Power Corporation
EPLAUA	Environmental Protection and Land Use Authority
ERA	Ethiopian Roads Authority
EOS/TSF	Enhanced Outreach Services/Targeted Supplementary Feeding
ETB	Ethiopian Birr
FDRE	Federal Democratic Republic of Ethiopia
FGD	Focus Group Discussion
FIS	Food Insecure
FS	Food Secure
FTCs	Farmers Training Centers
GDP	Gross Domestic Product
GMP	Global Mountains Programme
GNI	Gross National Income
GO	Government
GTZ	Gesellschaft für technische Zusammenarbeit
IA	Investment Agency
ITC	Information Technology and Communications
LU&A	Land Use and Administration
MFI	Micro Finance Institution
MoARD	Ministry of Agriculture and Rural Development
MoFED	Ministry of Finance and Economic Development
MSE	Micro and Small Enterprises
NGOs	Non-Government Organizations
PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
PM & E	Planning, Monitoring and Evaluation
PSNP	Production Safety Net Programme
RDPS	Rural Development Policy and Strategies
REST	Relief Society of Tigray
RRA	Rural Roads Authority
RUL	Rural-Urban Linkage
SARD-M	Sustainable Agriculture and Rural Development in Mountain Regions
SIDA	Swedish International Development Agency
SLM	Sustainable Land Management
SSA	Sub-Saharan Africa

TNRS	Tigray National Regional State
TVET	Technical and Vocational Education and Training
ToR	Terms of Reference
UAO	Urban Agriculture Office
WB	World Bank
WFP	World Food Programme

## Executive Summary



The Policy, Institutions and Processes (PIP) assessment study in Ethiopia as part of the Sustainable Agriculture and Rural Development in Mountain Regions (SARD-M) was initiated by the SARD-M Project Steering Committee during its Fifth Meeting (14 April 2008). The study is designed to assess the strengths and weaknesses of mountain policies, including social, economic, environmental, legal and institutional aspects, and policy formulation processes in relation to SARD-M principles and filter key intervention areas towards the possibility of establishing effective mechanisms that motivate the land users to sustainably manage natural resources. It is

conducted at two regional states, Amhara and Tigray, which are the major mountainous regions that are seriously affected by land degradation in the country.

The methodology of the study included household survey using structured questionnaire, interviews and discussions with communities, through focus group discussions (FGDs), government institutions, officials and experts, using a checklist of questions. Documentation review and use of secondary data were also core components of the study methodology.

The two study regions, namely Amhara and Tigray occupy about 13.4% and 6% of the total area of the country. In terms of population their share from the national total is about 23.3% and 5.8% respectively.

Region	Area (sq.Km)	Population	Altitude range (m.a.s.l)	Working Language
Amhara	161,828	17,214,056	700-4620	Amharic
Tigray	80,000	4,314,456	600-3000	Tigrigna
National	1,207,850	73,918,505		

Source: CSA (2008) and [http://www.mfa.gov.et/Facts\\_About\\_Ethiopia/Regional\\_States.php](http://www.mfa.gov.et/Facts_About_Ethiopia/Regional_States.php) (MoFA website)

The core methodological task in collecting data and information was to identify representative Woredas<sup>3</sup> in each of the two regions. Looking the broader agricultural development strategy of the country, development interventions and approaches are often categorised into two broad categories, i.e., food secure and food insecure. Thus, it was decided to capture these and also its impacts by carefully picking two woredas in each region, one representing food secure (FS) and the other food insecure (FIS) woreda. In each woreda two kebeles representing Dega<sup>4</sup> and Woyne-dega areas were chosen by the survey team together with the woreda ARD office staff. The table below lists the regional states, the chosen Woredas, and the Kebeles, their classifications in terms of FS status as well as the area and area slope indicators.

<sup>3</sup> Woreda is equivalent to District

<sup>4</sup> Dega is a traditional agro-ecology zone in Ethiopia with elevation from 1000 m.a.s.l

Region	Woreda	Total area in ha	% of area with slope of			Food Security Status	Kebeles for the survey and FGDs
			15-30	30-60	>60		
Amhara	Bure	150280.4	22.0	13.4	1.3	FS	Alefa and Woynedurbete
	Libokemkem	170349.6	41.3	17.0	3.1	FIS	Shihowchtahar and Chamak (mitad)
Tigray	Adwa	67149.4	60.6	14.8	1.8	FIS	Endabagirima and Gendebta
	Tsegede	200297.6	28.2	17.8	5.0	FS	Chigorgudo and Endaselassie

The household survey included 300 respondents of which 15% were female. The average family size of respondents was 6, varying between male and female headed households, which was 6.4 and 4.6 respectively. Household survey results revealed that communities in the study areas perceived the natural resources degradation. Out of the 300 respondents in both regions 218 of them (72.7%) consider land degradation is taking place at a slow pace while about 26% consider the degradation is taking place at faster rate. Similar percentage is reported for the degradation in the case of forest and water resources. When asked about the probable causes of degradation the top three, in the case of land degradation, in terms of their order of importance are cultivation practices, land clearing/deforestation and population 63.3%, 52%, and 32.7% respectively in Amhara while in Tigray it is 73.3%, 54%, and 40% respectively. The top two causes of forest resources degradation in Amhara region are land clearing and population (69.2% and 59.3%) respectively, while in Tigray population pressure is perceived to be the top most cause of forest resources degradation (68%) followed by land clearing practices. In both regions land clearing/deforestation is perceived to be the major cause of water resources degradation.

The study findings do not show only the causes and rate of degradation but also the natural resources degradation mitigation measures that are being practiced. Terracing is currently widely practiced in both regions as an intervention to reduce land and water resources degradation. Tree plantation follows this, and in fact it is the top most practiced mitigation measure to overcome problems of forest resources degradation. There is an indication that households are starting to use fuel saving technologies to reduce the damage caused on forest. Farmers are also using terracing to increase the sustainability of their agricultural land use. 74% in Tigray, and 65.3% in Amhara said that they do practice self initiated agro-forestry on their landholdings.

The survey results and the discussion with key informants at regional and woreda level has brought a challenge to the current policy of dichotomizing woredas as FS and FIS and directing development programs and resources on this line. The assessments at individual, FGDs, and key informants at woreda level revealed the feelings that the people in FS woredas are not gaining from resources that are linked to public works programs which would have helped the poor individually and the community at large from losing assets, forced to migrate, as well as not to be subjected to acute malnourishment. There is no much difference in terms of perceptions and trends of natural resources degradation between FS and FIS woredas, but FS woredas are not getting adequate support to mitigate the problems. Land holdings in both type of woredas are small, and productivity of crop land and average livestock holding is similar. But since most natural resource conservation programs at grass roots level are being financed through the PSNP public work provisions or works done by NGOs, for example on drinking water, the FS woredas are not receiving adequate budgetary support or NGOs coverage. The survey results indicate 13% and 83% of the respondents in FS woredas say drinking water is inadequate and unavailable respectively. In

the FIS woredas the result indicates only 19% in both cases respectively. Key informants said that the prevalence of malnutrition in FS woredas is not that much significantly different from the FIS woredas, but neither the PSNP nor the EOS/TSF programmes are helping them.

The survey results indicate that the selected woredas have shortage of cultivable land which determines their entitlement to food. In male headed households land holdings on the average is 1.4 hectare while in female headed households it is about 0.72 hectares. The average landholding of respondents in food insecure woredas is below a hectare. For example it is 0.62 in Adwa. The size of cultivable land the household has in FS woredas, for example 1.25 in Bure, is also small in terms of producing adequate food and income and that a family can subsist on with an average size of six per household. It is not only the size of land but also the lowness of crop productivity in the study woredas that makes agriculture as a means of subsistence inadequate. The highest reported in the 2007 main season production period was 1.69 ton of wheat and 2.66 ton of maize per hectare in Bure. The difference between FS and FIS woredas in terms of crop productivity is not significant. In both types of woredas, on the average, respondents owe small stocks of livestock. Except in Tsegedie, in the other study woredas, there are hardly two oxen per household. Comparing the two study regions, productivity is too low in Tigray particularly in the food insecure woreda.

In terms of basic economic and social infrastructures and services, respondents said that mostly they are inadequate and in some cases not available. In Amhara 67% of the interviewed households believe the road network in the rural area is inadequate. Those who said that they do not have access to potable water are 63.3% in Tigray. In Tigray all respondents (100%) replied that electricity is not available in rural areas. These survey results were also reflected during the discussion with woreda level officials and experts. For example according to the Tsegedie Woreda Administration office, the social and economic infrastructure of the woreda is undeveloped. Telephone, electricity and road are absent in all the *Dega kebeles* (Mountainous places). Even in the woreda capital, there is only five-hour electrification per day using diesel generator which, obviously, harms the woreda in much aspect of its activities.

The study results remain indicative of the prevalence of gender disparity in terms of resources ownership, family size and ability to feed members of a family. In the study woredas, the average land holding of female headed households is less than male headed households. Average family size of male headed household is higher than female headed households, and even most of the interviewed women believe that it is the male headed households that are more food secured than female headed households. Most women were reticent about expressing their views in forums dominated by men, including elders and community leaders. Simply, in such complex framework, women's rights of access to land are regulated, mainly through customarily defined tenure systems. The few women who have holdings through inheritance or being widows still tended to have insecure rights to land. In general, the FGD revealed that there is no unique gender mainstreaming in the rural agricultural production and marketing system, and what exists is what has remained as traditional for years.

Since the focus of the study was on policies in various aspects, relevant policy documents were reviewed and discussions were also made with various stakeholders. The discussion with key informants at all levels of government (Federal, Regional States, and Woreda) revealed that there is no unique or special SARD policy and strategy for mountainous regions. Existing ARD policies contained in RDPS and Regional laws, rules and regulations are still the basis for various strategies and programmes in the study regions. In general the existing policies have their share of strong and weak parts. For example, the fact that the different policy, strategy and instrument issues of ARD are put together in one comprehensive document referred as RDPS (2003) is a leap forward in Ethiopia's agriculture sector policy formulation. This document recognizes that policies and strategies shall be formulated on tangible and real conditions

and situations of the country, and that the government stands ready to translate the policies and strategies into concrete action, and perhaps even more important is that it is ready **to revise the policies and strategies as the need arises** and to adjust the economic development goals according to progresses over time.

On the other hand, in RDPS, the notion *of sustainability is concealed*. While raising national production and productivity have been considered as main means of combating food insecurity and poverty, the issue of sustainability has not been explicitly discussed in these documents. Critical proclamations, regulations and directives that are governing the optimal use of natural resources in mountainous regions are those related to land use and administration (LU&A). The Federal “Rural Land Administration Proclamation, No. 456/2005” delegates to the Regional States the power of administering land. Accordingly, the two study regions, Amhara and Tigray, issued Proclamations 133/2006, and 97/2006 respectively by including most of the articles included in Proclamation 456/2005. These Proclamations state that the Environment Protection and Land Administration and Use Authority (EPLAUA) are given the power to administer rural land and take measures for proper use. Though these laws exist, discussions with key informants at woreda and regional levels revealed that there are problems and difficulties to implement the existing laws and regulations. Besides, according to regional experts, there is lack of coherence in existing policies and strategies partly because when they are designed they are not participatory. They follow mostly top-down, both in formulation and implementation approaches. Because of this even good projects in theory are failing in practice.

Specifically, the discussion with key informants in the BOARD of the Amhara region revealed the vagueness of the laws, which has contributed to the degradation of natural resources. This includes the rights of users, be it individual or communal. In Tigray region, the expert opinions indicate that, although it is early to assess the impacts, the movement in favor of proper natural resource management throughout the region has brought some positive indications. Some examples are: (1) *Improved production of honey* (2) *Improved livestock feed* (3) *Income from selling trees* (4) *Rehabilitation of water resources*. These positive changes, however, are not prevailing without challenges that result in negative outcome. Among the challenges the region is facing in the areas of proper natural resources and environment management are: (1) *Open grazing and Mofet zemet*<sup>5</sup> (2) *Low income of people* (3) *Low rule enforcement* (4) *Low focus on natural resource management at federal level*. In both regions it was revealed that expansion of roads is a work which is indispensable, it has also a negative effect on natural resources and environment that calls for an apt measure.

Key informants also revealed that some policies and strategies become annexed to other issue and fail to have proper formulation. For example, till last year the agricultural marketing policies and strategies were not designed by examining the marketing problems but to assist the government’s food security policies and strategies. While the micro and small enterprises have access to credit, the federal regulation on Micro Finance Institutions (MFIs) (proclamation No. 40/1996) allows MFIs to provide credit only on group bases. This blocks those MSEs entrepreneurs who may demand credit on individual bases.

Core policy and strategic issues in view of socio-economic aspects of mountainous regions revolve around infrastructures, trade and industry. The discussion with key informants at regional, woreda and specifically during FGDs indicated that development interventions that have taken place at grass roots level are mainly school construction and health post expansion. In general, they revealed that the present policies and strategies, and specifically the ongoing regular government interventions in rural roads,

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<sup>5</sup> *Mofet Zemet* is a type of traditional cultivation practice which farmers go to low land areas and destruct large amount of forest area. This is different from shifting cultivation practice. It is a practice to add farmland to existing holding.

water supply and sanitation, schools, and health centers building are appreciated and accepted by the rural communities though they are still far from meeting their demands. Of course, when land-based rural development works are implemented, some farmers have to be evacuated permanently or temporarily either from residential or farm plots. And these have been a source of grievance in many rural villages. In order to minimize the grievance or avoid their negative effects the public work implementing institutions are working closely with the woreda administration to give the evictees a substitute land, compensation or both as deemed necessary.

The regions do their trade and industry activities on the basis of the Federal Trade and Industry Strategy documents and PASDEP. The lead strategy of the country is the Agriculture Development Lead Industrialization (ADLI). Actual region specific program implementation is done on the basis of a five-year plan which is in line with the PASDEP period (2004/05-2009/10). The officials in the Bureau of Trade and Industry (BoTI) of the target regions said that there is no problem in terms of written policy. The problem is mostly on the implementation phase. For agriculture to lead the industrialization of the country ARD efforts should be geared to the extent of availing free land for investment purposes, facilitate for investors access to credit, reduce or exempt taxes. All these are included in the policy documents but in practice they are not observed. Often there are complaints including delays of action, corrupt practices, and unpreparedness from implementing agencies. For example, to avail the said investment land or ensure a sustainable supply of raw materials be it crop or livestock.

The assessment in BoTI also discovered that production system in rural agricultural areas is not conducive for marketing. The production system does not differentiate between producing for *immediate market needs* and *sustainable supply* for the market. Till recently the focus in rural areas was mainly on farming activities focusing on food security issues. It gave very little attention to the role of Micro and Small enterprises (MSE).

In the study regions, the governments at different levels have started to give attention to the dynamic urbanization process which is catching them without preparedness. Indeed regional and local officials are concerned at the unprecedented speed at which urbanization is occurring. The rapidly occurring urbanization in both study regions is influenced by the internal urban socio-economic dynamics as well as the socio-economic dynamics of the surrounding rural areas. According to the regional and local officials, the major problems caused by urbanization are due to the existing regulatory gaps. The issue of rural urban linkage (RUL)<sup>6</sup> is also becoming highly important in various bureaus and offices: BoWUD, BoTI, Municipalities, and BoARD. Of course, the officials in these bureaus said that till recent time the focus was on rural areas. It was after May 2005 national and regional election that emphasis is given to urban centers.

A trend of shift from extensive to intensive agriculture has emerged in the study areas. In the study regions the FGD and discussions with key informants indicated that fattening of small ruminants (sheep and goats) is being practiced and livestock selection among the local animals for breeding is a common practice. Crop residues are also used for livestock feeding and milk selling is becoming a common practice. There is also an increasing demand for improved seeds and other crop farm inputs. Improved apiculture is also on a rise. In these mountainous regions, there are practices of alternative livelihood via livestock trade, petty trade, acquiring and renting out urban property, salaried employment, firewood collection, charcoal burning, handicrafts (such as basket, mat and beads making), and tourism. However, these activities are all at their early stage of development and expansion. A lot remains to be done in terms of skill training and other capacity building works.

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<sup>6</sup> According to RDPS rural-urban linkage strategy involves (a) integrating markets, (b) opening up the flows of labor, and (c) access to income earning opportunities between towns and surrounding rural areas.

Institutional matters were assessed in terms of the types of organization set to deal with the issue in focus, as well as the relationships or linkages among the organizations. The assessment of relations among organizations within a Region reveals that several agencies are involved in SARD issues at regional level. Sometimes they become in conflict on handling issues, for example when the expansion of urban areas encroaches rural agricultural land, conflicts between rural and urban administration as well as between BoARD/EPLAUA and BoWUD arise. In most of the visited woredas, the relationship between the Woredas, which administer the rural areas and the urban administrations/municipalities which are responsible for the running of urban centers is far from being congenial. The discussion at regional council level revealed the difficult situation in terms of doing things in an integrated manner. Part of the relational problems is related to lack of clear institutional structures or the sustainability of the institutions established to administer and regulate the task assigned to them; for example, rural land and its use. Capacity problems also exist in agencies responsible for implementing ARD programmes and projects such as BoARD and EPLAUA as well as in those involved in social and economic infrastructure building, such as BoWR, BoE, Rural Roads Authority and the like. Capacity is also an issue at the levels of Woreda and Small Urban Centers Administrations. Both study regions continue to face shortage of educated and skilled staff at woreda and urban administration offices.

### **Conclusion:**

Overall the results of the study indicate there is no unique policy and strategy designed for mountainous areas both at Federal and Regional levels. There may not be a need for a separate policy. The existing policies and strategies would have been effective to solve the problems mountainous areas are facing in relation to natural resources degradation specifically to have sustainable land management. However, since the existing policies and strategies have not been implemented efficiently and effectively, the study results indicate there is still formidable challenge for SARD in these areas. There is noticeable prevalence of natural resources degradation in the study regions which is left without sustainable mitigation measure. The causes of degradation are primarily population pressure, improper cultivation, and land clearing/deforestation practices. In the mountainous areas, social and economic infrastructures and services are also found to be inadequate partly because of difficulty in topography and economic factors related to high unit costs, specifically to put in place water supply, roads, and electricity infrastructure/services.

Till recently very little attention to the role of Micro and Small enterprises (MSE) was given. Now the government is giving a guarantee for MSE to get loan. But preparation is needed (both in terms of man power and financial resources) to accommodate large number of micro-and small entrepreneurs who may need access to credit and advisory supports. Besides, close monitoring is needed to make sure most who receive credits do not turn out to be defaulters.

The paucity of strategic thinking has hampered the promotion of strong RUL which is embracing relevant and appropriate trade and industry activities that are footed on the agriculture rural economy. The study indicates at present RUL is poor because of lack of social and economic infrastructure. The study also revealed that institutional issues, both relational and capacity, still need improvement and sustainable footing in rural agricultural areas. Capacity is still an issue at Woreda and Small Urban Centers Administrations level. Both study regions are suffering from shortage of educated and skilled staff, as well as conducive working environment including woreda and urban administration offices. Private sector capacity building is not also effectively done and because of this the private sector has not embarked to take leadership in technology generation, promotion and uses both in rural and urban areas.

In general, the study concludes that the foundation for sustainable agriculture and rural development is not yet in place in the two study regions. All actors in ARD i.e., government, NGOs, the private sector, donors have to team up to bring SARD by reviewing existing policies, strategies, programmes as well as by committing themselves to implement them by availing the required resources (physical, human and financial).

## Recommendations:

1. **Review of laws and regulations:** There are policies and strategies formulated at federal level and trickled down to regions. Most of them are sound in paper but need care when they are to be implemented at grass root level. Specifically in this study existing land laws and regulations are found crucial for having a sustainable natural resources and environment use. But they are being confronted by various challenges to remain impractical. Hence there is a need specifically to review land laws and regulations to make them workable given the serious challenges development workers are facing to implement sustainable land management programmes because of population pressures, inadequacy of substitute land and cash for compensation. Besides, the review of regulation should make note of giving landholders' cash compensation is good but measures must be taken to prevent such landholders from descending down to the bottom of the poverty ladder for lack of technical and business know-how about investing the compensation money received in productive activities. Specific strategic emphasis should be made in the creation of institutional arrangements and mechanisms for dealing with the social impacts of expropriation caused displacements due to the urbanization process.
2. **Review the criteria of classifying woredas as FS and FIS:** current classification of woredas as FS and FIS is creating resource provision disparity for works that are important to mitigate natural resources degradation as well as provide preventive assistance to those whose assets in rural agricultural areas are denuding due to natural catastrophe. One should recognize that policy formulation should not be caught in the single problem trap. The present classification of woredas on the basis of one problem and one program, *food insecurity and PSNP respectively*, is causing damage to the so called food secure woredas in terms of not having resources to work on natural resources conservation practices, engaging them in income and job generating public works such as community roads, as well as attracting fair share of NGOs spending on basic socio-economic infrastructures such as water supply and sanitation, and health services that are targeting malnourished children and mothers such as the Enhanced Outreach Services/Targeted Supplementary Feeding (EOS/TSF) programmes. In short, there is an urgent need to revise the current dichotomization of woredas as FS and FIS and the ways and means financial resources are allocated for various development activities in this regard.
3. **Basic infrastructure provision:** Water, roads, and electricity are far from being adequate in the mountainous regions hence attention should be given by all stakeholders (Government, NGOs, donors, as well as the community) to improve such infrastructure/services. It was evident during the study that where roads are constructed the living situations and the sources of livelihood are changing with changes in economic activities. Because of this and other social service needs, there is an increased demand for roads from various communities. Services and infrastructure which are difficult to render to such areas are water supply and roads. Due to the mountainous nature of the region road construction is extremely costly; even the construction of lower grade roads requires large outlays that, in most cases, exceed the capacity of woredas and the local

communities. Hence, the view that it is *better to take the federal road funds down to woreda level* should get attention and with careful study be adopted.

4. **Need for efficient and effective action on trade and industry promotion:** For sustainable ARD in mountainous areas serious strategic thinking is required in the area of trade and industry. Private sector capacity building, promotion of MSE, standardizing rural agricultural products and creating well integrated markets for the many small producers should be the driver of the future interventions in rural area. Private sector should be capacitated to take leadership in technology generation, promotion and dissemination. Private investors need to go and make supply and demand studies both in agricultural inputs and products and enter in to expansion of existing or creation of new investment ventures.

Till recently very little attention has been given to the role of MSE. Had the focus to MSEs started close to the start of the development intervention in rural agricultural areas following the issuance of RDPS, by now a lot might have happened in changing the entire picture of the these areas. Still it is not late to exploit the government guarantee provision for MSE to get loan. But preparation is needed how to sustain this when the demand for loan per client and the number of clients are getting larger. As it is conceived in ANRS, establishing regional guarantee fund need to be considered.

Training should be arranged and guidelines should be set to create markets that are holding and linking one to the other on the basis of *standardized products*. A *web marketing system* can be put in place where many producers and suppliers of standard products can channel their products to garner sustainable and reasonable profits. For this in the strategy and programme design appropriate education and training interventions should be crafted for filling in knowledge and skill gap, as well as to create conducive work environment for the support staff in the government system.

5. **RUL should be strengthened:** The linkage between development in small urban centers and investments designed to bring SARD has to be looked from the RUL perspective. Currently RUL in mountainous regions is weak because of lack of social and economic infrastructure. In mountainous areas linking agriculture with rural development initiatives and both to the emergence and growth of small urban, and where feasible to large urban centers, is inevitable. This could be affected if and only if the governments at different levels (Federal, regional, woreda and kebele) are aware of the unique infrastructural (production, processing, transport, and marketing) problems these areas are facing and give special emphasis to solve them. Markets are problems in mountainous areas. They are not nearby. The road infrastructure for efficient marketing is not in place. It should be expanded both by quantity and quality. No doubt infrastructure development will open market access and speed up the strengthening of RUL.
6. **Promote diversification, intensification, and alternative livelihood:** In order to promote SARD-M the future policies and strategies should embrace issues of diversification, intensification and alternative livelihoods. People in mountainous regions can no longer live from agriculture and natural resources alone. In order to mitigate the harsh living conditions they need to diversify income. There is a lot to be done on diversification activities in terms of skill training and other related capacity building works. Tourism should become a major source of alternative livelihood in these regions. The benefits which the mountainous communities are getting from the few tourist-based businesses are meager and hence local administration should intervene by awareness creation and benefit-sharing schemes.

7. **Review of institutional relations and capacity:** Institutional arrangements should be carefully revised and institutions should exist with appropriate capacity. Relationship among various bureaus and agencies at regional level is wanting. Same picture prevails at woreda level. These have to improve.

It is also important to note that capacity is an issue at Woreda and Small Urban Centers Administrations level. Both study regions continue to face shortage of educated and skilled staff at woreda and urban administration offices. In woredas where big ARD projects are designed, the regular staff, equipment, and other financial and physical facilities that the Woreda administration team uses has not been enough to undertake the complex tasks efficiently, effectively and sustainably. Most woreda administration headquarters and development offices, such as ARD, are occupying shanty houses which are not creating conducive work environment for experts or for the clients.

8. **Continue to embrace participatory approach:** Participatory approach is core in promoting programmes and projects that can bring SARD-M. In deed the findings in this study indicate that participatory approach should be embraced if development projects have to bring positive and sustainable changes in mountainous rural agricultural areas. In this regard, special effort should be made to improve the level of participation of women who remained marginalized.
9. **Have sound planning, monitoring and evaluation (PM&E) system:** Good practices of PM&E need to be instituted in at all levels of government and non-government agencies. Field visits and discussion with experts revealed that there is no coordinated development activities planning and implementation among federal, regional governments, as well as NGOs and donor communities. Sometimes different offices or NGOS intervene in the same woreda with identical development projects. It has been pointed out, for example, there are uncoordinated efforts on forest development and protection interventions by different NGOs and bilateral agencies. This needs to be corrected. Besides, the programmes and projects run with government recurrent budget often fail due to lack of proper and adequate PM&E system. Activities are not planned from the local government up to the top level with participation which eventually pave the ground for follow up and accountability. Interviewed experts in various bureaus agree that it is good to decentralize development activities implementation and give more authority and responsibility to woreda administration. But at the same time there should be a clear guideline on how to plan, monitor and evaluate starting from kebele up to regional level.

# Sustainable Agriculture and Rural Development-Mountainous Regions Study in Ethiopia<sup>7</sup>

## 1. Introduction

### 1.1 Initiation of the Study

The Sustainable Agriculture and Rural Development in Mountain Regions (SARD-M) Study in Ethiopia was initiated by the SARD-M Project steering Committee during its Fifth Meeting (14 April 2008). The problems and suppositions that led to the initiation of this study are (a) the alarming rate of degradation of natural resources of mountainous/highland areas, which are home to the majority of economically active population, and (b) although there is general agreement on what needs to be done, there are very little practical mechanisms in place to promote sustainable utilization of natural resources and enhancing SARD-M in a way that is clearly linked to the livelihoods of the inhabitants within Sub-Saharan Africa (SSA) mountains/highlands as compared to the severity of the problem.

### 1.2 Purpose

In view of the above, the consultant for SARD-M Ethiopia study is conscripted to assess the strengths and weaknesses of mountain policies, including social, economic, environmental, legal and institutional aspects, and policy formulation processes in relation to SARD-M principles and filter key intervention areas towards possibility of establishing effective mechanisms that motivate the land users to sustainably manage the natural resources.

### 1.3 The Study Area

The SARD-M Ethiopia study is conducted in two regional states, Amhara and Tigray. These regions are the major mountainous regions of the country. Most of the woredas<sup>8</sup> in these regions are located in highland areas having undulating topography with altitude more than 3000 m.a.s.l. Historically the two regional centers were the alternate seats of Kings and major centers of government and private commercial activities. These have made them to become highly populated (about 30% of the total national population<sup>9</sup>) hence subjected for an alarming rate of degradation of natural resources, particularly land and forest.

### 1.4 Organization of the Study Report

The study is organized into eight sections. The section following this introduction presents a country profile, i.e., a background on the state of Ethiopia's agriculture and natural resources, income and food situation as well as state of basic rural infrastructures. Section three deals with the methodology of the study and is followed by a brief report on the household survey results. Section five presents the assessments and findings from key informants. This section is further divided into sub-sections covering policies, strategies and laws; natural resources and the environment; and socio-economic aspects. Section six is dealing with the urbanization and RUL issues while section seven is addressing institutional matters. Finally conclusion, recommendations are presented followed by references and annexes containing the list of persons met, questionnaire and checklist, the ToR as well as detailed tables of household survey results.

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<sup>7</sup> Conducted by Dr Demese Chayalew, Lead Consultant, Dr Bekele Hunde Assistant Consultant, and Getachew Adugna, Survey Supervisor and Data Manager.

<sup>8</sup> A national expression of an administrative area, which is the equivalent of a district in terms of international convention.

<sup>9</sup> FDRE, Population Census Commission, 2007 Population and Housing Census Results of Ethiopia, Addis Ababa, November 2008.

## 2. Country Profile

### 2.1 Resources and Agriculture

Ethiopia is located in the north-eastern part of Africa bordered by Djibouti, Somali, Eritrea, the Sudan, and Kenya. It has a total population of about 77 million (2007/8). The mean minimum and the mean maximum temperatures vary between 0<sup>0</sup>c in the highlands and 45<sup>0</sup>c in the lowlands. The annual rainfall ranges from 100mm to 2800mm. It has a federal political system with a Federal Government and nine Autonomous States and two chartered cities (Fig 1) located in 32 major agro-ecological zones.

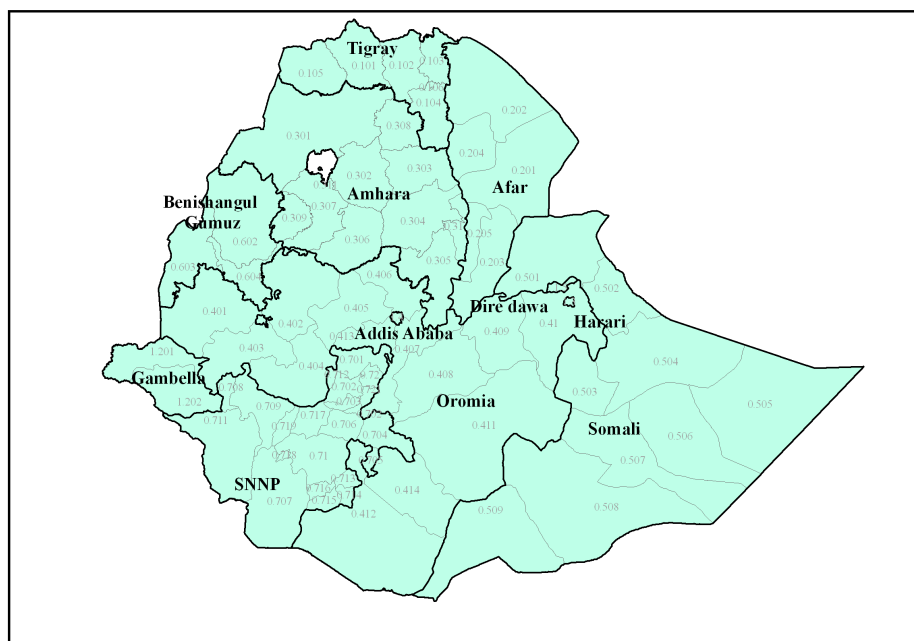


Figure 1: Political map of Ethiopia

Table 1 Profile of the Regional States of Ethiopia

Region	Area (sq.Km)	Population	Altitude range (m.a.s.l)	Working Language
Addis Ababa (chartered city)	540	2,738,248	2300-3000	Amharic
Afar	100,860	1,411,092	150-1500	Amharic
Amhara	161,828	17,214,056	700-4620	Amharic
Benishangul-Gumuz	80,000	670,847	600-2731	Amharic
Dire Dawa (chartered city)	1,977	342,827	960-2450	Amharic
Gambela	25,274	306,916	300-2000	Amharic
Harari	400	183,344	1300-2200	Harari & Afaan Oromoo
Oromia	367,000	27,158,471	500-2500	Afaan Oromoo
SNNP	118,000	15,042,531	500-4500	Amharic
Somali	271,971	4,439,147	500-1600	Somali
Tigray	80,000	4,314,456	600-3000	Tigrigna
National	1,207,850	73,918,505		

Source: CSA (2008) and [http://www.mfa.gov.et/Facts\\_About\\_Ethiopia/Regional\\_States.php](http://www.mfa.gov.et/Facts_About_Ethiopia/Regional_States.php) (MoFA website)

The total land area of Ethiopia is 111.5 million ha of which 66% (about 73.6 million hectare) is suitable for agriculture. Of the estimated arable land, around 18 million hectare is currently cultivated under rain fed crops. The irrigation potential of the country is estimated to be around 4.3 million hectare. It has abundant water resources, including 85% of Nile Basin resources. It has 12 major river basins, 12 large lakes, 122 billion m<sup>3</sup> annual surface runoff; 2.6 billion m<sup>3</sup> estimated usable ground water (Demese, 2008). Access to clean water supply in rural areas as of 2005 was 35% (MOFED, PASDEP, 2006)

Agriculture is the main stay of Ethiopia's economy accounting for 47% of the GDP (2005/6) 85% of employment, and 90% of foreign currency earning<sup>10</sup>(see also Table 1). In crop agriculture, Ethiopia produces a variety of Cereals, pulses, oilseeds, fruits, vegetable, fiber crops /cotton/, coffee, tea, spices, and other industrial crops. It has different type of soils based on agro ecologies including Nitosol, Vertisol, Fluvisol, Cambisol, Litosol, Acrisol etc. In general the country has suitable soil and climate to growing over 100 types of crops. The national productivity of wheat at commercial level ranges from 2.5 to 3 tons per hectare, soybean from 1.5 to 2, rice 8 to 10, barley 1.5 to 1.8, sorghum 2 to 2.5, and corn 8 to 10 tons per hectare.

**Table 2: National Account Figures**

	2005/06	2006/07	2007/08
Nominal GDP (in millions of birr <sup>11</sup> )	131,641	171,384	245,585
Agriculture (in millions of birr)	58,369	75,802	117,004
Industry (in millions of birr)	15,447	20,374	25,570
Services(in millions of birr)	49,071	64,540	87,751
Nominal Per Capita GDP (USD)	205	257	340
Per Capita GDP (USD) (Real)	167	181	196
Average exchange rate (Birr:USD)	8.68	8.79	9.24

Source: CSA, National Statistics Abstract, 2008.

The country has a huge livestock population. With 42 million heads of cattle it is 1<sup>st</sup> and 10<sup>th</sup> in Africa and the world respectively. 25.5 million heads of sheep, 24.4 million heads of goats, 2.3 million camel, 7 million equines, and 53 million chickens. Fattening and modern dairy development is growing fast leading to the increased demand for fodder and industrial animal feed. Crops such as yellow maize and soybean that are required as inputs for concentrate production are abundantly grown in the country.

<sup>10</sup> National Bank of Ethiopia, Annual Report 2005/2006

<sup>11</sup> The exchange rate varies daily with a depreciating trend. For example, according to the NBE annual reports the mid market end period rates of 1 USD to Birr was 8.7 in 2005/06 and in 2007/08 reached to 9.5. As of January 2009 it was 11.1.

## 2.2 Income and the Food Situation

With the above huge natural resources base, Ethiopia is still an extremely poor and populous country with severe problems of hunger and food insecurity. Table 3, below, indicates that Ethiopia's economy being highly dependent on agriculture, with AGDP of 44%, has low per capita irrigated land area and is more dependent on food aid. The per capita income is low, about USD 110 as of 2004, and food security has been and continues to be a serious challenge. In 1990 the poverty level was 48% of the population. By 2005 it was 38.7% (MOFED, PASDEP, 2006). Extreme hunger (proportion of stunted children) in 1995 was 67%, in 2000 57% (MOFED, 2002; MoFED, & UN 2004). In 1999/00 about 44 % of the Ethiopian population is estimated to be food insecure and the number of chronically food insecure people has remained about 5 million per year, with an additional 10 million people in vulnerable situation in case of serious shocks such as droughts. This number could increase in some years as witnessed in the year 2002/03. Besides for fifteen years before 2002 Ethiopia has imported food aid on average 700,000 metric ton per annum to cope with the food insecurity in the county. Having peaked at about 26.2 percent in 1984/85 food aid imports amounted to a significant proportion of domestic production of food crops, often about 10 percent or more. Following the low 2002/03 harvests, for example, some 15 million people were supplied under emergency food distribution programme. Table 4 indicates that Ethiopia remains the next highest per capita food aid recipient country, following Eritria, compared to its other neighbors in 2005.

**Table 3: Comparative development indicators for selected years: Ethiopia versus selected African countries**

Classification by Region	Irrigated land share in arable land (%), 2002 (a)	Agriculture value added as % of GDP, 2003 (b)	GNI per Capita (US\$), 2004 (c)	Human Poverty Index (HPI-I) %, 2003 (d)	Prevalence of under 5 Malnutrition (5%) 1993-2001 (e)
Central Africa (CA)	11.5	30.1	320	41.6	27.7
East Africa (EA)	6.5	26.7	287	43.0	34.8
North Africa(NA)	26.4	19.2	1514	29.1	11.3
Southern Africa(SA)	6.2	15.9	1905	39.8	19.0
West Africa(WA)	2.8	35.0	471	43.6	33.3
Ethiopia	1.91	43.86	110	55.3	47.2

Source: Demese, 2008.

**Table 4: Per capita food aid in cereals for selected years: Ethiopia versus neighboring countries**

Country	Per Capita Food Aid in Cereals <sup>12</sup> (MT)	
	2000	2005
Djibouti	17.58	6.73
Eritria	66.34	39.95
Ethiopia	17.49	12.17
Kenya	11.36	1.65
Sudan	5.37	4.38

<sup>12</sup> Computed from data published by Statistics Division, Development Research Department of African Development Bank, "Gender, Poverty and Environmental Indicators on African Countries", 2006.

### **2.3 Rural Infrastructure: Roads, Energy and Drinking Water**

Roads are essential prerequisites for rural development and hence poverty reduction. But the classified road network in Ethiopia is one of the lowest densities in Africa (33.6 km /1,000 km<sup>2</sup> and 0.51km/1000 people in 2005) (MOFED, PASDEP, 2006). As a result, large parts of the country remain isolated and rely heavily on traditional means of transport. Of course, given its mountainous and rough topography, the scattered settlement pattern of the population and the resources limitation, it is not possible to provide classified (high standard) road network for the whole country, at least in the short term. In realization of this fact, the Government has given emphasis to constructing of low-level and low-cost roads through community active participation under the Ethiopian Rural Travel and Transport Sub-Program (ERTTP).

Ethiopia is well endowed with a variety of energy resources. However, much of the energy resource available has yet to be exploited. The present energy consumption in the country, particularly in the rural areas, heavily depends on biomass. According to some surveys, firewood and charcoal combined accounted for more than 77% and agricultural residues (dung and crop residues) for 15% (Integrated Rural Energy Development Strategy, January 2004). On the other hand, access to electricity is very low, as reported in the PASDEP document (MOFED, 2006), only 13% of households use electricity as a source of energy and lighting at national level. Electricity use is concentrated almost entirely in urban areas-only 0.4% use a private electricity connection for lighting, and another 0.8% has access to a shared connection in rural areas, while about 75% of the urban residents use electricity. This heavily biomass-based energy consumption is one of the main factors causing ecological degradation in the country. It is therefore imperative that the country develops other sources of energy if it has to achieve sustainable and rapid agricultural development. Expanding improved energy, particularly electricity to the rural parts of the country facilitates promoting small scale industries, agro-processing, etc., on one hand, and helps to reduce biomass dependency on the other hand. The organization responsible for promoting rural energy is Ethiopian Rural Energy Development and Promotion Center (EREDPC). Its responsibility includes expanding rural electricity outside the reach of the Ethiopian Electric Power Corporation (EEPCo).

As of 2005, access to drinking water within distance of 1.5 km in rural areas was 35% and in urban areas within 0.5 km was 80% (MOFED, 2006). The recent study by the Poverty Action Network of Ethiopia (PANE) (as reported in MoFED's PASDEP, 2006)<sup>13</sup>, shows that three-quarters of rural respondents depend on non-potable water sources for drinking and domestic purposes. River pollution was reported as a concern by 70% of those using rivers; and lack of access to protected water sources remains a key concern for the majority of Ethiopians; and there is wide regional disparity in the provision of water sources.

While the purpose of this section is to provide a general country profile with respect to natural resources, poverty, food security, and state of basic infrastructures, the discussions on the target regions (i.e. Amhara and Tigray) which constitute the rest of this report need to be read with this background.

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<sup>13</sup> The study covered 3228 households in four regions, including Tigray.

### 3. Methodology

#### 3.1 Overall Approach

After carefully examining the ToR and making the necessary consultations with the Client, the Consultant team has identified four target groups as the major actors in the SARD-M of Ethiopia. These include:

- **Individual**, predominantly farmers, who live in rural mountainous woredas of the two study regional states.
- The **communities** in rural agricultural areas of the study woredas,
- **Government institutions** at National, regional and woreda levels particularly those dealing with issues of natural resources (land, water and forest), agriculture and rural development; trade and industry, urbanization, and rural infrastructure.
- **NGOs and international organizations** that are involved in ARD programmes.

Separate pragmatic instruments and approaches, including expert interviews and focused group discussions (FGD) as well as household surveys were required to collect the necessary data and information from each of these target groups.<sup>14</sup> The individual rural households were interviewed using a structured questionnaire, while information from communities was obtained through focus group discussions (FGDs). Government institutions, officials and experts, were interviewed using a checklist of questions. Since most agriculture and rural development (ARD) policies and strategies of these regions are derived from the Federal level, Federal institutions were consulted to solicit relevant and appropriate documents; the documents were gathered and used in the study.

The first methodological task in collecting data and information was to identify representative Woredas in each of the two regions. Looking the broader agricultural development strategy of the country, development interventions and approaches are often categorized into two broad categories, i.e., food secure and food insecure. Thus, it was decided to capture these and also its impacts by carefully picking two woredas in each region, one representing food secure (FS) and the other food insecure (FIS) woreda. In each woreda two kebeles representing Dega and Woyna-dega areas were chosen by the survey team together with the woreda ARD office staff. Table 5 lists the regional states, the chosen Woredas and the Kebeles within each Woreda. The survey covered a total of 8 rural Kebeles. Figure 2 shows the location of the study woredas on the national map of Ethiopia.

**Table 5: Regions, Woredas and Rural Kebeles Covered by the Study**

Region	Woreda	Total area in ha	Population	% of area with slope of			Food Security Status	Kebeles for the survey and FGDs
				15-30 per 1000?	30-60	>60		
Amhara	Bure	150280.4	143,099	22.0	13.4	1.3	FS	Alefa and Woynedurbete

<sup>14</sup> The questionnaire and the checklist used during the survey and unstructured interview of regional, zonal, and Woreda officials and others are attached as Annex 3 and 4.

	Libokemkem	170349.6	198,374	41.3	17.0	3.1	FIS	Shihowchtahar and Chamak (mitad)
Tigray	Adwa	67149.4	99,693	60.6	14.8	1.8	FIS	Endabagirima and Gendebta
	Tsegede	200297.6	104,015	28.2	17.8	5.0	FS	Chigorgudo and Endaselassie

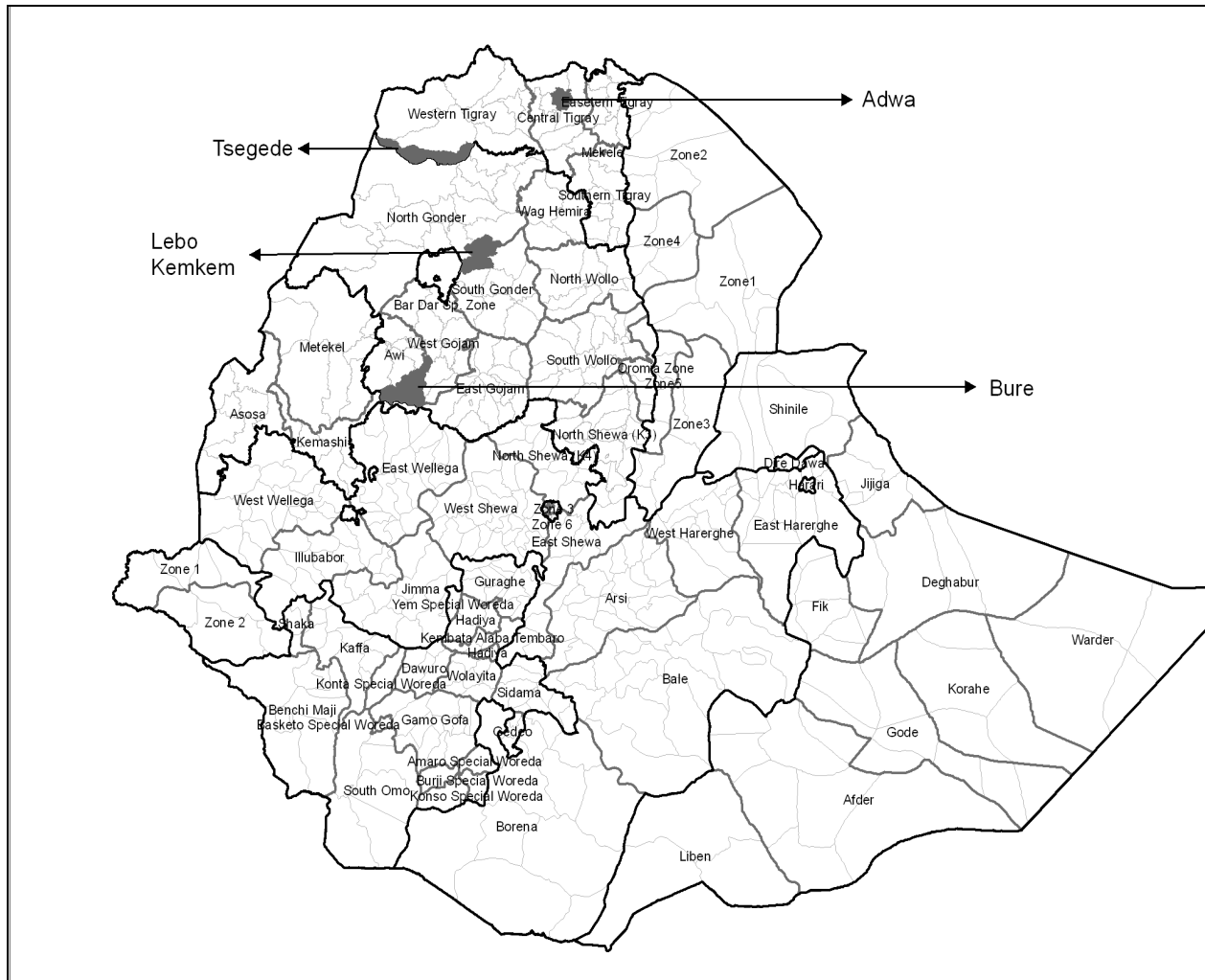


Figure 2: Study Sites.

In addition to individual household survey, community level FGDs were held. Data and information were also collected from interviewees in the relevant Federal and regional government institutions, NGOs, and

international organizations that have been dealing with the issues related to ARD<sup>15</sup>. The checklists prepared for this purpose were used for the interviews and discussions. The institutions were contacted in advance through the GMP coordinator so that they will be prepared to provide any secondary data and information as soon as or shortly after the arrival of the team. The opportunity presented during these interviews was also used to collect information on the institutional arrangements, linkages and related capacity issues.

### **3.2 Sampling, Data Collection and Analysis**

The individual respondents in each Kebele were selected randomly from a list obtained from the Kebele administration offices. The member list of each kebele was used as a sample frame. The sample size ranges from 35 to 40 per kebele (depending on the perceived size of the kebele) forming a total sample of 300 households. Three enumerators were recruited and received one-day training at GMP meeting hall on the structured questionnaire, general survey technique, and how to overcome some challenges that may arise during the field work. The target sample size (300 households) was met during the interview. Concurrent to the individual level interviews, focused group discussions were conducted in each kebele. A total of 56 community key informants participated in the 8 FGDs<sup>16</sup>. This is to complement the quantitative results generated by the survey with qualitative group-level assessments.

The survey results are compiled in descriptive statistics such as mean, range and percent distributions to give valuable quantitative reflections to explain what has happened at household level regarding the status of natural resources, infrastructure, food security and livelihood, rural-urban linkage, and local institutions.<sup>17</sup>

The secondary data were collected from pertinent sources such as BoARD, BoTI, BoWUD, BoEWR, and respective offices at woreda level. Moreover, selected personalities in these offices (mostly heads) were interviewed guided by a checklist of questions prepared for this purpose. The list of persons interviewed is found in the annex.

### **3.3 Review of Documents**

Reviewing pertinent documents was an important task for the team. This was undertaken before, during and after the fieldwork. The documents reviewed can be classified into two major categories: policy and legal documents, and research based literature. The core reviewed government documents are the Rural Development Policy and Strategies (RDPS, 2003) and the Plan for Accelerated and Sustained Development to End Poverty (PASDEP, MoFED 2006). Legal documents include the Federal and regional constitutions, proclamations, regulations, and guidelines in regards to issues such as land use administration, natural resource management, irrigation, urban development, and environmental protection. Previous research works<sup>18</sup> were also essential in strengthening the final conclusions and recommendations.

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<sup>15</sup> The list of institutions identified and interviewed includes those indicated in Annex 2.

<sup>16</sup> The job done in terms of preparing the respondents at each Woreda by the regional facilitators and Woreda Agriculture and Rural Development staff was superb.

<sup>17</sup> For detail see the questionnaire, Annex 3.

<sup>18</sup> Belaye 2004, Deininger et.al 2001, ECA 2004, EEA/EEPRI 2004, Gete et.al 2006 and 2008, Tesfaye 2003, Yigremew 2002. For full citation refer to the reference section.

## 4. Household Survey Results

Below Tables 4-14 present a highlight of the results of the household survey<sup>19</sup>. These results are expected to give an insight for the discussion that is presented in sections five to seven of this report. These sections present detailed facts and views obtained from the interviews of key informants at community level via FGDs, as well as at woreda and regional levels.

Table 6 gives a summary statistics about the surveyed households' characteristics. Out of the 300 respondents 254 were male and 46 female. In terms of percentage this means 85% of the respondents were male. Relatively there were more female respondents in Bure woreda than the other study woredas. On the average the respondents age range from 39 to 49 years. The average family size is 6, with a range of 4 to 7, in Tsegede and Adwa respectively. The average family size varies between male and female headed households. The average family size of male headed households is 6.4 while that of female headed households is 4.6. This variation is positively associated with the household's relative entitlement to food, i.e., landholding size. The male headed households which on the average has higher average family size than female head households do have on the average bigger size of landholdings than that of female headed households. On the average male headed households have about 1.4 hectare of land while female headed households have 0.72 hectare. Agriculture is the primary occupation of more than 92% of the respondents in each study woreda.

### 4.1 Perceptions about resources degradation

Interviewed rural residents in the selected woredas, kebeles in the two regional states (Amhara and Tigray) observe that natural resources are degrading, though the majority feels the degradation is taking place at slow pace. For example out of the 300 respondents in both regions 218 of them (72.7%) consider land degradation is taking place slowly while about 26% consider the degradation is taking place at faster rate (Table 7). Similar percentage is reported for the degradation in the case of forest and water resources. The top three causes of land degradation in both regions are inappropriate cultivation practices, land clearing/deforestation, and population (Table 8). Moreover, weak implementation of the existing policies has contributed to land degradation in both regions (detailed discussion will be made in section 5).

The top two causes of forest resources degradation in Amhara region are land clearing and population whereas in Tigray region population pressure takes the first rank followed by land clearing practices (Table 9). In both regions land clearing/deforestation is perceived to be the major cause of water resources degradation (Table 10).

The above findings are in line with recent similar studies. For example, Gete et.al (2006a) reported that exploitative kind of farming, which has been exacerbated by the growing rural population, highly contributed to the current state of land degradation in the country. Specifically they pointed out that the exploitative nature of the farming system contributed to the high rate of deforestation and left the landscape devoid of vegetative biomass, exposing it to high soil erosion. These coupled with the increased scarcity of grazing land and shortage of livestock feed left the country, which is endowed with enormous biophysical potential, affected by the interlinked and reinforcing problems of land degradation and extreme poverty. Out of the total livestock population, 75% and nearly all the poultry population is located in the highland areas above 1500 m. a.s.l. Therefore, the pasture and rangelands in the highlands

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<sup>19</sup> For further details and additional information the reader is advised to refer to Annex 5. Besides since this is a preliminary report more may be in place when the final report is out.

are very severely overgrazed creating serious overgrazing problems in areas already under huge agrarian human pressure (EPA, 2005).

The visibility of natural resources degradation was also well explained during the FGDs. For example in Adwa FGD participants said that the area they live in is mountainous but a degraded one. According to the respondents, mountains and hills in their area were covered by different trees and shrubs (such as Agam, Seye, Woyra, Qega and others) which do not exist at present. Moreover, it was possible to get hand-dug water within ten meters; but this is not the case now. Most swampy spots are dry and the soil is very degraded and depleted due to lack of appropriate farming practices<sup>20</sup>. The climate of the area is also changing: the temperature is rising from time to time<sup>21</sup> while the length of the rainy season is shorter than it was before<sup>22</sup>. Large numbers of wildlife like Sesa, Midaqua = Aner (tiger), lion and the like were sharing the mountain but currently there is only small number of these wild animals and relatively large number of fox, hyena, ape, and monkey exist. Participants of the group discussions attribute all these damages to population pressure. Of course, people are willing to participate in conservation activities organized by the government (through PSNP) and NGOs such as REST, GTZ, and WFP. Participation in conservation activities is manifested by labor and financial contributions for watershed management interventions<sup>23</sup>. Some farmers have also started to practice zero grazing and area closure for degraded areas.

## 4.2 Degradation mitigation measures

The respondents were asked whether they have been engaged in certain activities to mitigate the degradation of natural resources. The response was positive. Terracing is currently widely practiced in both regions as an intervention to reduce land and water resources degradation (Table 11). Tree plantation follows this, and in fact it is the top most practiced mitigation measure to overcome problems of forest resources degradation. All respondents (100%) in Tigray said they do plant any kind of trees for this purpose. There is an indication that households are starting to use fuel saving technologies to reduce the damage caused on natural forest and trees. Farmers are also using terracing to increase the sustainability of their agricultural land use (Table 12). In Tigray, 54% of the respondents said that they also use stone bunds for this purpose. Overall the respondents in both regions have had high level of awareness about sustainable land management (SLM) practices which they also learned about practices related to SLM through community integrated conservation programmes. 74% in Tigray and 65.3% in Amhara said that they do practice self initiated agro-forestry on their landholdings (Annex 5).

## 4.3 Bases of subsistence

The survey results indicate that the selected woredas are poor in terms of measurements of households' entitlements to food. The average landholding of respondents in food insecure woredas is below a hectare per household which on average consists of about 6 people (Table 13). In Adwa it is 0.62 and in Libokemkem 0.95 ha. Even in food secure woredas the size of cultivable land the household has is not enough to make a decent subsistence with a family of six persons, on average. The trend in terms of holding size is not showing a significant change according to most of the respondents in the two regions. However, there are indications of declining holding sizes and landlessness, for example in Amhara region (Table 14). As reported in the next section of this report there are problems and difficulties to implement

<sup>20</sup> Thirty to forty years ago shifting cultivation was practiced to conserve the soil but this practice has been abandoned at present due to high population pressure.

<sup>21</sup> The area was considered to be *woinadega* (highland climate) but now it is warm like *kola* (lowland climate).

<sup>22</sup> The main rain once it started in May/June, used to continue up to December but at present it stops in September/ October.

<sup>23</sup> People contribute cash to cover the transportation costs of materials needed for construction conservation barriers (e.g. stone). It was reported that about 12,000 birr is needed to rent a lorry for such purpose.

existing land use policy because of the small holding size. Small holding size makes farmers to practice what is traditionally known as *Mofer Zemet*<sup>24</sup> in Tigray and plow land with steep slope of 30% and above (up to 75%) in both regions.

It is not only the size of land but also the lowness of crop productivity (Table 12) in the study woredas, specifically in food insecure woredas, that makes agriculture as a means of subsistence insufficient. Crop productivity in the study woredas is lower than the national and regional averages except at Bure, for wheat and maize. During the survey the highest reported in the 2007 main season production period were 1.69 tons of wheat and 2.7 tons of maize per hectare in Bure. Research findings had indicated that with the use of high yielding varieties and good agronomic practices under farmers' condition maize yield around Bure could exceed, on the average, 6 tons per hectare (Alamni et.al, 2001). Comparing the two study regions, productivity is too low in Tigray particularly in the food insecure woreda. The respondents in both regions are also, on the average, owing small stocks of livestock (Table 13). Traditionally a pair of oxen is required to plow land. Except in Tsegedie, in the other study woredas, there are hardly two oxen per household. As indicated in the next section, people in the study woredas are being forced to increase their food production by trying to get more crop land via clearing land covered with natural resources such as forest or trying to search for alternative sources of subsistence such as charcoal making which augment the degradation of natural resources such as forest and water.

#### **4.4 Availability and adequacy of basic infrastructure and services**

The household level assessment about the state of basic economic and social infrastructures and services indicate the perceived high level of inadequacy. In Amhara region 67% of the interviewed households perceive the road network in their surrounding is inadequate whereas in Tigray the figure is a bit lower (47%) (Table 14). Large number of people both regions do not have access to potable water. But Tigray is by far better in these regards; i.e. about 62% of the respondents in Tigray have access to potable water whereas the coverage in Amhara region is only 36.7% of the respondents. This indicates that a lot has to be done in the area of water supply and sanitation to meet the MDGs Universal Access Programme requirements<sup>25</sup>. The survey result indicates that schools are available but not adequate to meet the increased demand for education in rural areas i.e. 77.3% and 72% of the respondents in Amhara and Tigray respectively perceive that the existing schools in their surroundings are not adequate. Electricity is critically inadequate. None of the respondents in Tigray had access to electricity and only 6.7% had such an access in Amhara. In fact, based on the responses, postal services are better in both regions i.e. postal services reach 40% of the respondents in Tigray and about 50% of the respondents in Amhara.

The discussions with key informants and farmers groups also complement the above survey results. For example, according to the Tsegedie Woreda Administration office, the social and economic infrastructure of the woreda is undeveloped. Telephone, electricity and road are absent in all the *Dega kebeles* (Mountainous places). Electricity is present in the urban center of the woreda, but it is based on fuel generator which can serve only for five hours in a day. Needless to say, lack of these infrastructures would hinder sustainable development in these kebeles. For instance, the absence of roads especially in the Dega kebeles has reduced the movements of rural development experts to provide advisory supports to the farming communities. The inadequacy of electric supply in the woreda capital hindered the use of modern technologies (e.g. computers) which could facilitate planning and implementation of rural development activities in the area.

<sup>24</sup> *Mofer Zemet* is a type of traditional cultivation practice which farmers go to low land areas and destruct large amount of forest area.

<sup>25</sup> The standard set in MDGs Universal Access Programme demands that (1) every citizen should get at list 15 lit of water/day, (2) citizens in rural areas should get potable water within a distance of 1.5 km; and (3) urban-based citizens should get potable water within a radius of 500m.

## 4.5 Gender issues

As indicated in the introduction part of this section, female respondents constituted only 15% (46) of the total number (300) of survey interviewees. When disaggregated by woreda the number remained small to make a strong statistical analysis and inference. However, the results remain indicative of the prevalence of gender disparity in terms of resources ownership, family size and ability to feed members of a family. In general, in the study woredas, the average land holding of female headed households is less than male headed households. Average family size of male headed household is higher than female headed households, and even most of the interviewed women believe that it is the male headed households that are more food secured than female headed households<sup>26</sup>.

Apart from the survey respondents, during the discussion with the community and the woreda experts issues of gender mainstreaming were raised and discussed. In general, the discussions revealed that there is no unique gender mainstreaming in the rural agricultural production and marketing system, and what exists is what has remained as traditional for years. Traditional task divisions in farming and marketing are still prevalent. It is the men who do the plowing and planting and women give support during weeding. Harvesting is mainly left to men while women prepare the food and drinks during this and previously mentioned farm operation events. Women do the home gardening and milking activities. For example, whole milk is not marketed, but butter and cheese, locally processed, are. But both the processing and marketing is done mainly by women using traditional methods. There are still gender conflicts related to the control of cash income from sale of farm products and by-products. Same is true in poultry rearing. Efforts to promote high value cash crops, specifically horticultural crops are being challenged with the gender issue. It is mostly women that practice home gardening. But rewards to labour are not often going in terms of labour contribution made to such activities. In general gender mainstreaming needs to be strengthened and expedited in order to increase the marginal benefit obtained from rural labour (men and women) and in aggregate to enhance value addition in the agriculture sector.

As pointed out earlier female headed households' average holding size is smaller than male headed household. In a broader way one may ask the gender aspect of access to this resource. Although the constitution and hence the proclamations<sup>27</sup> on land administration and use do not discriminate land acquisition by gender, the practice on the ground is different. The findings, on land issues related gender indicates the sensitivity of raising issues of women's land rights in predominantly traditional societies where biases, inequalities and discriminatory practices with regard to women's resource access were widely accepted and internalized. In general, most women were reticent about expressing their views in forums dominated by men, including elders and community leaders. Simply, in such complex framework, women's rights of access to land are regulated, mainly through customarily defined tenure systems. The few women who have holdings through inheritance or being widow still tended to have insecure rights to land.

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<sup>26</sup> For detail see Annex 3, first table.

<sup>27</sup> Review of the constitution and the proclamation is made in section 5 of this report.

#### **4.6 Policy Implications of Survey Results on FS Vs FIS woreda classification.**

The above survey results and the discussion with key informants at regional and woreda level has brought a challenge to the current policy of dichotomizing woredas as FS and FIS and directing development programs and resources on this line. In the current government policy and particularly in the launching and implementation of the Production Safety Net Programme (PSNP) woredas in the study regions, of course this applies for the whole country, are classified into two categories, FS and FIS. FS are assumed to be those surplus producing woredas where adequate food is available for household consumption and hence the prevalence of malnutrition is considered to be limited or non-existing, while the FIS are the opposite of the FS woredas in terms of access of households to food . Recent assessments, however, do not show that FS woredas are not entirely immune from malnutrition. Moreover, kebeles in FIS woredas are not homogeneous in terms of the level of food insecurity. Evidence indicate that PSNP further stratifies the kebeles within FIS woredas as food secure and food insecure during implementation which adds more confusion in the strategy of development programmes interventions.

This study and others have given a signal that FS woredas are facing problems of malnourishment and economic crises that led to unemployment of rural youth hence unplanned outmigration. For example, Gete et.al (2008) study reveals that the major sources of seasonal labour migration are the so-called “food secure” woredas in ANRS, which include Estie Achefer, Mecha, and Adet Woredas. According to the key informants, FS woredas are not significantly different from the FIS woredas in terms of prevalence of malnutrition. The key informants of this study also expressed such a feeling and were against the deprivation of the people in FS woredas in regards to state-sponsored food security programs which, indeed, have positively contributed to food security by reducing loss of household assets and unplanned outmigration.

Furthermore, the survey results indicate that there is no visible difference between FS and FIS in terms of perceptions and trends of natural resources degradation while FS woredas are not getting adequate support to mitigate the problems. The state of individual’s asset base is not significantly different in these two categories. Land holdings, land productivity, livestock holding are similar and small in both categories. But either via the PSNP public work provision or by NGOs, the so called FIS woredas get more resources than FS woredas. Most natural resource conservation programs at grass roots level are being financed through the PSNP public work provisions or works done by NGOs, for example on drinking water. The survey results indicate 13% and 83% of the respondents in FS woredas say potable water is inadequate and unavailable respectively. In the FIS woredas the result indicates only 19% in both cases respectively.

**Table 6: Respondents Characteristics by Sex**

		Woreda								Total/Total average	
		Bure		Libo Kemkem		Tsegede		Adwa			
		No.	%	No.	%	No.	%	No.	%	No.	%
Sex	Male	62	81.58	62	84.93	66	86.84	64	85.33	254	84.7
	Female	14	18.42	11	15.07	10	13.16	11	14.67	46	15.3
	Total	76	100.00	73	100.00	76	100.00	75	100.00	300	100
Agriculture as primary occupation	Male	61	80.26	62	84.93	65	85.53	64	85.33		
	Female	9	11.84	9	12.33	10	13.16	11	14.67		
Average age	Male	40.4		44.5		48.3		45.0		44.6	
	Female	49.4		39.3		43.8		43.5		44.3	
	Total	42.0		43.7		47.8		44.8		44.6	
Average family size	Male	6.02		6.21		6.53		6.69		6.37	
	Female	4.14		4.55		4.00		5.64		4.57	
	Total	5.67		5.96		6.20		6.53		6.09	
Average land holding	Male	1.34		1.02		2.65		0.64		1.41	
	Female	0.81		0.56		0.97		0.52		0.72	
	Total	1.25		0.95		2.43		0.62		1.31	

**Table 7: Resources degradation perception indicators**

Resource	Perception Indicator	Amhara		Tigray		Within Amhara	Within Tigray
		Count	%	Count	%		
Land	Degraded slowly	109	50	109	50	72.7	72.7
	Degraded at faster rate	39	49.4	40	50.6	26	26.7
	No change	2	66.7	1	33.3	1.3	0.7
Forest	Degraded slowly	112	44.3	141	55.7	74.7	94
	Degraded at faster rate	21	72.4	8	27.6	14	5.3
	No change	17	94.4	1	5.6	11.3	.07
Water	Degraded slowly	112	43.2	147	56.8	74.7	98
	Degraded at faster rate	19	86.4	3	13.6	12.7	2
	No change	19	100	19	100	12.7	6.3

**Table 8: Cause of land degradation: Perception**

Perceived Cause	Amhara		Tigray		Within Amhara		Within Tigray	
	Yes	No	Yes	No	Yes (%)	No (%)	Yes (%)	No (%)
Population	49	101	60	90	32.7	67.3	40.0	60.0
Inappropriate cultivation practices	95	55	110	40	63.3	36.7	73.3	26.7
Land clearing/ deforestation	78	72	81	69	52.0	48.0	54.0	46.0
Over grazing	48	102	54	96	32.0	68.0	36.0	64.0
Nature	5	145	8	142	3.3	96.7	5.3	94.7
Soil susceptibility	4	146	8	142	2.7	97.3	5.3	94.7
Steepness of land	14	136	30	120	9.3	90.7	20.0	80.0

**Table 9: Cause of forest degradation: Perception**

	Amhara		Tigray		Within Amhara		With in Tigray	
	Yes	No	Yes	No	Yes (%)	No (%)	Yes (%)	No (%)
Population	89	61	102	48	59.3	40.7	68.0	32.0
Cultivation practice	11	139	10	140	7.3	92.7	6.7	92.7
Land clearing/ deforestation	87	63	121	28	69.2	41.8	30.8	58.2
Over grazing	2	148	2	148	1.3	98.7	1.3	98.7

**Table 10: Cause of water degradation<sup>28</sup>: Perception**

	Amhara			Tigray		Within Amhara			With in Tigray	
	Yes	No	No change	Yes	No	Yes (%)	No (%)	No change (%)	Yes (%)	No (%)
Population	40	91	19	63	87	26.7	60.7	12.6	42.0	58.0
Cultivation practice	2	129	19	4	146	1.3	86.0	12.7	2.7	97.3
Land clearing/ deforestation	88	43	19	105	45	58.7	28.7	12.6	70.0	30.0
Over grazing	1	130	19	1	149	0.7	86.7	12.6	0.7	99.3
Nature	20	111	19	6	144	13.3	74.0	12.7	4.0	96.0

<sup>28</sup> Degradation in this context implies the decline of the amount of available water resources.

**Table 11: Mitigation measures**

Resource Type	Mitigation Measures	Amhara		Tigray	
		N	%	N	%
Land degradation	Terracing	139	92.7	147	98
	Tree plantation	27	18	7	4.7
	Soil bund	20	13.3	58	38.7
Forest degradation	Tree plantation	118	78.7	150	100
	Fuel saving technology	52	34.7	22	14.7
	Irrigation	24	16	29	19.3
Water degradation	Terracing	150	100	150	100
	Tree plantation	54	36	124	82.7
	Private pond	32	21.3	49	32.7

**Table 12: Frequently used practices to make agricultural land use sustainable**

Practice	Amhara		Tigray	
	N	%	N	%
Terracing	126	84	140	93.3
Tree plantation	102	68	106	70.7
Soil bund	67	44.7	71	47.3
Stone bund	18	12	81	54

**Table 13: Average land holdings of respondents in the study woredas**

Region	Woreda	Average Land Holding in Ha	Woreda Status in terms of Food Security	Regional Average
Tigray	Adwa	0.62	Insecure	1.53
	Tsegedie	2.43	Secure	
Amhara	Libo Kemkem	0.95	Insecure	1.10
	Bure	1.25	Secure	

**Table 14: Trends in landholding**

Trend	Amhara		Tigray	
	N	%	N	%
Declining area over time	22	14.7	5	3.3
Increasing area over time	6	4	17	11.3
No change	117	78	128	85.4
Increase in landlessness	5	3.3	0	0

**Table 15: Crop agriculture productivity comparison: Food secure versus food insecure study woredas and in turn with that of the national crop productivity average for selected crops<sup>29</sup> and year (2007).**

Crop	Average productivity (quintal <sup>30</sup> /ha)						
	National and Regional average <sup>31</sup>			Food secure woredas		Food Insecure woredas	
	National	Amhara	Tigray	Bure (Amhara)	Tsegedi (Tigray)	Libokemkem (Amhara)	Adwa (Tigray)
Wheat	16.25	14.55	14.21	16.9	14.0	11.8	7.2
Teff	11.67	12.12	12.77	8.2	6.9	6.5	6.9
Maize	21.22	23.18	14.9	26.6	9.4	10.9	7.4
Sorghum	17.34	15.84	15.89	6.0	16.9	13.2	-
Millet	13.47	13.54	13.38	18.6	13.8	9.3	4.9
Pepper	16.25	13.47	14.17	8.0	4.0	8.0	-
Check pea	12.65	12.35	12.41	1.6	8.0	5.1	-

**Table 16: Average livestock holding of respondents by woreda**

Region	Woreda	Food security status	Oxen	Cow	Sheep	Goat	Horse/mule	Donkey
Amhara	Bure	Secure	1.55	0.79	2.45	0.16	0.11	0.11
	Libo-kemkem	Insecure	1.16	0.82	1.58	1.56	0.01	0.62
Tigray	Tsegedie	Secure	2.13	2.30	3.33	2.84	0.63	1.11
	Adwa	Insecure	1.59	1.25	1.87	3.87	0.07	0.47

**Table 17: Adequacy of or access to basic infrastructure/services**

Infrastructure / services	Amhara						Tigray					
	Adequate		Inadequate		No available		Adequate		Inadequate		No available	
	Coun t	%	Coun t	%	Coun t	%	Coun t	%	Coun t	%	Coun t	%
Road	35	23.33	100.	66.67	15.00	10.00	52.00	34.67	71.00	47.33	27.00	18.00
Potable water	27	18.00	28.00	18.67	95.00	63.33	72.00	48.00	20.00	13.33	58.00	38.67
Irrigation water	5	3.33	33.00	22.00	112.	74.67	3.00	2.00	40.00	26.67	107.	71.33
School	32	21.33	116.	77.33	2.00	1.33	78.00	52.00	72.00	48.00	0.00	0.00
Health center	13	8.67	122.	81.33	15.00	10.00	14.00	9.33	130.	86.67	6.00	4.00
Veterinary center	5	3.33	107.	71.33	38.00	25.33	1.00	0.67	100.	66.67	49.00	32.67
Electricity	4	2.67	6.00	4.00	140.	93.33	0.00	0.00	0.00	0.00	150.	100.

<sup>29</sup> The crops are those reported by the respondents and found to be produced in all study woredas i.e., there are crops produced in some woredas and not in others. For details see annex 5.

<sup>30</sup> 10 quintal=1 ton

<sup>31</sup> CSA, Agricultural Sample Survey, 2007/08.

					0	3					0	0
Telephone/post	10	6.67	66.00	44.00	74.00	49.33	10.00	6.67	48.00	32.00	92.00	61.33

## 5. Assessments and Findings from Key Informants<sup>32</sup>

### 5.1 Policies, Strategies and Laws

#### 5.1.1 Reflections on Existing Core Policies and Strategies

The main task in this study was the assessment of the strengths and weaknesses of mountain policies in the social, economic, environmental, legal and institutional aspects. The previous section contains the perceptions of individuals at grass-root level in a manner they are understood and practiced. At woreda and regional levels, when the consultant's team poses the question about the availability of policies and strategies designed for SARD-M, the responses of the interviewed key informants were that there is no unique or separate ARD policy and strategy intended for *mountainous regions*. The informants, however, pointed out that the policies and strategies that they adopt and consider to implement are those formulated and trickled down from the Federal level. These include the lead Ethiopia's economy wide strategy, known as Agriculture development Led Industrialization (ADLI). On the basis of this strategy, major policy and strategy as well as action plan documents have been issued including the Rural Development Policy and Strategies (RDPS) (MoFED, 2003) and the Plan for Accelerated and Sustained Development to End Poverty (PASDEP 2005/06-2009/10, MoFED, 2006) documents respectively. Existing policies and strategies are transmitted to the grass roots level through proclamations, which are followed by regulations, directives and guidelines as deemed important. For all proclamations the base is the Federal Constitution of 1995.

RDPS document explicitly states that the basic objective of Ethiopia's economic development is to ***build a market economy in which (i) a broad spectrum of the Ethiopian people are beneficiaries, (ii) dependence on food aid is eliminated; and, (iii) rapid economic growth is assured.*** Ethiopia's economy wide strategy is known as Agriculture development Led Industrialization (ADLI). The ARD sector strategy is agriculture-centred rural development, more specifically, agriculture-led development as stated in RDPS. The basic principles governing agriculture development policy in the country according to the RDPS document are:

- The labour intensive strategy
- Proper utilization of agricultural land
- A foot on the ground
- Taking different agro-ecological zones into account
- An integrated development path

The fundamentals of Ethiopia's agricultural development strategy as stated in PASDEP are:

- Adequately strengthen human resources capacity and its effective utilization,
- Ensuring prudent allocation and use of existing land,
- Adaptation of development path compatible with different agro-ecological zones,
- Specialization, diversification and commercialization of agricultural production,
- Integrating development activities with other sectors, and
- Establishment of effective agricultural marketing system

In the broader ARD agenda the major policy document i.e. RDPS, has its own share of strong and weak parts. The following are some of the general and specific points attributable to its strength.

<sup>32</sup> These include information from FGDs and from Regional and Woreda key informants.

**General:**

- The fact that the different policy, strategy and instrument issues of ARD are put together in one comprehensive document is a leap forward in Ethiopia's agriculture sector policy formulation. It is footed on the principle of a market-oriented economic system. It explicitly states that the basic objective of Ethiopia's economic development is to ***build a market economy in which (i) a broad spectrum of the Ethiopian people are beneficiaries, (ii) dependence on food aid is eliminated; and, (iii) rapid economic growth is assured.***
- It recognizes that policies and strategies shall be formulated on tangible and real conditions and situations of the country, and
- That the government stands ready to translate the policies and strategies into concrete action, and perhaps even more important is that it is ready **to revise the policies and strategies as the need arises** and to adjust the economic development goals according to progresses over time.

**Specifically the following are the salient strong features of RDPS:**

- It, at least conceptually, recognizes the need for an integrated approach of rural development,
- It gives emphasis for decentralization,
- Participatory approach is given due consideration,
- Gender issues are incorporated as deemed fit and relevant for ARD,
- It advocates changing the perception of Ethiopia's workforce about work ethic, motivation and attitude in view of attaining a rapid economic development,
- The document magnificently recognizes education and training as a major strategic and instrumental means to achieve the envisaged development in rural Ethiopia,
- It promotes that the farmer has to be market-oriented, and this makes him think that incentives are not given or obtained through subsidies but earned through competitive efforts,
- It resumed the halted settlement programme,
- It gives due emphasis to diversification and specialization in small-scale peasant agriculture,
- It promotes the use of modern technology be it internally developed or imported. But the technology should not be one which substitutes labour for capital.
- The out-growers scheme, via improved market system is encouraged, and
- Its promotion of market-and service-oriented cooperative societies is a positive key strategic choice for a transition economy.

Despite the above major features that characterize the strengths of existing ARD policies and strategies core document, there are areas of weakness associated to the policies and strategies formulation process and to their implementations. To start with, generally, RDPS lacks clarity and coherence which in turn leads to implementation problems both for regular programme or project based development interventions at grass roots level.

**Specifically,**

- In line with clarity, it has a problem of proper use of the terms 'policies, strategies, and instruments'. Throughout the RDPS document, all issues raised and the plausible policies, strategies and instruments stated are claimed to be "key", and "options without alternatives". Besides, for example, it focuses on an intensive method of development which is based on an extensive use of labour and traditional farm implements to produce and penetrate in the international market. The notion of intensive and extensive agriculture is applied in a confused manner in several cases.

- It is not clear what “rapid development” means in terms of time, performance indicators and expected outputs and outcomes.
- It is short of indicating or giving a broader statement of action on the capacity needed to implement the proposed policies and strategies. For example, it is not suffice to send four educated agricultural extension and health agents to each *kebele* without adequate facility and incentive mechanisms to provide the services to the community.
- It gives *inadequate attention to the private sector*. It follows “revolutionary democracy than liberal democracy”<sup>33</sup> and, as it is written in the lead policy and strategy document, the economic base of revolutionary democracy follows a system with market orientation and capitalist endeavors with a lot of action and direct involvement from the government.
- As pointed out above, in the strength part, it tries to promote participatory approach. However, the participatory approach advocated is a “populist type” rather than participatory through representativeness, consultations, and where the majority’s views and contributions are captured and incorporated in the policy and strategy documents.
- The rights related to land administration and use is wanting. The issues of land ownership, access, use, sale or exchange, inherit etc are presented in an argumentative rather than policy- oriented approach. The land policy statements included in the document inhibit capital and entrepreneurial ability from going to rural areas. It also restricts rural labour movements. If a person engaged in rural land based economic activity gets job outside agriculture, according to the policy, he will lose the land. The emphasis is to keep labour in agriculture. It is mentioned in the document that 70% of the rural youth have to remain in rural agricultural occupation.
- The emphasis of RDPS is heavily on the crop agriculture. Little mention is made on natural resources in the form of agro-forestry development. Similarly, little coverage is given for the livestock sector. Almost nowhere in the document fishery is mentioned.

In the context of the SARD-M study, the expert level key informants said that in the existing policy and strategy documents, the notion of *sustainability*<sup>34</sup> is concealed. The focus is on the reduction of poverty and elimination of hunger, specifically making the country food secure in the shortest possible time regardless of whether the use of the natural and manmade socio-economic resources is sustainable.

The key informants at the regional and woreda level vividly voiced the need for a real participatory policy and strategy formulation which is footed on the notion of sustainability. The practice often is a top-down approach with a seemingly participatory forum where mostly public servants are called and meet to endorse what has come from the top. This process is partly responsible for the weak implementation, and sometimes for a total rejection of policy stances by target implementers, for example farmers, refusing the restriction not to use mountain sides with a slope of 30% and above. This was revealed during the household survey in TNRS. It was also revealed that, since some policies and strategies become annexed

<sup>33</sup> Revolutionary Democracy Development Directions and Strategies (text in Amharic, 1992 E.C)

<sup>34</sup> Sustainability, in the context of SARD-M study, was defined and explained to the key informants and mutual understanding is made prior to a full scale interview exchanges. The definition given is the one which is issued by World Commission on Environment and Development, 1987 and that of FAO as reported in SARD-M Project Practical Guide. In short, it captures that sustainable development is development that meets the needs of the present generation without compromising the ability of the future generations to meet their own needs.

to other issue, they fail to have proper formulation. For example, as the informants in ANRS said, till 2007, the marketing policies and strategies were not designed by examining the marketing problems but to assist the government's food security and poverty reduction policies and strategies. There are cases where development agents advise farmers to produce silk in TNRS, when the market for the produce is not known. This did not make the farmers to produce on the basis of the market or make them get proper marketing infrastructure and extension advices.

### 5.1.2 Review of Relevant Proclamations Related to SARD-M

Several proclamations<sup>35</sup> contain the legal implications and consequences of the ARD policies and strategies. The proclamations starting from the constitution cover issues of land administration and use; forest; investment; expropriation, valuation and compensation; infrastructure development including water supply, irrigation, roads, and energy; urban center administration; and micro and small enterprises. Among the issues listed above the discussion with key informants revealed that it is the land issue which is detrimental to the design and implementation of various interventions for SARD in mountain areas.

Under Article 40 of the Federal Constitution of 1995, every Ethiopian has the right to the ownership of property<sup>36</sup>. This right includes the right to acquire, to use and, in a manner compatible with the rights of other citizens, to dispose of such property by sale or bequest or transfer. However, this right can be limited or modified by law where "public interest" so demands. The Constitution also states that the right to ownership of rural land and urban land, as well as of all natural resources, is exclusively vested in the State and in the peoples of Ethiopia. Land is the common property of the Nations, Nationalities, and Peoples of Ethiopia, and shall not be subject to sale or to other means of exchange. The Constitution further stipulates that every Ethiopian shall have the right to the immovable property he builds, and to the permanent improvements he brings about, on land by his labor or capital including the right to alienate, bequeath and where the right of use expires, remove his property, transfer his title or claim compensation for it.

The Constitution states (Art. 52) that Regional Governments have the duty to administer land and other natural resources according to Federal laws. The "Rural Land Administration Proclamation, No. 456/2005" delegates to the Regional States the power of administering land. Accordingly, the two study regions, Amhara and Tigray, started to exercise this power by drafting and passing their respective laws and regulations for land administration based on the framework legislation. The Amhara Regional State's Rural Land Administration and Use legislation (Proclamation 133/2006) has adopted many of the articles of Proclamation 456/2005. This Proclamation states that the Environment Protection and Land Administration and Use Authority (EPLAUA) is given the power to administer rural land and take measures for proper use. In Tigray, the relevant provisions are contained in Proclamation 97/2006, and EPLAUA is established and functions similar to that of the Amhara region.

The definition and the legal connotation of communal land varies between the two regions. Article 2 (12) of Proclamation 456/2005 defines "Communal Holding" as rural land which is given by the

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<sup>35</sup> A list of relevant proclamations is included in the reference section.

<sup>36</sup> Number 3 of this article defines "private property" as "any property, both corporeal and incorporeal, produced by the labour, creativity or capital of an Ethiopian citizen, associations of Ethiopian nationals endowed with legal personality by law, or associations who under appropriate conditions are allowed by special laws to jointly own property." Hence, property in this sense excludes land.

government to local residents for common grazing, forestry and other social services. It is not clear whether this definition creates a right enforceable by law or not. However, read in connection with Article 5 (3) of the same Proclamation which states “Government being the owner of rural land, communal rural land holdings can be changed to private holdings as may be necessary”, one may conclude that communities do not have a right similar to an individual landholder if it is the government, and not community members, that makes the decision regarding the transfer of use rights of communal holding to individuals.

#### **5.1.2.1 Land law in the ANRS**

The Amhara Land administration and Utilization Proclamation 133/2006, on the other hand, appears to take a middle position under Article 2 (5), where it is stated that “Communal Holding” means rural land which is out of the ownership of the government or private holding and used by local people in common for grazing, forestry and other social services. Although this definition does not categorize communal holding as one of the holding rights in the region, Articles 2 (19) and 10 of the same Proclamation make it clear that land in the region may be held “... communally...”. “Landholder” also means, among others, group of people or community having a possession right over a rural land. Thus, a holding right over communal land may be reasonably assumed to exist in the Amhara Region. Article 29 (8) of the regulation provides that the compensation provisions in the regulation apply for property on communal lands.

#### **5.1.2.2 Land Law in TNRS**

The Tigray Land Administration and Utilization Proclamation No 97/2006 do not define communal land as such. However, Articles 2 (9) and 5(3) provide in exactly the same way as Proclamation 456/2005. The Tigray case becomes somewhat complicated as it has other categories of land defined under Proclamation 97/2006. These include: - “Pasture” which is “land that has grass and trees on it and specifically demarcated as pasture land” and “Extra land” which is “land that is in the hands of various users illegally, land for which no successors can be found, as well as mountains, ravines, open/vacant lands”.

Officials and experts in one of the study woredas of TNRS, Adwa, said there are problems and difficulties to implement existing land use policy. This is because of the small holding and long tradition of the farmer ploughing steep slope areas and absence of compensation scheme to advice the farmer to use land degradation mitigation practices. In this woreda the average land holdings of respondents is 0.62 hectare (Table 4). The ARD office staff said that though the region’s land use policy and regulation does not allow the farmer to cultivate land with slopes above 30, it is difficult to implement it because of the smallness of farmers’ holdings. Besides in the land policy the youth, age of 15 and above, has a right to get cultivated land. But this cannot be practiced due to paucity of cultivable land. In their view there is no effective environment and land policy in the region. The woreda administration staff said the absence of clear compensation policy especially for government development work such as irrigation project and road construction created land administration problems too. Although the existing laws and regulation (Proclamation 455/2005 and Regulation No. 135/2007) allows giving cash compensation this is not often liked by the farmers. Because of such problems and difficulties, the woreda administration is reluctant to advice farmers to get rid of traditional practices which lead to natural resources degradation.

## 5.2 Natural Resources and the Environment

### 5.2.1 Environment protection and land use

The Proclamations 133/2006 and 97/2006 give the power to protect and conserve natural resources and the environment to the Environment Protection Land Administration and Use Authority (EPLAUA) in ANRS and TNRS respectively. Before the establishment of the EPLAUAs, the forest and wildlife have been under serious threat. In both regions findings from the survey indicate that natural resources (forest specifically) are on a decline and the same is true for the wildlife since they are closely related. The reasons for the decline of these resources (forest and wildlife) according to key informants and FGD participants are that people are cutting trees for many reasons. Primarily, because residents in mountainous areas are getting poor from time to time and this together with the population growth lead them to cut trees to get income by selling charcoal, firewood and timber. It was also mentioned that there are people who live in small towns in these areas doing the business of cutting trees and selling it in the form of charcoal, firewood and timber illegally following the weakening of the traditional forest management and use practice.

In general the critical proclamations, regulations and directives that are governing the optimal use of natural resources in mountainous regions are those related to land use and administration (LU&A). Of course, again it is important to emphasize that in Ethiopia at large and in the study regions specifically, at present, there are no land use and administration policies *specific to mountainous regions*. Besides, existing federal and regional LU&A policies, strategies and laws are designed primarily to address issues of farming areas and are not practically applicable to the broader natural resources use and administration. Since land and land related socio-economic issues were dominant during the discussion with key informants at community level, the study team made quick review of existing federal and regional land related policy documents and briefly summarized the salient points as follows, where appropriate by making reference to the study regions i.e., Amhara and Tigray.

### 5.2.2 Natural Resources Conservation in TNRS

Even after the establishment of EPLAUAs, environmental protection is more on the frontline in Tigray than in Amhara. There are also societies like Relief Society of Tigray (REST) and companies such as Dejena endowment<sup>37</sup> which directly involve in environmental protection.

In TNRS nowadays, natural resource conservation is the major issue in every sector. In agriculture, conservation activities are undertaken in three different ways. First, individual conservation initiatives are very important in the region. More than any other time, people are sensitive about land degradation due to the fact that its detrimental effects in terms of yield reduction (despite improvements in the use of chemical fertilizers) are visible in many areas of the region. As a result, there is high motivation and willingness to run natural resource conservation activities on individual farms (such as soil conservation and tree planting) with own expenses and initiatives. These conservation efforts at individual level are encouraged and supported by development agents (trained for this purpose) who follow the day-to-day activities in each kebele<sup>38</sup>.

<sup>37</sup> Both REST and Dejena endowment are local NGOs operating in Tigray region.

<sup>38</sup> There are three development agents in each kebele; one for crop management, one for livestock management, and one for natural resource management. There are also two health extension workers assigned in each kebele. All are paid by the regional government.

The second form of conservation activities conducted in Tigray is through the Production Safety Net Program (PSNP). PSNP mainly focuses on water-shade-based natural resource management. For example in Adwa most people participate in soil and water conservation using PSNP. GTZ, REST, and WFP work in different areas of the woreda on natural resource conservation and WB has provided credit for the farmers through the PSNP. WFP, GTZ and WB provide their budget to Adwa Woreda Agriculture and Rural Development Office where as the REST manage the budget for watershed activities by themselves. According to the Woreda officials and experts PSNP is not having only positive impacts. It has also its share of negative impact. PSNP is designed to overcome food insecurity problems with direct and indirect support to those highly affected and lost their assets due to various causes but with expected graduation from the insecurity quagmire. But almost all beneficiaries of PSNP do not like to graduate<sup>39</sup>. They are developing a dependency syndrome.

Moreover, in addition to the PSNP, organizations like WFP have interventions in promoting community-based natural resource management. The Natural Resource Management Department of BOARD of the Region is responsible for coordinating technical tasks of the conservation activities whereas the Food Security Department is responsible for allocating budgets which are used for trainings of the technical personnel, DAs, and for implementation of the conservation plans.

Community natural resource conservation campaigns form the third type of conservation works. As a norm, each household is required to provide free labor services on natural resource management for 20 days in a year<sup>40</sup>. These community campaigns for environmental rehabilitation are undertaken in November and December and are coordinated by kebele councils and the DAs in each kebele. The conservation activities conducted at water-shed levels include hillside terracing, hillside tree planting, enclosure of watersheds to improve vegetation covers, and water conservation activities (such as water harvesting and pond-management).

In addition to the conservation activities at community and individual levels, the regional government has also been taking actions to rehabilitate the natural resources of the region. Accordingly, about 200 thousand hectares of degraded areas, mostly mountainous, have been enclosed for protection; four forest sites (including two recent ones) with a total area of about 190 thousand hectare have been enclosed as state-protected forestland and one more (with an area of about 50 thousand hectares) is on the way for enclosure. While the local people can use non-timber products (such as grasses, forest honey, wild fruits, etc.), these protected areas are managed by the regional government. Moreover, the Sheraro Qafta Wild Life Park, which was enclosed six years ago, got the status of National Park in 2008. In addition to these activities, movement of timber products is forbidden across zones of the region.

In general in TNRS, the expert opinions indicate that, although it is early to assess the impacts, the movement in favor of proper natural resource management throughout Tigray region has brought some positive indications. Some examples are:

*(1) Improved production of honey:* While it was very hard to produce honey in Tigray one or two decades ago, honey is produced nowadays in many parts of Tigray due to improvements in vegetation cover. A honey-processing factory (Dimma Honey) has also been established to produce refined honey for commercial purpose.

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<sup>39</sup> The fact that local officials could benefit from the safety net program (e.g. in the form of daily allowances when they move around to monitor the implementation process) might have induced a sort of dependency syndrome among the officials themselves.

<sup>40</sup> The history of the free labor service for environmental rehabilitation goes back to the Dergue regime (1974 -1991) in areas controlled by the Tigray People Liberation Front (TPLF) which constitutes the ruling party (EPRDF) of the country at present.

(2) *Improved livestock feed:* Livestock were endangered in Tigray due to degradation of most grazing lands. However, because of conservation activities and refined community-based regulations some improvements have been seen in terms of access of people to better livestock feed. For example, kebeles regulate livestock grazing to avoid overgrazing. Moreover, local communities have access to grasses in protected areas in a regulated manner i.e. they can cut grasses in the protected areas to feed their livestock.

(3) *Income from selling trees:* A culture of tree planting is growing and some people (although limited in extent) are generating income from selling eucalyptus trees for construction and other purposes

(4) *Rehabilitation of water resources:* reports from various locations also indicate some improvements on the volumes of rivers, streams, ponds as well as underground water levels.

These positive changes, however, are not prevailing without challenges that result in negative outcome. Among the challenges the region is facing in the areas of proper natural resources and environment management are

- (1) *Open grazing and Mofer zemet :* As a matter of culture grazing is open in Tigray (as also in other parts of the country). This traditional practice reduced the rate of rehabilitation of many degraded areas. As the Tsegedi woreda administration staff put it, to have sustainable development there is a need to work on awareness creation on area closure, zero grazing and traditional cultivation practices especially *Mofer zemet*. *Mofer Zemet* is a type of traditional cultivation practice which farmers go to low land areas and destruct large amount of forest area.
- (2) *(2) Low income of people:* Because of deep-rooted poverty in the region, many households and communities lack capacity to allocate resources for conservation activities to the level they are desired. The budget allocated from the government is very limited<sup>41</sup>. Scarcity in financial resources is more binding in food secure woredas because in these woredas only the government provides the support whereas NGOs also participate in conservation activities in food insecure areas.
- (3) *Low rule enforcement:* Although the rules have been designed to manage natural resources in a sustainable manner some of them are not effective. This is mainly because of lack of coordination among various stakeholders (e.g. administrations at various levels of government hierarchy) and lack of budget.
- (4) *Low focus on natural resource management at federal level:* Although Tigray region has moved ahead of the other regions in terms of emphasis on natural resource management, the relatively low attention given to this activity at federal level has suppressed regional motivations. This is manifested by low budget support from the federal government to finance natural resource management activities and also low policy support. (For example, the Federal Forest Policy is lagging behind the regional aspirations)

The discussion with key informants in the BOARD of the Amhara region revealed the blurredness of the laws, which has contributed to the degradation of natural resources. This include the rights of users, be it individual or communal. For example, since land is owned by the state and government and that users rights are not clear to reward the user who practice soil conservation practices, it has contributed to the degradation of agriculture land. According to the experts in BoARD about 37% of previously farming land has been degraded or affected by toxic chemicals (fertilizer or pesticides) and either becomes out of production or produce marginally. Because of this the regional government is currently forced to launch a reclamation programme which introduces lime to treat the degraded land. Similarly communal lands (grazing or forest) have also been used unsustainably, again partly due to lack of clarity of the laws and partly due to lack of appropriate knowledge and modern management practices. Besides, land use

<sup>41</sup> Mostlly these conservation activities are run by recurrent budgets.

problems are rampant since the laws have not been properly implemented. For example, land that can be used for crop agriculture is covered with trees (mainly eucalyptus). Hilly and mountainous areas when they are supposed to be covered by agro-forest crops, they are farmed and grow grain crops. This is because the land law is not explicit enough to inform the user about proper land use practices.

In TNRS, the Tsegedie woreda ARD staff said that there is a serious land use problem in the woreda. Areas with 75% slope are being farmed and such practices are causing a huge destruction of natural resources. The ARD office has tried to educate the farmer to use their land appropriately and to stop *Mofer zemet*, but the farmers are not accepting what they are being told, primarily because of increasing shortage of farmland and absence of alternative livelihood sources. The experts also said that it is not only implementation, but some of the policies and strategies also have context problems. For example lack of coherence between land lease and land use. Sometimes they are copied from other countries without thoroughly assessing the local conditions and situations. For example on matters related to land lease. The policy allows land lease but it fails short to explicitly state whether a crop land can be leased for tree planting. This could be an investment by the leaser which in the mean time leads to the reduction of food crops growing are and in turn negates the national food security strategy. Moreover, there are problems related to land allocation. In this regard, expert opinions indicate that some farmers own relatively large size of land (up to 3 ha) while they don't have oxen for tillage. On the contrary, some farmers who are with higher capability (e.g. in terms of draft power and labor) own very small land (less than a hectare). This could reduce the overall production efficiency in these areas. Although informal land markets (such as rental contracts) may reduce gaps in access to farmlands, their contribution to efficiency improvements is rather debatable.

### ***5.3 Lack of coherence in existing policies and strategies***

According to regional experts, lack of coherence in existing policies and strategies is emanating mainly because when they are designed they are not participatory. They follow mostly top-down both in formulation and implementation approaches.

In 2004/05 there was a movement to enclose mountainous areas for rehabilitation programme. The movement did not last long. In 2005, during the election period when government retreated from policies and strategies which were not accepted by communities, the enclosures were destroyed. This was because from the very beginning the community did not participate. Put differently, it is not because the community is totally opposed of conserving natural resources or rehabilitating of degraded mountainous areas. Rather it was because of lack of prior awareness creation and participatory approach. It is not only on such natural resources conservation practices but also in other development projects which are designed without communities' participation that good projects in theory are failing in practice. For example, the Woody Bio-Mass project was studied at the Federal level and designed to cover 31 woredas within ANRS with a total budget of about Birr 144 million. But because of the resistance it faced at the grass root level, it failed. This is simply because it was not participatory from the very beginning. There was a case of another development project in ANRS which was designed from the top and sent to the grass root level when the later has no prior information. This project//which content was designed in such a way 54% of the resources to be covered by the beneficiaries, 6% by the government and the rest from the World Bank. This was not implemented since the first two were not prepared for it. Simply these findings indicate that participatory approach should be embraced if development projects have to bring positive and sustainable changes in mountainous rural agricultural areas.

The problem of participation is not only at mega projects level. It is also manifested in the planning and implementation of government's regular activities. Most of the development activities are done through

the government recurrent budget. More than 50% of this budget goes to salaries. The programmes and projects run with government recurrent budget often fail to be accompanied with proper and adequate PM&E system. Activities are not planned from the local government up to the top level with participation which eventually pave the ground for follow up and accountability. Interviewed experts in various bureaus agree that it is good to decentralize development activities implementation and give more authority and responsibility to woreda administration. But at the same time there should be a clear guideline on how to plan, monitor and evaluate starting from kebele up to regional level. Besides, there is no coordinated development activities planning and implementation among regional, federal governments, as well as NGOs and donor communities. For example, there are uncoordinated efforts on forest development and protection interventions.

#### **5.4 Market Infrastructure, Cooperatives, Trade and Industry**

Core policy and strategic issues in view of socio-economic aspects in mountainous regions revolve around infrastructures and trade and industry. Socio-economic infrastructures are foundations for SARD-M. In this regard rural roads, water, electricity, telecommunication, education, health is at the hub. The discussion with key informants at regional, woreda and specifically during FGDs indicated that development interventions that have taken place at grass roots level are mainly school construction and health post expansion. They revealed that the present policies and strategies, and specifically the ongoing regular government interventions in the areas of rural roads, water supply and sanitation, schools, and health centers building are appreciated and accepted by the rural communities though they are still far from meeting the demands of rural communities.

##### **5.4.1 Marketing and cooperatives**

In recent years there are attempts to introduce contract farming with industries, and trying to put appropriate and adequate marketing infrastructures such as storage and cleaning facilities and finance through credit arrangements, specifically via marketing and service cooperatives. The extension department of BOARD is now expected to work together with the marketing department of the bureau. Quarantine and inspection is also becoming part of the integrated extension approach. All these are encouraging trends.

In terms of improved production and marketing practices the ANRS Cooperative Agency and the Amhara Credit and Saving Institution (ACSI) are bringing positive changes. Of course there are complaints that the credit limit, which is Birr 5000<sup>42</sup> per farmer is becoming a source of complaint since given the current trend of prices it is not enough to procure adequate inputs/services to bring a change at small holder farmers level. It is not only the smallness of the credit amount which is a source of complaint but also the amount of interest the lender is paying. The effective rate goes more than 13% while the formal bank rate is close to 8%. While MSEs have access to credit at present, the federal regulation on MFI (proclamation No. 40/1996) allows MFIs to provide credit on group bases. This blocks those MSEs entrepreneurs who may demand credit on individual bases. Moreover, the group collateral system may push innocent clients away from the credit scheme after the incidences of loan default.

In TNRS agricultural input supply has improved partly because of the improvement in regards to rural credit. In this regard, Dedit Credit and Saving Institution<sup>43</sup> (DeCSI), is playing a crucial role in reaching remote and mountainous rural areas and the poorest segment of the society.

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<sup>42</sup> Equivalent to USD458 using the January FOREX rate.

<sup>43</sup> An NGO established with endowment fund.

The Cooperative Agency of ANRS, which is under the BoARD, currently facilitates for the establishments of voluntary marketing or service cooperatives or one handles both tasks. It primarily does awareness creation and when interest arise from a certain group of a society then they assist them by conducting a socioeconomic study that can give a footing (benchmark) for the cooperative to be established. Since there is shortage of land and increasing number of youth in rural areas, cognizant of this the Agency brings together the youth and orient them what they can do, if they put up their efforts in a collective manner, to conserve the environment and natural resources while also generating income. Because of this there are cooperatives that have started and contributing for sustainable use of the environment and natural resources in rural agricultural mountainous areas.

The Agency revealed that such cooperative activities, however, require a continuous monitoring of their management, pricing, finance handling and the like. There are already cases of corrupt practices. Particularly, there are instances where some of the elected executive committee members, i.e., the management, miss-handle the cooperatives money. Partly corrupt practices happening because the cooperatives are located in remote rural areas where banks are not available and members of the executive hold a big amount of input or product sales money in unsafe coffers. This exposes them not only for internal corrupt practices but to lose the money for bandits while transporting it to a place where bank services available. In these cases the Agency assist the cooperative to take legal measures on those who embezzled. The Agency believes that there is a lot to be done in the legal system to handle such cases. Recently, the experts said, the government is putting in place a lawyer at woreda level being cognizant of such problems.

#### **5.4.2 Rural Roads**

Rural roads are essential for sustainable development in both rural and urban areas. Roads are means to strengthen rural-urban linkages. Roads can be categorized in to three types based on who is responsible for their construction and maintenance. These are federal level roads, regional level roads, and woreda level roads. Federal level roads are those roads, which connect one region to the other, or even to neighboring countries. These roads are entirely taken care of by the Federal government. Regional level roads are those connecting woreda and zonal towns of the region and are constructed and maintained by the budget allocated from the regional government. In fact, the federal government also provides some subsidies for the region to cover maintenance expenses of the regional level roads. Woreda level roads are meant to connect rural kebeles to woreda urban centers. These roads are constructed by the budget allocated from woredas, using the federal safety net program, or by the public free labor contributions.

Proclamation 117/2007, the legislation to establish Rural Roads Authority in TNRS, and Proclamation 80/2003, which is a similar Proclamation for the ANRS gave the authority for rural roads construction in both regions. The Authorities staff in both regions said that they make 5 year road construction programmes with a 3 year action plan.

The RRAs in ANRS said that road construction is by and large costly, but it is more costly in mountainous areas than elsewhere. Rural roads construction is often budgeted with a unit cost of 850,000-1,200,000 Birr per km for DS6 (RR30- 50) road types. The highest unit cost is for mountainous areas. Mobilizing and transporting heavy equipment and machinery to these areas is costly. Till recently because of this and also because of little economic activities the attention given to mountainous areas was low. Recently this is changing and difficult areas such as Debrework to Mekaneberehane; and Mintamer to Meskemetehebela in Amhara region are getting rural roads constructed. Where roads are constructed the living situations and the sources of livelihood are changing with changes in economic activities. Because of this and other social service needs, there is an increased demand for roads from various communities.

The authority prioritizes the request on the basis of three criteria: Population size; economic, particularly industrial, prospects; tourism and related potentials. According to the region's economic advisor the Region together with the Federal government is constructing roads to connect to neighboring regions and neighboring country, the Sudan. These have a positive spillover effect on the mountainous areas. Even through the region's regular rural roads programme, road networks cover all woredas (without differentiating whether the road is all-weather road or not), except two woredas out of the 128 woredas within the region. He also emphasized that the PSNP has also contributed to community roads works and other natural resources and environment protection measures.

Road construction is also extensive in Tigray region. According to the RRA officials currently all woreda centers in the region are connected at least to one urban center (which could be a zonal town, an adjacent town, or Mekelle town<sup>44</sup>). Only about 30% of woreda level roads are all-weather roads. But this percentage varies from woreda to woreda. For example, in one of the study woredas, Adwa, out of 18 kebeles in the woreda 17 kebeles has road and out of these only 2 of them have all-weather roads. Some criteria are used in allocating funds for road construction and maintenance namely, the potential of the area in terms of agricultural productivity (i.e. more to highly productive areas), the status of food insecurity (i.e. more for food insecure areas), access to other services such health and education (i.e. more to deprived areas in terms of services), and other criteria. Although it is early to evaluate the impact of roads in the region, according to the key informants, there are some signs of positive improvements in rural areas. For example, the urban-rural linkage is getting stronger arising from a faster flow of goods and services between urban centers and their adjacent rural areas. Some rural areas have started to grow perishable products (such as fruits and vegetables).

Of course when roads are constructed some farmers may have to be evacuated permanently or temporally either from residential or farm plots. In order to avoid the negative effects the RRA works closely with the woreda administration so that the evictees can get either a substitute land, compensation or both as deemed necessary. This issue is also clearly stated in the two regions RRAs establishment proclamations. Article 6 (18) of Proclamation 117/2007 of TNRS puts an obligation on the authority to pay compensation in accordance with the Federal law (Proclamation 455/2005) for the loss of individual landholdings as well as other properties on the landholdings expropriated due to its projects. Article 6 (18) of Proclamation 80/2003 of ANRS, has provisions similar to those in the Tigray Proclamation.

In both regions it was revealed that expansion of roads is a work which is indispensable, but has also a negative effect on natural resources and environment that calls for an apt measure. For example in TNRS it was reported that expansion of road-network has some side effects on the environment which include: deforestation, change in natural landscape which may increase soil erosion, pollution as a result of dust created by vehicles driving on non-tarmac roads (which is very much critical for the people living across such roads). Because of these effects in TNRS, a new guideline is being prepared to reduce the environmental effects of roads in the future. In ANRS, it was reported that though there is no special programme for road construction for mountainous woredas, because of the nature of the landscape there is some precautionary measure that is being implemented when roads are constructed in these areas. Retention walls or stone bags are used to minimize erosion effects after construction. However, RRA has not formal incorporated conservation activities in its road development plans. Thus, our key informants suggest that RRA should give attention to the natural resources rehabilitation (soil conservation practices and tree planting) as part of its budgeted activities which can be implemented in collaboration with other stakeholders such as woreda administration, specifically the ARD office and the community at grass roots level. The community can contribute labour and to some extent material while the technical inputs and support can be made by the woreda ARD Office.

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<sup>44</sup> Mekelle is a capital city for Tigray region.

### 5.4.3 Water Supply

In terms of policy and strategy, Regional informants revealed that there is no unique policy designed for mountainous areas. Core for such areas is the water supply and sanitation programs. Residents in the study regions reported the use of different water sources like rivers, springs, hand dug wells, etc... for human and livestock population. Till recently very little emphasis on water supply works is given for mountainous areas. This was not only the case of government works but also by NGOs. Recently this is changed, at least on the government side. The current five year strategies and programmes include all areas so long as they met prior set criteria. For example, in ANRS BoWR the criteria they are applying to prioritize requests by needy communities are:

- Water coverage, at least whether they have had the amount agreed by the MDGs Universal Access Programme,
- If it is a woreda capital and does not have potable water,
- If the community or an NGO requested the service of the bureaus either to conduct the study or engage in the water supply scheme with a matching fund arrangement

Of course even after the above processes they will put in place mechanisms for sustainable use of the water supply scheme (drinking water, washing basin, and cattle trough) via observing the following points:

- That the request has to come from the community/local administration
- The community/local administration gives statement of participation and commitment to provide labour, and financial contribution, as well as ready to take the responsibility of managing the water supply infrastructure (including repair and maintenance). The labour could be for digging, or delivering materials, or preparing access roads during the construction period.
- When the community presents the request they will be informed that they will not get access to drinking water unless they prepare individual and where appropriate collective latrines.

Key informants revealed that in mountainous areas it is not easy to get springs or hand dug water supply points. Often the residents (mostly women) need to travel long distances to fetch water for household consumption. . These areas are often in the adjacent lowland areas, difficult terrains, to take out water from the source and distribute to the community with motorized energy sources. Moreover, most of the areas identified for their underground water potential are in accessible by cars to transport drilling machines. Despite these difficulties recently effort is being made to let such areas get drinking water supply. For Example, in ANRS Aderkay woreda, in North Gonder Zone, received such services after the water bureau and woreda administration put up their efforts together and spends about 8 million birr.

In ANRS they use a CDF (cash direct fund) approach. Since this approach requires contributing to the finance directly, in turn it paves the ground for sustainable use. Currently they have studied about the water supply situation of each kebele in the different woredas of the region. On the basis of this whether the woreda administration requested or not, they prioritize the woredas and prepare an annual plan and budget and submit for the government regular budgetary appropriations. When the woredas put up their request they also check whether they were considered in the annual budgetary allocation for water supply works.

In different places, participants in FGD mentioned that, in recent years the number of water points developed by the government and NGOs is increasing but their distribution at kebele level is inadequate and the subsequent work on their maintenance often does not make them sustainable. This was also supported by the survey results as reported in section four earlier. Hence there is a need to revisit the water development, management and use in these areas.

#### 5.4.4 Trade and Industry

The regions do their trade and industry activities on the basis of the Federal Trade and Industry Strategy document. The lead strategy of the country is the Agriculture Development Lead Industrialization (ADLI). Actual region specific program implementation is done on the basis of a five year plan which is in line with the PASDEP period (2004/05-2009/10). The officials in the BoTI said that there is no problem in terms of written policy. The above mentioned and related policy and strategy documents (for example RDPS, and Capacity Development Strategy) state that the private sector is the engine of development, the focus should be on factors of production that the nation, and the regions specifically, have a comparative advantage. These are mainly land and labour as extensively discussed in RDPS. In general there is no much problem on the policy. The problem is mostly on the implementation phase. The strategy is not clear on how the backward and forward linkage within and between agriculture and the non-agriculture industry is to be established and sustain.

For agriculture to lead the industrialization of the country ARD efforts should be geared to the extent of availing free land for investment purposes, facilitate for investors access to credit, reduce or exempt taxes. All these are in the policy document but in practice they are often confronted with complaints including delays of action, corrupt practices, and unpreparedness from implementing agencies side. For example to avail the said investment land or ensure a sustainable supply of raw materials be it crop or livestock.

One of the informants said that when it is said that there is no problem with the policy but on implementation, one of the problems in the later aspect is that very little is done to change the attitude of all partners (stakeholders) in the implementation of the policy. Mostly once the policy is out and the strategy is set the focus is on the drafting of laws and regulation and tightening on the controlling of the programmes during implementation. During implementation, little attention is given to the handling of support staff within the GO system and how to work in cooperation with other stakeholders. It is also a common practice to set things as goals when they are not by themselves end result to bring actual change in production and productivity growth. For example “land giving to investors’ should not be looked as a goal by itself. Still by some agencies it is considered as a goal by itself. The goal should be the change the land receiver is making by combining this resource with capital, labour and technology and the increment it yields in the goods and services production and value adding and not the amount of land given to the investor.

The production system in rural agricultural areas is not conducive for marketing. The production system does not differentiate between producing for *immediate market needs* and *sustainable supply* for the market. When investors come and invest on a slaughter house that requires 1500 sheep and 1000 cattle per day there is no preparation made from the production/supply side. This is at present the case in ANRS where Sudanese investors invest on modern slaughter house but confronted with the paucity of supply of animals. The backward linkage was not well studied and established to have a sustained input to the house. Similar incidences have been observed in the flour industry. Because of this quite a number of flour factories were closed. This is because of the production and pricing system which neither gives the producer raw materials sustainable ground to produce nor the buyer (factory) to sustain in the business.

On the other side for those small farmers who are expected to produce and supply the raw materials for such industries the policy states that institutions will be established and their capacities strengthened for them to get appropriate and improved agricultural technology so that they can make use of it. For the technologies, agencies will be in place to multiply and distribute by making rural transport cheap and efficient via facilitating two way traffic services. All these are mostly in paper and no significant change is made on the ground except having few millionaire farmers who started from small scale activities and grow to such high level of capital accumulation.

The policy and strategy documents also encourage farmers to concentrate on cash crops, such as horticultural and investors to engage in agro-processing activities. Again a lot remains to be done in this regard.

According to some of the officials in the BoTI, there is a need for a serious strategic thinking, programme designing and promotion at regional level after the policy is set at Federal level. Particularly private sector capacity building and encouragement to take leadership position in technology promotion and use needs some work. Most of the time it is still the government which is exerting effort to promote new technologies in rural areas and the private sector picks and expands it if becomes successful i.e., after the demand is created. For example, the Fogera water pumps case, the private sector picked the technology and start importing and selling it after the regional government invest in the promotion of the technology. Private investors need to go and make supply and demand studies both in agricultural inputs and products and enter in to expansion of existing or creation of new investment ventures.

Till recently very little attention has been given to the role of Micro and Small enterprises (MSE). Had the focus to MSEs started close to the start of the development intervention in rural agricultural areas following the issuance of RDPS, by now a lot might have happened in changing the entire picture of the these areas. According to the ANRS BOTI officials, industry based growth centered activities such as those related to metal works, Wood works, Food processing, and arranging the necessary finance sources (credit) in these areas started in the last two years. Now there is a plan to use TVETs to support the emergence, growth and expansion of MSEs. For this beginning to lead to a sustainable transformation of rural agricultural areas to rural industrial areas there is a need for setting rewarding mechanisms to encourage those who started with small capital and reach to a millionaire so that others can be stimulated and follow. Currently the government is giving a guarantee for MSE to get loan. But preparation is needed how to sustain this when those requesting become large in number and ask in millions Birr. In ANRS there is thinking within the region to establish a guarantee fund.

In TNRS MSEs<sup>45</sup> currently are considered as essential springboard for growth, reducing unemployment and, in general, to bring a broad-based and sustainable urban development. Hence, they are given due attention by the regional government which includes, among others, provision of trainings and credit for the emerging entrepreneurs in micro and small-scale business. In regards to trainings, urban extension workers have been trained and assigned in different towns of the region to provide business development services (BDS). The BDS program includes trainings on business organization, business plan, financial management, accounting system, and sales management. TVET centers have a crucial role in producing new entrepreneurs in various skills such as building, electronics, and auto-mechanics. There exists also a specialized training center for MSE in Tembain which is currently supported by GTZ. Most of the MSEs have been linked to DeCSI that enables them to get access to credit. In 2008/09, DeCSI has planned to provide a loan amounting 300 million birr to MSE. In most of the urban areas of the region working and business premises have been demarcated and allocated to MSEs. This favorable support from government and NGOs resulted in establishment of large number of MSE in different towns which run business in various sectors such as retail trade, construction (e.g. construction of intra-town feeder roads or chiseling of stones for such purposes), and agro-processing (e.g. dairy processing). In general, MSEs are expected to create about 40 thousand new jobs in Tigray in the year 2008/09.

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<sup>45</sup> Micro enterprises are those enterprises with paid up capital of up to 20 thousand birr whereas small enterprises those with paid up capital ranging from 20 thousand and 500 thousand (Tigray Regional State MSE Development Agency, MSE Strategy Document, September 2000, Mekelle).

The BoTI in both regions have different activities to attract investors in trade and industry related agriculture and rural development as well as to link farmers to or change the farmers to trader and investor based non-farming businesses. In ANRS BOTI officials said that some donors are assisting the transformation of farmers to trader and investor. For example SIDA gives support for women income generation activities in rural agricultural areas. It is supporting efforts to modernize agriculture in South Wollo and East Gojjam areas. The bureau also facilitates for traders and non-farming business community in rural areas to have access to credit. The BOTI also follows up the efficacy of existing trade and industry related regulations and when needed initiate a revision. It also supports investors' exertion to get land for investment purposes. The bureau is also engaged in the private sector capacity building activities.

Most officials and experts say that for sustainability started trade and industry activities in rural areas, close monitoring need to make sure most who receive credits do not turn out to be defaulters. Training should be arranged and guidelines should be set to create markets that are holding and linking one to the other on the basis of *standardized products*. There can be *a web marketing system* where many producers and suppliers of standard products can channel their products to garner sustainable and reasonable profits. Standardization also create an advantage of scale and size economies in terms of using available human resources and capital to move products from farm gate to different markets. For this in the strategy and program design, appropriate education and training interventions should be crafted for filling in knowledge and skill gap, as well as to create conducive work environment for the support staff in the government system. Standardization could be done for the small artisan and handcrafts workers of the many rural and small urban centers as well as for crop producing farmers. For example, according to the marketing expert in ANRS BOARD, in the past in the grain market major urban centers, if the grain (teff<sup>46</sup>, wheat or maize) supplied to the market was from Gojjam/Gonder, traders used to simply weigh and pay the price agreed on without ado as it is packed by the farmers themselves. Now a day's traders ask the farmers to unpack and clean it at traders premise before weighing and negotiating on the price. These calls for processing, specifically grading, farm produce so that producers can sale their produce easily at any market. In this process in addition to being cumbersome, there could be weight losses.

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<sup>46</sup> Teff is a small cereal grown in the highlands of Ethiopia

## 6. Urbanization and the Rural Urban Linkage

### 6.1 Urbanization

The governments at different tiers of the two regions have started to give attention to the dynamic urbanization process which is catching them without preparedness. In deed regional and local officials are concerned at the unprecedented speed at which urbanization is occurring. Besides regional states, like TNRS, in the current five year plan is envisaged to make 50% of its population urbanized within five years. This is an ambitious but positive plan compared to the current nationally urbanized population which is about 17% of the total population. The rapidly occurring urbanization in both study regions is influenced by the internal urban socio-economic dynamics as well as the socio-economic dynamics of the surrounding rural areas. In the last ten years the expansion of agriculture and non-agriculture industrial and commercial enterprises in rural areas has led to the emergence of several new small urban centers and the expansion and growth of existing ones.

Agriculture and Rural Development Bureau staffs in the study regions and woredas complain that good agricultural lands are being swallowed up by urbanization. Farmers who are expropriated complain about the lack of substitute land and where compensation is paid about the inadequacy of the compensation amount. They argue that there must be a way of making persons who are expropriated benefit in a more sustainable manner from the urbanization that is taking place. Giving landholders' compensation is good but measures must be taken to prevent such landholders from descending down to the bottom of the poverty ladder for lack of technical and business know-how about investing the compensation money received in productive activities. They propose that emphasis should be made in the creation of institutional arrangements and mechanisms for dealing with the social impacts of expropriation caused displacements due to the urbanization process.

In general, according to the regional and local officials, the major problems caused by urbanization are due to the existing regulatory gaps. For example:

- Agricultural lands are shrinking from time to time because of urban expansion, but large portions of such lands remain unutilized, there is a need to have an appropriate approach on how and when to displace the landholders and promote urban based activities including real estate development.
- The lack of coordination of both the expropriation process and the post-expropriation implementation between the urban and rural land administrations has been the cause of numerous problems particularly between the agriculture offices and municipalities.
- Woreda administrations do not have essential data and information about landholding rights, which would avoid unnecessary confrontation between farmers and the rural land administrations on the one hand, and the urban administrations and the investors on the other. This points to the important need for an information system (including a database) on landholdings and related issues,
- Urban administrators recognize the need for coordination with the rural administrations regarding speculative actions by landholders resulting in the virtual sale of their holding rights. The officials also believe that in cases where there are disputes between urban and rural administrations regarding urban expansion, including whether rural land should be expropriated for urban expansion or not, there must be a mechanism for higher government organs to intervene and make a decision to end the dispute.
- There are no clear directives about rural landholders who become incorporated into the town limits. It is not clear whether the landholdings which have fallen within the new town limits should continue being considered as Woreda governed until actual taking of their farmlands, or as being under the jurisdiction of the respective urban administrations/municipalities. Sometimes

members of rural farming communities may fall within a town's boundary and still be under their respective rural Kebele administrations. However, as the actual urban development expands the rural Kebele administrative structures change into urban Kebele administrations under the respective urban administrations.

## **6.2 The Rural Urban Linkage**

The issue of rural urban linkage (RUL) in Ethiopia at large and in these two regions specifically is becoming highly important in various bureaus visited: the BOWUD, BOTI, Municipalities, and BOARD. Of course, the officials in these bureaus said that till recent time the focus was on rural areas. It was after the 2005 (1997 E.C.) election emphasis is given to urban centers. The officials said that PASDEP contain elements of RUL which give emphasis to improve marketing institutions, expand road and electricity infrastructure.

In mountainous areas linking agriculture with rural development initiatives and both to the emergence and growth of small urban, and where feasible to large urban centers, is inevitable. This could be affected if and only if the governments at different tiers are aware of the unique problems of these areas and give special emphasis to the required solutions. RUL is poor because of lack of social and economic infrastructure. They are constrained by lack of market infrastructure including ITC. Lack of adequate information flow equipment and system has exposed farmers to be exploited by unscrupulous traders.

According the BoWUD head of ANRS there is no unique policy document on RUL. Policy and strategy documents such as RDPS, Industry Development Strategy, and the Urban Development Policy contain the important policy and strategy issues in this regard<sup>47</sup>. In the region there are 236 recognized urban centers. These are also kept in terms of their levels:

1. Metropolitan areas (Dessie, Bahirdar, and Gonder)
2. Mid-level centers
3. Low level with urban administration
4. Major municipality towns
5. Minor municipality towns
6. Developing towns
7. Emerging (*tinseses*) towns

In TNRS there exist 138 urban centers out of which 12 are chartered towns having administrative structure independent of their surrounding rural areas. Fifty-two towns have municipalities while they share woreda-level administration with the surrounding rural areas. The remaining are emerging towns which are on the pipeline to get the municipal status.

In the past the level of urban centers used to be revised every five years. Now it is every three year. It used to be that for a small town to qualify for any standard of a municipality, it should have a population of at least 5000. Now this has changed and any woreda capital is considered as a municipality and the necessary work has to be done accordingly. In the past those towns which can get a plan were those that are recognized as towns by established criteria of the bureau. Now this has changed and even if they are not recognized officially as towns, by looking at the trend of their development, town plan is being prepared for them.

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<sup>47</sup> For detailed discussion on the current state of knowledge about RUL in Ethiopia, please refer to the various articles published in Gete et.al 2006b.

The regional support, specifically the human resources and budgetary allocation is done with a formula that takes in to consideration the above classification. In addition to this formula approach, for example the ANRS government, starting 1999 E.C. (2006/07) fiscal year allocates 200 million Eth Birr to support the urbanization process in the metropolitan areas. For example, in and around Bahirdar many investors come and require services including land. The urban administration should be able to compensate to those whose land or property is going to be affected. Hence Bahirdar may get a good chunk of the 200 Million birr. Those urban centers at the lower level do not get direct financial support. They get support in the area of plan works, and the like. This type of intervention by the regional government will further be strengthened when the recent study completed by the regions Investment Agency (IA) starts its implementation phase. The Investment Agency, which classifies the region in five development zones, has taken in to consideration the potential that exist in rural areas and what should be done in this regard. The study has identified growth centers which are revolving around Bahirdar-Gonder; Metema-Kuara; Tekezie Basin; Dessie-Kembolcha; and Debrebrhan area. These areas expected to influence and lead the growth of their surrounding rural areas by establishing the necessary infrastructure for strong RUL. In addition to this, specifically in South Wollo and East Gojjam market related studies are being conducted with the support of SIDA. Similarly there are elements which address issues related to RUL in the Capacity Building Strategies Document. There is also work done by the GMP office in terms of identifying problems of RUL and giving recommendations to solve them.

Of course according the staff of BoWUD, in ANRS small urban centers administration has to work to provide basic infrastructure (roads, water supply, sewage disposal, electrification, market place etc.) construct storage/warehouse facilities to their residents and support private sector to embark on various investment activities. For these urban centers to do these, the regional government does the following:

- assist them to get rid of bottlenecks hindering their revenue generation capacity and ability,
- Support them to put in place stores, roads, market sheds, pack animals keeping areas, toilets etc.
- For the emerging and developing urban centers prepare town plans ahead, give them experts to assist them in this regard, allocated some money from the woreda revenue, and create an opportunity for them to increase their own revenues.

Apart from these, according to the officials of BoWUD, the linkage between development in small urban centers and investments designed to bring sustainable RUL has to be looked from different perspective. The officials believe that in promoting urban development there is a need for balanced but centralized planning and intervention. The current practice, and which according to the key informants will continue, is that urban development action plans are conceived and worked from top. Rarely planning is done bottom up. However, this does not mean there are no development works that are initiated in view of the micro environment and done by the local community at small urban centers level. Such is done on the basis of the resources available and the way resources are garnered.

In addition to what is being done by BoWUD, other sectors' planned activities, for example that of BoH and BoE are integrated at grass root level and are becoming means for strong and sustainable RUL. For example, the present Health Extension Programme has 16 Package including the construction of toilets, water supply, sanitation etc both at household level and in places where people assemble for various socio-economic activities such as market places. These are strong linking factors between the rural and urban community.

The urban development policy of Tigray is entirely adopted from that of the federal government which envisages that Ethiopia's urban areas provide efficient and effective public services to residents, compliment and facilitate rural development, are models of participatory democracy and build accelerated

economic opportunities that create jobs. In these regards, five intervention areas have been selected at regional level in accordance to the Federal Urban Development Policy issued in March 2005. These are: (1) expansion of micro and small enterprises (MSE), (2) housing development, (3) land and infrastructure provisions, (4) social services, and (5) urban planning and environments.

In the context of RUL, despite the existing favorable environment for the development of urban centers footed on the economic activities of the surrounding rural areas, there are some notable obstacles. *Urban poverty is still* the major challenge. Policy-related *bottleneck on MSE development* also become obstacles. For example, the double standard imposed by the Ethiopian Investment Regulation on MSE. While it provides tax exemption for private enterprises on imported capital goods, those enterprises with operating capital less than 250 thousand birr are out of the privilege that discourages the majority of MSEs. The taxing system, which is based on subjective assessments of the experts of the revenue departments, is also not good for healthy development of MSEs. For example, it creates a room for personal biases. (In this regard, encouraging and supporting MSEs to exercise modern accounting and record-keeping procedures is essential to realize fair taxing system.) In addition to these problems, lack of sufficient capital, shortage of marketing network, lack of training, small loan size, lack of working premises, and poor quality output which has reduced acceptance in the market, among others are the challenges to MSE development in Tigray region.

### **6.3 Diversification, Intensification and Alternative livelihoods**

It was stressed by key informants and FGD participants that in mountainous areas land shrinkage is becoming serious problem due to bush encroachment, expansion of crop farming, settlement and population growth. The transformation is putting a challenge to government development intervention both in terms of type and size. The overall trend is decrease in the size of communal land. Key informants in the different study areas pointed out that, common natural resources pastureland is denuded due to prolonged drought, trampling and bush encroachment. This invites for diversification, intensification and search of alternative livelihood sources.

In the two study regions rural areas the major sources of income currently are: crop sale, sale of livestock, handicrafts, petty trade and employment. Preparing and selling local food and drinks is the major form of petty trade while making traditional household materials (like *mesob*, *sefed* and *kunna*) are common handicrafts generating income in these areas. In general, according to FGD participants and development agents, diversification of production and livelihood is increasing, in both study regions. The driving force for diversification is mainly population growth, the degradation of natural resources and unreliable rainfall. The options of diversification via the use of improved agricultural inputs, livestock fattening and trade is rising. Improved apiculture is also on a rise. Charcoal burning, firewood, handicrafts, beekeeping, petty trade, poultry production, fattening, milk processing, livestock marketing, Sugar cane & sesame production, local employment, migration, trade, etc. or buying vehicles, house construction for rent, labor work and being employed in government offices are becoming common practices of diversification and alternative income sources.

The potential of forest and wildlife resources as complementary source of income to residents in mountainous areas is tremendous. But communities, due to the local knowledge of the tree conditions over a wide area, are not exploiting these opportunities. For example honey production is one economically sound activity to be exploited. Honey is a product consumed globally and it is one of the untapped products in these areas. In a situation where there is some sort of honey production, wax is not collected and marketed, it usually gets wasted. Here the residents are best positioned to exploit this resource as a source of additional income. Besides, though there is a potential for medicinal plant resource

use it is not yet developed and exploited in Ethiopia. This again can provide important supplementary incomes to residents of mountainous areas.

Several experts at regional and woreda level say that tourism should become a major source of alternative livelihood in the two regions. Wildlife tourism, commonly handled by parks, socio-cultural tourism (both in Amhara and Tigray) and aesthetic landscape value (not yet exploited) could be sources of income from tourism in these areas. Wildlife in Ethiopia majorly utilizes and relies on highlands as an integral part of their existence. The value that can be assigned to residents in these mountainous regions in the context of wildlife tourism is high. Cultural tourism is also important aspect of the tourist industry and it is growing in Ethiopia, since traditional cultures are attracting interest worldwide and the image of previous Kings, their castles and art crafts are becoming an icon. Like wildlife, aesthetically valued landscapes are of great value to the tourist industry, this sector is not well developed, organized and used. It needs the attention of the government and other relevant stakeholders for its enhancement, protection and use by the people in mountainous areas. Overall, the benefits the mountainous communities are getting from the few tourist based businesses are meager and hence local administration should intervene by awareness creation and benefit sharing schemes.

Intensification is usually designed to increase productivity by the expenditure of more capital and labor rather than by increase in scope. The shift from extensive to intensive agriculture has emerged in study areas. In the study regions the FGD and discussions with key informants indicated that fattening of small ruminants (sheep and goats) is being practiced and livestock selection among the local animals for breeding is a common practice. Crop residues are also used for livestock feeding and milk selling is becoming a common practice. There is also an increasing demand for improved seeds and other crop farm inputs.

As mentioned above, in these mountainous regions, there are practices of alternative livelihood via livestock trade, petty trade, acquiring and renting out urban property, salaried employment, firewood collection, charcoal burning, basket, mat and beads making, and tourism. However, these activities are all at their early stage of development and expansion. There is lot to be done in terms of skill training and other capacity building works. The search to alternative livelihoods, however, should be supported by government and NGOs to lead to the sustainability of the ecology. These require works related to pasture, water, forest and wildlife resources conservation; preparation of land use plan; upgrading the knowledge and skill of residents in mountainous regions through extensive capacity building programmes.

## 7. Institutions

During the study period the government institutions listed in Annex 2 have been found to influence the SARD-M. Only those institutions whose presences were mentioned during the various discussions are appearing in the report below<sup>48</sup>.

Institutional matters could be assessed in terms of the types of organization set to deal with the issue in focus, as well as the relationships or linkages among the organizations. In the context of this study, organization may refer to implementing agencies within the regional government structure, say BoARD, BoWUD, or the government hierarchy itself, i.e., Regional, Zonal<sup>49</sup>, Woreda, urban, Kebele (rural or urban) administrations. Relations refer to the functional linkage, record keeping, information and data exchange, and communications among officials and experts within the same organization or across organizations or government levels of administration, i.e., Region, Zone, Woreda, urban, and Kebele administrations. The assessment made below is based on these concepts underpinning institutional matters. Of course it is important to note that there is practically no significant rural land administration and utilization activity at the Federal level.

### 7.1 Relational Issues

The assessment of relations among organizations within a Region reveals that several agencies are involved in SARD issues at regional level, BoARD, BoWUD, BOTI, IA, are organizations. BoARD has the responsibility to administer rural land and BoWUD implement the policy and strategies related to urban development. Sometimes the two become in conflict on handling land issues when the expansion of urban areas encroaches rural agricultural land. Similarly BoARD/EPLAUA with IA on land issues for investment purposes.

As discussed in section five of this study report the two Regions has similar approaches to providing for the institutional organizational set-up for rural land administration and utilization activity. In Amhara there is EPLAUA directly accountable to the Regional Administrative Council. While in Tigray, EPLAUA is under the Bureau of Agriculture and Rural Development by virtue of Article 7 (2) of Proclamation 94/2006. The powers and duties of these entities with respect to rural land can be summarized as follows:-

- study and record the land type, characteristics, use and size
- study and determine land use in the Region;
- provide certificates of holding rights
- administer and follow up the utilization and evaluate the effectiveness of rural land utilization
- collect and provide information to users related to land
- ensure the implementation of directives and regulations issued concerning individuals/organizations given land use rights to transfer their certified land to others by inheritance/rent

<sup>48</sup> Of course one may expect that all the Federal nineteen sector ministries to have a replica at region and woreda levels. But those listed in the annex are those whose role has been mentioned during the survey, FGDs, and discussions with key informants at woreda and regional levels. There are also NGOs, Societies like REST, and donors such as SIDA, GTZ whose presence was mentioned during the study. Indeed there are several NGOs and donors<sup>48</sup> organizations which are active in rural agricultural areas of Ethiopia today. Listing all will be a daunting task. Besides, there are several private sector organizations that are operating in rural agricultural areas.

<sup>49</sup> Zone lies below regions in formal administrative hierarchy.

- study ways and means of rehabilitating displaced farmers in a sustainable manner in cooperation with other relevant organs, and ensure that they are rehabilitated as well as prepare and ensure the implementation of guidelines for this purpose
- Cause the issuance of a tax system which takes into account the potential fertility of each plot of land and submit recommendations to the relevant body.

The discussion at regional council level revealed the difficult situation in terms of doing things in an integrated manner. Most doubt what is being done is sustainable. Real participation of communities and local administration in works done around watershed areas, during road construction etc is minimal and a lot remains to be done in this regard. For example, in terms of land use and environment protection the ANRS has issued, through EPLAUA, regulations and directives but often which are not used on the ground. The major problem in this regard is that there is weak coordinated planning monitoring and evaluation system put in place starting at the regional council office level.

Part of the relational problems among regional bureaus and agencies is related to lack of clear institutional structures or the sustainability of the institutions established to administer and regulate rural land and its use. In Amhara, the administration and use of rural land is clearly the responsibility of EPLAUA, while in Tigray, it is shared between EPLAUA and the Regional and local governments. Such arrangement creates confusing situations for landholders as to where they can take related administrative complaints if such a need arose. Furthermore, it may create conflict of interest where the implementing agency has also to assume regulatory roles. This is potentially a situation where EPLAUA, the regulatory arm, and BoARD, also an executing organ for various development activities and projects, could find themselves.

For example in ANRS there were incidences that IA has to request EPLAUA to identify or get rural land for investment purposes. EPLAUA has notified in writing that investors getting investment licenses are not automatically entitled to get land or the license does not give them a guarantee to get investment land. This has made IA to push further and request that EPLAUA identifies rural land that can be used for investment purposes and for the IA to take delivery of such lands and administer them as per the request by the IA to administer investment land once properly designated by EPLAUA. While EPLAUA has accepted the need for identifying potential rural land suitable for investment, it argues that it is a task which requires a project approach. Such cases may even become more complicated when, for example, the land use component of EPLAUA is transferred to another bureau which has no direct link with it, as it is currently considered in ANRS.

In most of the visited Woredas, the relationship between the Woredas, which administer the rural areas and the urban administrations/municipalities which are responsible for the running of urban centers is far from being congenial. The expansion of small urban centers and the measures the current urban administrators are taking are not transparent and do not follow formal procedures according to some Woreda level experts. It is important to point out that in some cases the Woreda administrations side with the rural residents and confront municipalities on matters related to expropriation and compensation. It is also important to note that it is not only the contradictory positions between the Woreda and urban administrations that create institutional difficulties to handle the issue of rural land expropriation for township expansion, but also the relationships among the different institutions who have their base in the urban centers including Trade and Industry, Works and Urban Development, as well as the Zone Administrations, in some cases. The specific interest/purpose and the poor relationships among these adversely affect the work of both rural and urban administrators on matters related to rural-urban-linkage.

Metropolitan cities like Bahirdar in ANRS have also established an Urban Agriculture Office (UAO) which again lacks clarity in terms of linkage activities with neighboring rural areas and for that matter with the BoARD. In general the linkage of the urban agriculture office with the BoARD is not formal and

is weak. There is also a perception problem about what urban agriculture is and what it can do and the type and amount of human, physical and financial resources it requires. Many think that there is no much work to be done by the UAO. But the work to be done in crop, livestock (specifically dairy and fattening), poultry, fruit tree planting and natural resources and environment protection is tremendous. It could have been effective if it were structured in a way to be linked technically to BoARD while administratively being accountable to the urban administration, to the mayor (*Kentiba*). Key informants in the Bahirdar UAO said that often urban administrators think of industrial zone and not agriculture zone around urban areas. But agriculture also needs attention to the industrial zone equivalent. People think of promoting peri-urban dairy but without thinking about the production and supply of forage crops. Poultry has a huge demand but no thinking of designating areas for poultry production and the production of feed for this enterprise and for others too. Urban waste would have been used to prepare inputs that can be useful in the production of inputs in the livestock business. But there is no emphasis. Fishery has a huge potential around Bahirdar but the emphasis it gets is insignificant, and some works started in the past remained to be unsustainable due to weak institutional arrangements.

## 7.2 Capacity Issues

SARD is a huge task requiring expertise in various disciplines as well as adequate capacity in terms of equipment, materials and financial resources. Capacity problems exist in agencies responsible for implementing ARD programmes and projects such as BoARD and EPLAUA as well as in those involved in social and economic infrastructure building, such BoWR, BoE, Rural Roads Authority and the like.

In terms of duties and responsibilities of BoARD the current emphasis in both regions is to realize market-oriented agriculture in which natural resources are used in a sustainable manner. To do so institutional capacity building at kebele level is being promoted. Woreda ARD is being strengthened by placing three development agents<sup>50</sup> in each kebele to provide all-rounded support to farming communities. Specifically, they provide trainings to farmers at farmers training centers (established in each kebele) and undertake farm-to-farm monitoring activities. In addition there are health extension agents who work on prevention-based health care. As a result, some positive results have started to emerge. Crop productivity is showing some improvement, there is also a visible improvement in terms of diversifying the sources of income among rural communities. For example, farmers have started producing honey for sale, which has improved their annual income. Via education, high working spirit has been created among farming communities. For example in TNRS the officials reported that the number of working days in a year increased from less than 200 to more than 300. The remaining free days are mostly religious holy days.

Although the assignment of development agents is a step forward in the ARD endeavors of the region, discussion with key informants at regional and woreda level have also highlighted the problems that are emerging and which need immediate action for improvement.

At woreda level there is a problem of integrated approach. Politics is dominant and very little attention is given to technical matters. When it comes to the agricultural extension activities, since most of the recently trained DAs are assignees to the kebeles, reflection from the farmers are that many are not working with interest and commitments. This has serious implication in terms of making the agricultural extension system function properly. The DA goes to the farmers' home or farm with curly hair and fashionable dressing which to the farmer are less acceptable. They do not listen farmers nor do farmers give attention to them. A good number of them are busy studying accounting, management and

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<sup>50</sup> For crop, livestock agriculture and natural resources

economics with correspondence college programmes and most of the time they are absent from farming areas either to study or do other business (few are reported missing even for a month) and have very little interest in agriculture. All this is happening despite the effort made by the government to put up a good package carrier structure including salary scales of higher level and opportunities for higher learning. The DAs also have had a chance to use and be beneficiaries from the FTCs. This indicates the DAs came to join the institution simply as a means of getting jobs rather than being dedicated to transform the backward agriculture of Ethiopia. According to the key informants, the new DAs also brought demoralization to the old dedicated agents since they were praised as if they are change makers and the new Ethiopia peasant agriculture transformers. Of course recently the government is reverting back to the old agents. It is important to note that unlike the agriculture DAs, the Health Extension Agents have acquired high appreciation and acceptance by rural residents at kebele level.

It is important to note also that capacity is an issue at Woreda and Small Urban Centers Administrations level. Both study regions continue to face shortage of educated and skilled staff at woreda and urban administration offices. In Woredas where big development projects have led to large scale resettlement, the regular staff, equipment, and other financial and physical facilities that the Woreda administration team uses has not been enough to undertake the complex ARD tasks efficiently, effectively and sustainably. Most woreda administration headquarters and development offices, such as ARD, are occupying shanty houses which are not creating conducive work environment for experts or for the clients, the many tax payers who furnish, with their tax money, lavish offices at higher levels, regional and federal levels.

In addition to physical and human resources capacity, financial capacity is also an important area of emphasis to have SARD-M. In all study regions, the government development interventions in mountainous areas can be classified into two broad categories. Those interventions planned and implemented through the regular government budget appropriations and those which are made after project feasibility studies and appraisals and funded by the capital budget via grants, loans, or treasury finance. In other words, the sources of finance for ARD purposes could vary depending on the nature of the development program or project and the type of financing institutions involved. The source of finance also influences the decision to embark on programs and projects that will lead to SARD.

The activities financed by GOs, NGOs, or Bilateral and multilateral donors do vary by size (for example in roads and water works, as well as by continuity of the activities). Government finances large-scale dams or other big infrastructure development projects from the central treasury or through loans and/or grants. A good example of regional government financed projects is Water Reservoir Project like the Tigray Adwa Water Reservoir Project. Among Federal government financed projects, be it from treasury or through loans, are the Koga Irrigation and Watershed Management Project in Amhara, the Tekeze Hydropower Project in Tigray, and the many trunk roads being constructed by ERA in both Regions. The project is being executed by the Region's BoWRD. These and other projects are also sources of complaints due to budgetary constraints to compensate farmers whose lands are expropriated for the projects. In most small urban centers land expropriated for expansion purposes is done without compensation. The Amhara region seems to have achieved some breakthrough in terms of financing rural land expropriation for township expansion purposes from a recently introduced system of appropriations to be included in the Region's yearly budget. For the first time in the history of Regional State, Birr 200 million has been allocated to go towards meeting compensation payment obligations for a town expansion program for 12 towns during the 1999 Ethiopian fiscal year. In order to make compensation payments from this allocation, BoWUD has developed a regional directive (28/99). This has to spill to other regions.

In Tigray, although there exists special attention for new road construction and rehabilitation of existing ones, budget is becoming a serious bottleneck to expand the road network of the region. Only federal and regional roads have recurrent budgets for maintenance while woreda-level roads do not have budgets for maintenance and upgrading. Moreover, due to the mountainous nature of the region road construction is extremely costly; even the construction of lower grade roads requires large outlays that, in most cases, exceed the capacity of woredas and the local communities. There are some views that it is ***better to take the federal road funds down to woreda level.***

## 8. Conclusion and Recommendations

### 8.1 Conclusion

The Sustainable Agriculture and Rural Development in Mountain Regions (SARD-M) Study in Ethiopia was designed to assess the strengths and weaknesses of mountain policies, including social, economic, environmental, legal and institutional aspects, and policy formulation processes. It is conducted in two regional states, Amhara and Tigray, which are the major mountainous regions of the country using household survey, interviews and discussions with communities, government institutions officials and experts, as well as review of relevant documents.

Overall the results of the study indicate there is no unique policy and strategy designed for mountainous areas both at Federal and Regional levels. There may not be a need for a separate policy. The existing policies and strategies would have been effective to solve the problems mountainous areas are facing in relation to natural resources degradation specifically to have sustainable land management. However, since the existing policies and strategies have not been implemented efficiently and effectively, the study results indicate there is still formidable challenge for SARD in these areas. There is noticeable prevalence of natural resources degradation in the study regions which is left without sustainable mitigation measure. The causes of degradation are primarily population pressure, improper cultivation, and land clearing/deforestation practices. In the mountainous areas, social and economic infrastructures and services are also found to be inadequate partly because of difficulty in topography and economic factors related to high unit costs, specifically to put in place water supply, roads, and electricity infrastructure/services.

Till recently very little attention to the role of Micro and Small enterprises (MSE) was given. Now the government is giving a guarantee for MSE to get loan. But preparation is needed how to sustain this when those requesting become large in number and ask in millions Birr. Besides, close monitoring is needed to make sure most who receive credits do not turn out to be defaulters.

The paucity of strategic thinking has hampered the promotion of strong RUL which is embracing relevant and appropriate trade and industry activities that are footed on the agriculture rural economy. The study indicates at present RUL is poor because of lack of social and economic infrastructure. Besides there is dearth of strategic thinking, RUL, trade and industry programme designing and promotion at regional level. Mostly trade and industry policies and strategies are set at Federal level. Regions have to be innovative to have strategies that enhance the backward and forward linkage between agriculture and industry in mountainous areas.

The study also revealed that institutional issues, both relational and capacity, still need improvement and sustainable footing in rural agricultural areas. Capacity is still an issue at Woreda and Small Urban Centers Administrations level. Both study regions are suffering from shortage of educated and skilled staff, as well as conducive working environment including woreda and urban administration offices. Private sector capacity building is not also effectively done and because of this the private sector has not embarked to take leadership in technology generation, promotion and uses both in rural and urban areas.

In general, the study concludes that the foundation for sustainable agriculture and rural development is not yet in place in the two study regions. All actors in ARD i.e., government, credit sector, NGOs, the private sector, donors have to team up to bring SARD by reviewing existing policies, strategies,

programmes as well as by committing themselves to implement them by availing the required resources (physical, human and financial).

## 8.2 Recommendations

- 1. Review of laws and regulations:** There are policies and strategies formulated at federal level and trickled down to regions. Most of them are sound in paper but need care when they are to be implemented at grass root level. Specifically in this study existing land laws and regulations are found crucial for having a sustainable natural resources and environment use. But they are being confronted by various challenges to remain impractical. Hence there is a need specifically to review land laws and regulations to make them workable given the serious challenges development workers are facing to implement sustainable land management programmes because of population pressures, inadequacy of substitute land and cash for compensation. Besides, the review of regulation should make note of giving landholders' cash compensation is good but measures must be taken to prevent such landholders from descending down to the bottom of the poverty ladder for lack of technical and business know-how about investing the compensation money received in productive activities. Specific strategic emphasis should be made in the creation of institutional arrangements and mechanisms for dealing with the social impacts of expropriation caused displacements due to the urbanization process.
- 2. Review the criteria of classifying woredas as FS and FIS:** current classification of woredas as FS and FIS is creating resource provision disparity for works that are important to mitigate natural resources degradation as well as provide preventive assistance to those whose assets in rural agricultural areas are denuding due to natural catastrophist. One should recognize that policy formulation should not be caught in the single problem trap (Demese, 2004). The present classification of woredas on the basis of one problem and one program, *food insecurity and PSNP respectively*, is causing damage to the so called food secure woredas in terms of not having resources to work on natural resources conservation practices, engaging them in income and job generating public works such as community roads, as well as attracting fair share of NGOs spending on basic socio-economic infrastructures such as water supply and sanitation, and health services that are targeting malnourished children and mothers such as the Enhanced Outreach Services/Targeted Supplementary Feeding (EOS/TSF) programmes. Inshort, there is an urgent need to revise the current dichotomization of woredas as FS and FIS and the ways and means financial resources are allocated for various development activities in this regard.
- 3. Basic infrastructure provision:** Water, roads, and electricity are far from being adequate in the mountainous regions hence attention should be given by all stakeholders (Government, NGOs, donors, as well as the community) to improve such infrastructure/services. It was evident during the study that where roads are constructed the living situations and the sources of livelihood are changing with changes in economic activities. Because of this and other social service needs, there is an increased demand for roads from various communities. Services and infrastructure which are difficult to render to such areas are water supply and roads. Due to the mountainous nature of the region road construction is extremely costly; even the construction of lower grade roads requires large outlays that, in most cases, exceed the capacity of woredas and the local communities. Hence, the view that it is *better to take the federal road funds up to woreda level* should get attention and with careful study be adopted.

4. **Need for efficient and effective action on trade and industry promotion:** For sustainable ARD in mountainous areas serious strategic thinking is required in the area of trade and industry. Private sector capacity building, promotion of MSE, standardizing rural agricultural products and creating well integrated markets for the many small producers should be the driver of the future interventions in rural area. Private sector should be capacitated to take leadership in technology generation, promotion and dissemination. Private investors need to go and make supply and demand studies both in agricultural inputs and products and enter in to expansion of existing or creation of new investment ventures.

Till recently very little attention has been given to the role of MSE. Had the focus to MSEs started close to the start of the development intervention in rural agricultural areas following the issuance of RDPS, by now a lot might have happened in changing the entire picture of the these areas. Still it is not late to exploit the government guarantee provision for MSE to get loan. But preparation is needed how to sustain this when those requesting become large in number and ask in millions Birr. As it is conceived in ANRS, establishing regional guarantee fund need to be considered.

Training should be arranged and guidelines should be set to create markets that are holding and linking one to the other on the basis of *standardized products*. A *web marketing system* can be put in place where many producers and suppliers of standard products can channel their products to garner sustainable and reasonable profits. For this in the strategy and program design appropriate education and training interventions should be crafted for filling in knowledge and skill gap, as well as to create conducive work environment for the support staff in the government system.

5. **RUL should be strengthened:** The linkage between development in small urban centers and investments designed to bring SARD has to be looked from the RUL perspective. Currently RUL in mountainous regions is weak because of lack of social and economic infrastructure. In mountainous areas linking agriculture with rural development initiatives and both to the emergence and growth of small urban, and where feasible to large urban centers, is inevitable. This could be affected if and only if the governments at different tiers (Federal, regional, woreda and kebele) are aware of the unique infrastructural (production, processing, transport, and marketing) problems of these areas are facing and give special emphasis to solve them. Markets are problems in mountainous areas. They are not nearby. The road infrastructure for efficient marketing is not in place. It should be expanded both by quantity and quality. No doubt infrastructure development will open market access and speed up the strengthening of RUL.
6. **Promote diversification, intensification, and alternative livelihood:** In order to promote SARD-M the future policies and strategies should embrace issues of diversification, intensification and alternative livelihoods. People in mountainous regions can no longer live from agriculture and natural resources alone. In order to mitigate the harsh living conditions they need to diversify income. There is a lot to be done on diversification activities in terms of skill training and other related capacity building works. Tourism should become a major source of alternative livelihood in these regions. The benefits the mountainous communities are getting from the few tourist based businesses are meager and hence local administration should intervene by awareness creation and benefit sharing schemes.
7. **Review of institutional relations and capacity:** Institutional arrangements should be carefully revised and institutions should exist with appropriate capacity. Relationship among various

bureaus and agencies at regional level is wanting. Same picture prevails at woreda level. These have to improve.

It is also important to note that capacity is an issue at Woreda and Small Urban Centers Administrations level. Both study regions continue to face shortage of educated and skilled staff at woreda and urban administration offices. In Woredas where big ARD projects are designed, the regular staff, equipment, and other financial and physical facilities that the Woreda administration team uses has not been enough to undertake the complex tasks efficiently, effectively and sustainably. Most woreda administration headquarters and development offices, such as ARD, are occupying shanty houses which are not creating conducive work environment for experts or for the clients.

- 8. Continue to embrace participatory approach:** Participatory approach is core in promoting programmes and projects that can bring SARD-M. In deed the findings in this study indicate that participatory approach should be embraced if development projects have to bring positive and sustainable changes in mountainous rural agricultural areas.
- 9. Have sound planning, monitoring and evaluation (PM&E) system:** Good practices of PM&E need to be instituted in at all levels of government and non-government agencies. Field visits and discussion with experts revealed that there is no coordinated development activities planning and implementation among federal, regional governments, as well as NGOs and donor communities. Sometimes different offices or NGOS intervene in the same woreda with identical development projects. It has been pointed out, for example, there are uncoordinated efforts on forest development and protection interventions by different NGOs and bilateral agencies. This needs to be corrected. Besides, the programmes and projects run with government recurrent budget often fail due to lack of proper and adequate PM&E system. Activities are not planned from the local government up to the top level with participation which eventually pave the ground for follow up and accountability. Interviewed experts in various bureaus agree that it is good to decentralize development activities implementation and give more authority and responsibility to woreda administration. But at the same time there should be a clear guideline on how to plan, monitor and evaluate starting from kebele up to regional level.

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### **Selected Proclamations**

#### **Federal**

1. Proclamation No. 31/1975, Public Ownership of Rural Lands
2. Proclamation No 1/1995, Constitution of the Federal Democratic Republic of Ethiopia
3. Proclamation No. 280/2002, Investment Proclamation
4. Proclamation 455/2005, Expropriation of Landholdings for Public Purposes and Payment of Compensation
5. Proclamation 456/2005, Federal Democratic Republic of Ethiopia Rural Land Administration and Land Use Proclamation

## **Amara**

1. Proclamation No. 60/2001, Reorganization of the Amara National Regional State Executive Organs and Determination of their Powers and Duties Proclamation
2. Proclamation 80/2003, Re-establishment and Organization of the Amara National Regional State Rural Roads Authority and Determination of its Powers and Duties
3. Proclamation 90/2003, The Amara National Regional State Micro and Small Enterprises and Industry Development Bureau Establishment Proclamation]
4. Proclamation 91/2003, The revised Proclamation Issued to Provide for the Establishment and Organization of Urban Centers of the Amara National Region and Definition of their Powers and Duties.
5. Proclamation 100/2004, The Amara National Regional State Mines and Rural Energy Resource Development Expansion Office;
6. Proclamation 123/2006, The Amara National Regional State Investment Promotion Agency Establishment Proclamation
7. Proclamation 133/2006, the revised Amara National Regional State Rural Land Administration and Use Proclamation
8. Directive No. 28/2007, Regional Administrative Council Directive to Provide for the Valuation and Determination of Compensation for Properties on Land Expropriated for Public Purpose in Amara Regional Towns

## **Tigray**

1. Proclamation 77/2004 Environmental Protection, Land Administration and Utilization Authority
2. Proclamation 94/2006, Amendment to the Definitions of Powers and Duties of the Executive Organ of Tigray
3. Proclamation 97/2006, Rural Land Administration and Utilization Proclamation
4. Proclamation 45/, Revised Constitution of the National Regional State of Tigray
5. Regulation 37/2007, Tigray Land Administration and Utilization Regulation
6. Proclamation 117/2007, A Proclamation to Re-establish the Tigray National Regional State Road Authority and to Provide for its Duties and Responsibilities

## 10. Annexes:

### *Annex 1: Persons Met*

Abay Aregay	TNRS, Tsegedie, ARD, Agronomist
Adamassu	ANRS, BoTI, D/Head
Amineyo Hagos	TNRS, Adwa, Agriculture and rural development Office, Deputy Head
Antenaene Ashenafi	ANRS, Rural Roads Authority, Operations Department, Ag/Head
Asgedom Gebray	TNRS, Tsegedie, ARD, Land Use Department, Expert
Aynew Belay	ANRS, Cooperative Agency, General Manager
Berhe Haile	TNRS, Tsegedie, WMEO Operation and Maintenance Expert
Berihun Tadesse	TNRS, Adwa, Water, Mines and Energy Office, Expert
Desta Aria	TNRS, Adwa, Environmental Expert
Ellias G/tsadik	TNRS, Adwa, Trade and Industry Office, Head
Endale Lemma	ANRS, BOARD, Planning Expert
Esubalew Asefa	ANRS, Bahirdar Chamber of Commerce, Public Relations Expert
Feleke Tessema	ANRS, BOARD, Natural Resources Expert
Fitsum	TNRS, Regional council, Legal expert
Germary Halfom	TNRS, Tsegedie, ARD, Natural Resource Department, Head
Getu Fantahun	TNRS, Tsegedie, WMEO, Irrigation Department, Head
Girmay Tesfay	TNRS, Mekelle Zone Capacity Building Office, Head
Gizachew Beyene	ANRS, BoWR, Water Supply, Process Owner
Habtom Berhan	TNRS, Adwa Woreda Administration, Head
Hailay Teklu	TNRS, Regional Rural Roads Authority, Head
Hailemariam	TNRS, Bureau Agriculture and Rural Development, NRM expert
Hailemaraim Tekalegn	TNRS, Adwa, Disaster Prevention Department, Head
Kahsay Hagos	TNRS, Tsegedie, ARD, Cooperative Promotion Department, Expert
Kassa T/Berhan	ANRS, BoTI, Head
Kebede Ali	ANRS, BOWUD, Urban Human Resources Administration Core Process
Kidane Seyoum	TNRS, Regional Council, President Advisor
Melaku Estifanos	TNRS, Tsegedie, Water, Mines and Energy Office (WMEO), Head
Mesfin Asnakew	ANRS, Regional Council, Economic Advisor
Michael Tsehay	TNRS, Bureau of Energy and Water Resources, Head
Mintesnote Assefa	ANRS, BOARD, Planning Expert
Mulugeta Gebru	TNRS, Adwa, Agriculture and rural development Office, Head
Nibret Bantegegn	ANRS, Bahirdar Municipality, Urban Agriculture Office, Head.
Saba Yehonness	TNRS, Tsegedie, WMEO, Deputy Head
Seyoum Side	TNRS, Adwa, Water, Mines and Energy Office, Head
Solomon Abera	TNRS, Bureau of Energy and Water Resources, Irrigation Expert
Solomon	TNRS, Bureau Agriculture and Rural Development, Cop Production Expert
Tesfay Amare	TNRS, Adwa, Marketing expert
Tesfay Gebrekiros	TNRS, Bureau of Works and Urban Development, Development Plan Business Process Owner
Tesfaye K/maraim	TNRS, Tsegedie, Agriculture and Rural development office, Head
Tewodros Bisrat	TNRS, Tsegedie, ARD, Agricultural Extension Department, Head
Tsedalu Mekcha	ANRS, BOARD, Marketing Expert
Worku Tagele	TNRS, Tsegedie, Cheguar-Gudo Cooperative, Deputy Head
Yalew Abate	ANRS, BOWUD, Head
Zelek Ayychelu	TNRS, Tsegedie, Cheguar-Gudo Cooperative

**Annex 2: Government Institutions Frequently Mentioned During Field Work**

<b>Category</b>	<b>Institution</b>	<b>Sphere of influence</b>
Federal Government	Ministry of Agriculture and Rural Development (MoARD)	Most federal level land and forest and related natural resources use and management, agricultural inputs and production, agricultural research and extension
	Ministry of Finance and Economic Development (MoFED)	Overall coordinator of PASDEP, budgetary allocations and related planning and M&E activities
	Ministry of Water Resources (MoWR)	Federal level water resources development particularly large and medium size irrigation projects as well as big water supply projects for agriculture and industry uses.
	Ministry of Transport and Communication (MoT&C)	The focus in this study is on the work done by Ethiopian Roads Authority (ERA) and Telecommunications Agency.
	Ministry of Mines and Energy (MoME) (EEPCO)	The focus in this study is on the electrification of rural areas and the generation of energy from hydro power sources. Specifically the works of Ethiopian Electric and Power Corporation.
Regional Government	Regional Council	Legislate, Plan, oversee regional institutions activities,
	Bureau of Agriculture and Rural Development (BoARD)	Most regional level land and forest and related natural resources use and management, agricultural inputs and production, agricultural research and extension
	EPLAUA	Environment and land administration and utilization at region level
	Bureau of Works and Urban Development (BoWUD)	The growth and expansion of urban centers and their administration within the region
	Bureau of Trade and Industry (BoTI)	The expansion and growth of trade and industry within a region
	Bureau of Water Resources Development (BoWRD)	Regional level water resources development particularly large and medium size irrigation projects as well as big water supply projects for agriculture and industry uses.
	Investment Agency (IA)	Promoting investment at regional level
	RRA	Building and maintaining rural roads
Woreda Government	Woreda Administration	Plan and coordinate woreda level institutions activities,
	ARD Office	Being under the woreda administration undertakes all agriculture and rural development related activities
Kebele	Administration (PA)	Grass root level agriculture and rural activities and institutions, such as cooperatives, coordination

**Annex 3: Survey Results -Detail**

Household Characteristics: Sex, education, average age, average family size and perception on food security of the respondents versus their living Woredas

			Woreda								Total/Total average	
			Bure		Libo Kemkem		Tsegede		Adwa			
			No.	%	No.	%	No.	%	No.	%	No.	%
Sex	Male		62	81.58	62	84.93	66	86.84	64	85.33	254	84.7
	Female		14	18.42	11	15.07	10	13.16	11	14.67	46	15.3
	Total		76	100.00	73	100.00	76	100.00	75	100.00	300	100
Education level	Illiterate		33	43.42	50	68.49	44	57.89	32	42.67	158	52.7
	Literate*		43	56.58	23	31.51	32	42.11	43	57.33	142	47.3
Average age	Male		40.4		44.5		48.3		45.0		44.6	
	Female		49.4		39.3		43.8		43.5		44.3	
	Total		42.0		43.7		47.8		44.8		44.6	
Average family size	Male		6.02		6.21		6.53		6.69		6.37	
	Female		4.14		4.55		4.00		5.64		4.57	
	Total		5.67		5.96		6.20		6.53		6.09	
Average holding	Male		1.34		1.02		2.65		0.64		1.41	
	Female		0.81		0.56		0.97		0.52		0.72	
	Total		1.25		0.95		2.43		0.62		1.31	
Perception in food security	Male	Male headed	60	78.95	60	82.19	66	86.84	64	85.33	250	83.33
		Female headed	2	2.63	2	2.74	0	0.00	0	0.00	4	1.33
	Female	Male headed	11	14.47	11	15.07	10	13.16	10	13.33	42	14.00
		Female headed	3	3.95	0	0.00	0	0.00	1	1.33	4	1.33
	Total	Male headed	71	93.42	71	97.26	76	100.00	74	98.67	292	97.33
		Female headed	5	6.58	2	2.74	0	0.00	1	1.33	8	2.67

\* Literate represents either informal education or formal education or the combination of the two

## Occupation Status of respondents

Occupation	Occupation Type	Sex	Woreda							
			Bure		Libo Kemkem		Tsegede		Adwa	
			No.	%	No.	%	No.	%	No.	%
Primary-occupation	Agriculture	Male	61	80.26	62	84.93	65	85.53	64	85.33
		Female	9	11.84	9	12.33	10	13.16	11	14.67
		Total	70	92.11	71	97.26	75	98.68	75	100.0
	Non agriculture	Male	1	1.32	1	1.37	1	1.32	0	0.00
		Female	5	6.58	1	1.37	0	0.00	0	0.00
		Total	6	7.89	2	2.74	1	1.32	0	0.00
Secondary-occupation	Agriculture	Male	1	1.32	0	0.00	0	0.00		0.00
		Female	2	2.63	0	0.00	0	0.00	0	0.00
		Total	3	3.95	0	0.00	0	0.00	0	0.00
	Non-agriculture **	Male	15	19.74	2	2.74	15	19.74	1	1.33
		Female	4	5.26	5	6.85	2	2.63	0	0.00
		Total	19	25.00	7	9.59	17	22.37	1	1.33
	Have no secondary occupation	Male	46	60.53	60	82.19	51	67.11	63	84.00
		Female	8	10.53	6	8.22	8	10.53	11	14.67
		Total	54	71.05	66	90.41	59	77.63	74	98.67

\*\* Non-agricultural occupation represent Trade, Civil Servant, Wage employment, Pottery work, Carpenter, Weaving, Embroidery and Sewing

Region	Land degradation perception						Contingency Coefficient
	Degraded slowly		Degraded at faster rate		No change		
	Count	%	Count	%	Count	%	
Amhara	109	72.7	39	26.0	2	1.3	<b>0.841</b>
Tigray	109	72.7	40	26.7	1	0.7	

	Forest degradation perception						Contingency Coefficient
	Degraded slowly		Degraded at faster rate		No change		
	Count	%	Count	%	Count	%	
Amhara	112	74.7	21	14.0	17	11.3	<b>0.000*</b>
Tigray	141	94.0	8	5.3	1	0.7	

	Water degradation perception						Contingency Coefficient
	Degraded slowly		Degraded at faster rate		No change		
	Count	%	Count	%	Count	%	
Amhara	112	74.7	19	12.7	19	12.7	<b>0.000*</b>
Tigray	147	98.0	3	2.0	19	12.7	

## Cause of land degradation

Region	Population				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	49	32.7	101	67.3	0.187
Tigray Region	60	40.0	90	60.0	

Region	Cultivation practice				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	95	63.3	55	36.7	0.063**
Tigray Region	110	73.3	40	26.7	

Region	Land clearing/ deforestation				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara	78	52.0	72	48.0	0.729
Tigray	81	54.0	69	46.0	

	Over grazing				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	48	32.0	102	68.0	0.462
Tigray Region	54	36.0	96	64.0	

Region	Nature				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	5	3.3	145	96.7	0.395
Tigray Region	8	5.3	142	94.7	

Region	Soil susceptibility				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	4	2.7	146	97.3	0.239
Tigray Region	8	5.3	142	94.7	

Region	Steepness of land				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	14	9.3	136	90.7	0.009*
Tigray Region	30	20.0	120	80.0	

## Perception about Mitigation Measures for Land Degradation

Region	Soil bund				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	5	3.3	145	96.7	0.021*
Tigray Region	15	10.0	135	90.0	

Region	Stone bund				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	20	13.3	130	86.7	0.000*
Tigray Region	58	38.7	92	61.3	

Region	Terracing				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	

Amhara Region	139	92.7	11	7.3	0.029*
Tigray Region	147	98.0	3	2.0	

	Tree plantation				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	27	18.0	123	82.0	0.000*
Tigray Region	7	4.7	143	95.3	

Region	Grass strip				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	5	3.3	145	96.7	0.024*
Tigray Region	0	0.0	150	100.0	

## Cause of forest degradation

	Population				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	89	59.3	61	40.7	0.191
Tigray Region	102	68.0	48	32.0	

Region	Cultivation practice				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	11	7.3	139	92.7	0.595
Tigray Region	10	6.7	140	93.3	

Region	Land clearing/ deforestation				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	87	58.0	63	42.0	0.000*
Tigray Region	121	80.7	28	18.7	

Region	Over grazing				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	2	1.3	148	98.7	0.513

Tigray Region	2	1.3	148	98.7
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## Perception about Mitigation Measures for Forest degradation

Region	Tree plantation				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	118	78.7	32	21.3	0.000*
Tigray Region	150	100.0	0	0.0	

Region	Grass strip				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	0.0	0.0	150	100.0	0.513
Tigray Region	0.0	0.0	150	100.0	

Region	Community guarding				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	17	11.3	133	88.7	0.000*
Tigray Region	1	0.7	149	99.3	

Region	Fuel saving technology				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	52	34.7	98	65.3	0.000*
Tigray Region	22	14.7	128	85.3	

Region	Irrigation				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	24	16.0	126	84.0	0.449
Tigray Region	29	19.3	121	80.7	

			Amhara	Tigray	Contingency Coefficient
	Yes	Count	52	22	0.000*

Fuel saving technology	Yes	Count	52	22	0.000*
		%	34.7	14.7	
	No	Count	98	128	
		%	65.3	85.3	
Lakitch	Count	2	0	0.001*	
	%	1.3	0.0		
Merte	Count	0	1		
	%	0.0	0.7		
Local (from soil and stone)	Count	49	21		
	%	32.0	14.0		
Lakitch and local	Count	1	0		
	%	0.7	0.0		
Not use	Count	98	128		
	%	65.3	85.3		

## Cause of water degradation

	Population						Contingency Coefficient
	Yes		No		No change		
	Count	%	Count	%	Count	%	
Amhara Region	40	26.7	91	60.7	19	12.7	0.000*
Tigray Region	63	42.0	87	58.0	0	0.0	

Region	Cultivation practice						Contingency Coefficient
	Yes		No		No change		
	Count	%	Count	%	Count	%	
Amhara Region	2	1.3	129	86.0	19	12.7	0.000*
Tigray Region	4	2.7	146	97.3	0	0.0	

Region	Land clearing/ deforestation						Contingency Coefficient
	Yes		No		No change		
	Count	%	Count	%	Count	%	
Amhara Region	88	58.7	43	28.7	19	12.7	0.000*
Tigray Region	105	70.0	45	30.0	0	0.0	

Region	Over grazing						Contingency Coefficient
	Yes		No		No change		
	Count	%	Count	%	Count	%	
Amhara Region	1	0.7	130	86.7	19	12.7	0.000*
Tigray Region	1	0.7	149	99.3	0	0.0	
Region	Nature						Contingency Coefficient
	Yes		No		No change		
	Count	%	Count	%	Count	%	
Amhara Region	20	13.3	111	74.0	19	20	0.000*
Tigray Region	6	4.0	144	96.0	0	6	

## Perception for Water Resources Degradation Mitigation Measures

Region	Water harvesting						Contingency Coefficient
	Yes		No		No change		
	Count	%	Count	%	Count	%	
Amhara Region	6	4.0	144	96.0	0	0.0	0.057*
Tigray Region	1	0.7	149	99.3	0	0.0	

Region	Private pond						Contingency Coefficient
	Yes		No		No change		
	Count	%	Count	%	Count	%	
Amhara Region	32	21.3	118	78.7	0	0.0	0.027*
Tigray Region	49	32.7	101	67.3	0	0.0	

Region	Tree Plantation						Contingency Coefficient
	Yes		No		No change		
	Count	%	Count	%	Count	%	
Amhara Region	54	36.0	96	64.0	0	0.0	0.000*
Tigray Region	124	82.7	26	17.3	0	0.0	

	Grass strip						Contingency Coefficient
	Yes		No		No change		
	Count	%	Count	%	Count	%	
Amhara Region	2	1.3	148	98.7	0	0.0	0.562
Tigray Region	1	0.7	149	99.3	0	0.0	

Region	Terracing						Contingency Coefficient
	Yes		No		No change		
	Count	%	Count	%	Count	%	
Amhara Region	150	100.0	0	0.0	0	0.0	
Tigray Region	150	100.0	0	0.0	0	0.0	

## Perception on the concepts of sustainable land management

Region	Community integrated conservation				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	96	64	54	36.0	0.045*
Tigray Region	112	74.7	38	25.3	

Region	Integrated Water Shed Management (IWSM)				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	18	12	132	88.0	0.000*
Tigray Region	67	44.7	83	55.3	
Region	Self initiated agro forestry				Contingency Coefficient
	Yes		No		

	Count	%	Count	%	
Amhara Region	98	65.3	52	34.7	.103
Tigray Region	111	74	39	26.0	

Region	Self initiated soil and stone bund				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	26	17.3	124	82.7	0.000*
Tigray Region	55	36.7	95	63.3	

## Farmer's practices on-farm for sustainable agricultural use

Region	Inorganic fertilizer application				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	102	68.0	48	32.0	0.000*
Tigray Region	132	88	18	12.0	

Region	Soil bund				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	67	44.7	83	55.3	0.643
Tigray Region	71	47.3	79	52.7	

Region	Organic fertilizer application				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	18	12	132	88.0	0.000*
Tigray Region	54	36	96	64.0	

Region	Stone bund				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	18	12	132	88.0	0.000*
Tigray Region	81	54	69	46.0	

Region	Terracing				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	126	84	24	16.0	0.011*
Tigray Region	140	93.3	10	6.7	

Region	Tree plantation				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	102	68	48	32.0	0.616
Tigray Region	106	70.7	44	29.3	
Region	Grass strip				Contingency Coefficient
	Yes		No		

	Count	%	Count	%	
Amhara Region	9	6	141	94.0	0.010**
Tigray Region	1	0.7	149	99.3	

Region	Agro forestry				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara Region	4	2.7	146	97.3	0.176
Tigray Region	1	0.7	149	99.3	

## Satisfaction level of household for basic infrastructure/ services

	Road						Contingency Coefficient
	Adequate		Inadequate		No available		
	Count	%	Count	%	Count	%	
Amhara Region	35	23.33	100.0	66.67	15.00	10.00	0.003*
Tigray Region	52.00	34.67	71.00	47.33	27.00	18.00	

	Potable water						Contingency Coefficient
	Adequate		Inadequate		No available		
	Count	%	Count	%	Count	%	
Amhara Region	27	18.00	28	18.67	95	63.33	0.000*
Tigray Region	72.00	48.00	20.00	13.33	58.00	38.67	

	Irrigation water						Contingency Coefficient
	Adequate		Inadequate		No available		
	Count	%	Count	%	Count	%	
Amhara Region	5	3.33	33.00	22.00	112.0	74.67	0.526
Tigray Region	3.00	2.00	40.00	26.67	107.0	71.33	

	School						Contingency Coefficient
	Adequate		Inadequate		No available		
	Count	%	Count	%	Count	%	
Amhara Region	32	21.33	116.0	77.33	2.00	1.33	0.000*
Tigray Region	78.00	52.00	72.00	48.00	0.00	0.00	

	Health center						Contingency Coefficient
	Adequate		Inadequate		No available		
	Count	%	Count	%	Count	%	
Amhara Region	13	8.67	122.0	81.33	15.00	10.00	0.126
Tigray Region	14.00	9.33	130.0	86.67	6.00	4.00	

	Veterinary center						Contingency Coefficient
	Adequate		Inadequate		No available		
	Count	%	Count	%	Count	%	
Amhara Region	5	3.33	107.0	71.33	38.00	25.33	0.117
Tigray Region	1.00	0.67	100.0	66.67	49.00	32.67	

	Electricity						

	Adequate		Inadequate		No available		Contingency Coefficient
	Count	%	Count	%	Count	%	
Amhara Region	4	2.67	6.00	4.00	140.0	93.33	0.006*
Tigray Region	0.00	0.00	0.00	0.00	150.0	100.0	

	Telephone/post						Contingency Coefficient
	Adequate		Inadequate		No available		
	Count	%	Count	%	Count	%	
Amhara Region	10	6.67	66.00	44.00	74.00	49.33	0.091*
Tigray Region	10.00	6.67	48.00	32.00	92.00	61.33	

Region	Land holding								Contingency Coefficient
	Decline over time		Increase over time		No change		No own land		
	Count	%	Count	%	Count	%	Count	%	
Amhara	22	14.7	6	4.0	117	78.0	5	3.3	0.000*
Tigray	5	3.3	17	11.3	128	85.4	0	0	

## Reason for the decline of land holding

Region	Reason for the decline									
	Division within the family (1)		Redistribution by government (2)		Expropriation for public development work (3)		Unofficial take away by other (4)		1 and 2	
	Count	%	Count	%	Count	%	Count	%	Count	%
Amhara	9	6.0	8	5.3	3	2.0	2	1.3	1	0.7
Tigray	2	1.3	2	1.3	0	0.0	0	0.0	1	0.7

Region	Reason for the increase in holding						Contingency Coefficient
	No change		Land rent in/ sharecrop in		Take away from other through charge		
	Count	%	Count	%	Count	%	
Amhara	145	96.7	4	2.7	1	0.7	0.008*
Tigray	133	88.7	17	11.3	0	0	

## Land security

Region	Reason for the increase in holding						Contingency Coefficient
	Secured		Not secure		No own land		
	Count	%	Count	%	Count	%	
Amhara	135	90.0	9	6.0	6	4.0	0.001*
Tigray	150	100.0	0	0.0	0	0.0	

## State of landlessness and its reason

Reason for the landlessness	Region

		Amhara	Tigray	Contingency Coefficient
Increase in the number of youths (1)	Count	101	100	0.000*
	%	67.4	66.7	
Immigration (2)				
Degradation (3)				
Urban encroachment (4)				
Expropriation for public development work (5)				
Expropriation for private investment (6)				
1 and 3	Count	25	12	
	%	16.7	8.0	
1 and 5	Count	5	0	
	%	3.3	0.0	
1, 3 and 5	Count	12	6	
	%	8.0	4.0	
1 and 2	Count	3	0	
	%	2.0	0.0	
1, 4 and 5	Count	1	0	
	%	0.7	0.0	
1, 2 and 4	Count	2	0	
	%	1.3	0.0	
1, 2, 4 and 5	Count	1	0	
	%	0.7	0.0	
1, 2 and 3	Count	0	26	
	%	0.0	17.3	
1, 2, 3 and 5	Count	0	6	
	%	0.0	4.0	

## Participation in Productive Safety Net Programme

Region	Participation in PSNP				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara	26	17.3	124	82.7	0.000*
Tigray	67	44.7	83	55.3	

PSNP exists only in food insecure woredas.

## Extension and other social services rendered by public institutes

Region	Participation in Extension package program				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara	74	49.3	76	50.7	0.000*
Tigray	118	78.7	32	21.3	

Region	Health center				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara	142	94.7	8	98.7	0.054**
Tigray	148	5.3	2	1.3	
Region	Veterinary				Contingency Coefficient

	Yes		No		
	Count	%	Count	%	
Amhara	135	90.0	15	10.0	0.042*
Tigray	144	96.0	6	4.0	

Region	School				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara	149	99.3	1	0.7	1.000
Tigray	149	99.3	1	0.7	

Region	Postal				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara	52	34.7	98	37.3	0.630
Tigray	56	65.3	94	62.7	

Region	Administration				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara	140	93.3	10	6.7	0.047*
Tigray	147	98.0	3	2.0	

Region	Telephone				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara	114	76.0	36	34.0	0.000*
Tigray	144	96.0	6	4.0	

Region	Bank				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara	16	11.3	133	88.7	0.854
Tigray	17	10.7	132	89.3	

Region	Microfinance				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Amhara	53	35.3	97	64.7	0.000*
Tigray	94	62.7	56	37.3	

## Household head perception on food security in sex

Region	Household head food secured				Contingency Coefficient
	Female headed		Male headed		
	Count	%	Count	%	
Amhara	6	4.0	144	96.0	0.059**
Tigray	1	0.7	149	99.3	

## Housing type by region

Region	Grass roof		Tine roof		Soil roof		Contingency Coefficient
	Count	%	Count	%	Count	%	
Amhara	52	34.7	98	65.3	0	0	0.346
Tigray	54	36.0	94	62.7	2	1.3	

## Perception on Rural-Urban linkage

Region	Strong		Weak		No suggestion		Contingency Coefficient
	Count	%	Count	%	Count	%	
Amhara	147	98.0	2	1.3	1	0.7	0.514
Tigray	149	99.3	1	0.7	1	0.0	

## Crop Productivity analysis for Bure woreda

	Year 1999 E.C (2006/07) Europ Calendar ?			Year 2000 E.C (2006/07)		
	Total area covered (ha)	Total production (Kg)	Productivity (kg/ha)	Total area covered (ha)	Total production (Kg)	Productivity (kg/ha)
Wheat	19.56	33040	1688.95	15.06	30125	2000.00
Teff	10.88	8910.00	819.31	8.88	8375	943.66
Maize	36.83	98057	2662.21	36.33	107725	2964.94
Bean	5.38	7135	1327.44	6.00	8870	1478.33
Pea	.31	200.00	640.00	0.56	400.00	711.11
Barely	6.46	7400	1146	6.21	7500	1208.70
Niger seed	.00	.00	.00	0.25	200.00	800.00
Sorghum	1.00	600.00	600.00	0.00	.00	0.00
Millet	18.02	33550	1861.77	17.60	26825	1525
Check pea	.63	100.00	160.00	0.63	150.00	240.00
Pepper	2.50	1995	798.00	3.06	1905	622.041
Rape seed	.00	.00	.00	.06	150.00	2400.00
Total	101.56	190987	11703.68	94.63	192225	14893.78

1999 E.C=2006/07

## Crop Productivity analysis Libo-kemkem

	Year 1999 E.C(2006/07)			Year 2000 E.C(2006/07)		
	Total area covered (ha)	Total production (Kg)	Productivity (kg/ha)	Total area covered (ha)	Total production (Kg)	Productivity(kg/ha)
Wheat	8.39	9920.00	1182.71	7.50	9600.00	1280.00
Teff	15.44	10025.00	649.39	14.31	8470.00	591.79
Maize	7.69	8375.00	1089.79	7.50	8515.00	1135.71
Bean	12.35	9838.00	796.70	14.72	12285.00	834.39
Pea	0.00	0.00	0.00	0.50	350.00	700.00
Barely	13.41	14780.00	1101.87	12.60	13370.00	1061.03
Niger seed	0.00	0.00	0.00	0.50	6.00	12.00
Sorghum	3.23	4250.00	1316.40	1.73	1615.00	934.34
Millet	7.44	6905.00	928.40	7.19	7525.00	1046.96
Potatoes	2.22	5385.00	2422.95	2.16	5600.00	2595.60
Onion	0.30	400.00	1333.33	0.30	250.00	833.33
Check pea	0.31	160.00	512.00	0.31	210.00	672.00
Pepper	5.00	3990.00	798.00	0.00	0.00	0.00

Total	75.78	74028	12131.54	69.32	67796	11697.15
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## Crop Productivity analysis for Tsegedie Woreda

	Year 1999 E.C(2006/07)			Year 2000 E.C(2006/07)		
	Total area covered (ha)	Total production (Kg)	Productivity (kg/ha)	Total area covered (ha)	Total production (Kg)	Productivity (kg/ha)
Wheat	21.88	30700.00	1403.43	20.13	27720.00	1377.39
Teff	16.13	11200.00	694.57	11.44	10050.00	878.69
Maize	6.58	6150.00	935.36	6.38	6850.00	1074.51
Bean	9.63	7600.00	789.61	14.95	11305.00	756.31
Pea	4.06	2065.00	508.31	6.56	3510.00	534.86
Barely	21.39	21500.00	1005.26	20.51	22550.00	1099.33
Niger seed	1.56	1350.00	864.00	1.81	1290.00	711.72
Sesame	54.75	24561.00	448.60	43.88	20350.00	463.82
Sorghum	43.50	73500.00	1689.66	42.50	45950.00	1081.18
Millet	7.63	10500.00	1377.05	9.75	11800.00	1210.26
Flux	3.88	2380.00	614.19	4.19	2660.00	635.22
Potatoes	0.31	600.00	1920.00	0.31	750.00	2400.00
Onion	0.06	200.00	3200.00	0.06	300.00	4800.00
Cotton	0.25	200.00	800.00	0.31	300.00	960.00
Check pea	0.25	200.00	800.00	0.31	150.00	480.00
Pepper	1.38	550.00	400.00	1.38	550.00	400.00
Lentil	0.06	100.00	1600.00	0.06	100.00	1600.00
Total	193.3	193356	19050.04	184.53	166185	20463.29

## Crop Productivity analysis for Adwa Woreda

	Year 1999 E.C (2006/07)			Year 2000 E.C (2007/08)		
	Total area covered (ha)	Total production (Kg)	Productivity (kg/ha)	Total area covered (ha)	Total production (Kg)	Productivity (kg/ha)
Wheat	11.69	8415.00	720.15	11.25	7870.00	699.71
Teff	17.69	12155.00	687.21	18.50	13680.00	739.46
Maize	0.56	410.00	738.74	0.56	490.00	0.56
Bean	2.37	1090.00	459.43	2.50	1282.00	512.80
Pea	0.25	50.00	200.00	0.25	50.00	200.00
Barely	11.06	8160.00	737.63	11.69	8700.00	744.39
Niger seed	0.00	0.00	0.00	0.24	100.00	416.67
Millet	1.63	800.00	492.31	1.63	950.00	584.62
Check pea	0.00	0.00	0.00	0.25	100.00	400.00
Total	45.25	31080		46.87	33222	

## Combined crop productivity analyses for Food secured woreda (Bure and Tsegedie)

	Year 1999 E.C (2006/07)			Year 2000 E.C (2007/08)		
	Total area covered (ha)	Total production (Kg)	Productivity (kg/ha)	Total area covered (ha)	Total production (Kg)	Productivity (kg/ha)
Wheat	41.44	63740	1538.04	35.19	31528.43	895.89
Teff	27.01	20110	744.68	20.32	9069.57	446.45
Maize	43.41	104207	2400.36	42.71	108660.4	2544.00
Bean	15.01	14735	982.01	20.95	9659.61	461.08
Pea	4.37	2265	518.01	7.12	908.31	127.53
Barely	27.85	28900	1037.89	26.72	8505.26	318.37
Niger seed	1.56	1350	865.38	2.06	1064	516.51
Sesame	54.75	24561	448.60	43.88	448.6	10.22
Sorghum	44.50	74100	1665.17	42.5	1689.66	39.76
Millet	25.65	44050	1717.32	27.35	28202.05	1031.32
Flux	3.88	2380	613.40	4.19	614.19	146.58
Potatoes	0.31	600	1935.48	0.31	1920	6193.55
Onion	0.06	200	3333.33	0.06	3200	53333.33
Cotton	0.25	200	800.00	0.31	800	2580.65
Check pea	0.88	300	342.86	0.94	950	1016.04
Pepper	3.88	2545	655.93	4.44	2305	518.85
Lentil	0.06	100	1666.67	0.06	1600	26666.67
Rape seed	0	0		0.06	150	2400
Total	294.86	384343	1303.48	279.16	211275	756.81

## Combined Crop productivity analyses for Food insecure woredas (Libo-kemkem and Adwa)

	Year 1999 E.C (2006/07)			Year 2000 E.C (2007/08)		
	Total area covered (ha)	Total production (Kg)	Productivity (kg/ha)	Total area covered (ha)	Total production (Kg)	Productivity (kg/ha)
Wheat	20.08	18335	913.10	18.75	17470	931.73
Teff	33.13	22180	669.48	32.81	22150	675.10
Maize	8.25	8785	1064.85	8.06	9005	1117.25
Bean	14.72	10928	742.39	17.22	13567	787.86
Pea	0.25	50	200	0.75	400	533.33
Barely	24.47	22940	937.47	24.29	22070	908.60
Niger seed	0	0		0.74	106	143.24
Sorghum	3.23	4250	1315.79	1.73	1615	933.53
Millet	9.07	7705	849.50	8.82	8475	960.88
Potatoes	2.22	5385	2425.68	2.16	5600	2592.59
Onion	0.3	400	1333.33	0.3	250	833.33
Check pea	0.31	160	516.13	0.56	310	553.57
Pepper	5	3990	798	0	0	
Total	121.03	105108	868.45	116.19	101018	869.42

## Average livestock holding of respondents by woreda

	Oxen	Cow	Sheep	Goat	Horse/mule	Donkey
Bure	1.55	0.79	2.45	0.16	0.11	0.11
Libo-kemkem	1.16	0.82	1.58	1.56	0.01	0.62
Tsegedie	2.13	2.30	3.33	2.84	0.63	1.11
Adwa	1.59	1.25	1.87	3.87	0.07	0.47

## Average number of months own produce consumed during good and bad years

	Months in good year	Months in bad year	Average
Bure	11	8	9.5
Libo-kemkem	9	6	7.5
Tsegedie	11	9	10
Adwa	6.85	3.81	5.33

## Perception on Land Holding Status: FS Vs FIS woredas

Level of food security	Land holding								Contingency Coefficient
	Decline over time		Increase over time		No change		No own land		
	Count	%	Count	%	Count	%	Count	%	
Food secured woreda	19	12.7	21	14.0	106	70.7	4	2.7	0.000*
Food insecure woreda	8	5.3	2	1.3	139	92.7	1	0.7	

FS=Food Secure, FIS=Food Insecure

## Perception of Land Security: FS Vs FIS woreda

Level of food security	Land security						Contingency Coefficient
	Secured		Not secured		No own land		
	Count	%	Count	%	Count	%	
Food secured woreda	141	94.0	5	3.3	4	2.7	0.719
Food insecure woreda	144	96.0	4	2.7	2	1.3	

## Perception on Level of FS by Sex of HH Head: FS Vs FIS woreda

Level of food security	Female headed		Male headed		It depends		Contingency Coefficient
	Count	%	Count	%	Count	%	
Food secured woreda	5	3.3	145	96.7	0	0.0	0.327
Food insecure woreda	2	1.3	147	98	1	0.7	

## Household head perception on wealth status: FS Vs FIS woredas

Level of food security	Poor		Rich		Contingency Coefficient
	Count	%	Count	%	
Food secured woreda	77	51.3	73	48.7	0.000*
Food insecure woreda	118	78.7	32	21.3	

## Availability of market infrastructure: FS Vs FIS Woredas

	Food secured woreda		Food insecure woreda		Contingency Coefficient
	Count	%	Count	%	
No infrastructure at all	Count	28	Count	26	0.000*
	%	18.7	%	17.3	
Shelter	Count	30	Count	50	
	%	20.0	%	33.3	
Toilet	Count	6	Count	14	
	%	4.0	%	9.3	
Pack animal holding area	Count	38	Count	23	
	%	25.3	%	15.3	
Toilet and Pack animal holding area	Count	21	Count	0	
	%	14.0	%	0.0	
Shelter, storage and Pack animal holding area	Count	6	Count	0	
	%	4.0	%	0.0	
Shelter and Pack animal holding area	Count	18	Count	2	
	%	12.0	%	1.3	
Shelter, storage, toilet and Pack animal holding area	Count	0	Count	1	
	%	0.0	%	0.7	
Shelter and Toilet	Count	2	Count	0	
	%	1.3	%	0.0	
Toilet and storage and Pack animal holding area	Count	1	Count	0	
	%	0.7	%	0.0	
Shelter, Toilet and Pack animal holding area	Count	0	Count	25	
	%	0.0	%	16.7	
Shelter, Storage and Toilet	Count	0	Count	1	
	%	0.0	%	0.7	
Shelter, toilet, storage, Pack animal holding area and waste disposal	Count	0	Count	8	
	%	0.0	%	5.3	

## Type of house: FS Vs FIS woredas

Level of food security	Grass roof		Tin roof		Soil roof		Contingency Coefficient
	Count	%	Count	%	Count	%	
Food secured woreda	31	20.7	119	79.3	0	0.0	0.000*
Food insecure woreda	75	50.0	72	48.7	2	1.3	

## Rural-urban linkage with woreda food security classification

Level of food security	Strong		Weak		No suggestion		Contingency Coefficient
	Count	%	Count	%	Count	%	
Food secured woreda	148	98.7	2	1.3	0	0.0	0.531
Food insecure woreda	148	98.7	1	0.7	1	0.7	

## Extension service with woredas food security classification

Level of food security	Extension package				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	93	62.0	57	38.0	0.470
Food insecure woreda	99	66.0	51	34.0	

## Woredas' food security classification versus irrigation practices

Level of food security	Irrigation practices				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	21	14.0	129	86.0	0.096**
Food insecure woreda	32	21.3	118	78.7	

## Fuel saving technology: FS Vs FIS Woreda

Level of food security	Fuel saving technology				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	49	32.7	101	67.3	0.001*
Food insecure woreda	25	16.7	125	83.3	

	Road						Contingency Coefficient
	Adequate		Inadequate		No available		
	Count	%	Count	%	Count	%	
Food secured woreda	44	29.3	93	62.0	13	8.7	0.024*
Food insecure woreda	43	28.7	78	52.0	29	19.0	

	Potable water						Contingency Coefficient
	Adequate		Inadequate		No available		
	Count	%	Count	%	Count	%	
Food secured woreda	5	3.3	20	13.3	125	83.3	0.000*
Food insecure woreda	94	62.7	28	18.7	28	18.7	

	Irrigation water						Contingency Coefficient
	Adequate		Inadequate		No available		
	Count	%	Count	%	Count	%	
Food secured woreda	3	2.0	20	13.3	127	84.7	0.000*
Food insecure woreda	5	3.3	53	35.3	92	61.7	

	School						Contingency Coefficient
	Adequate		Inadequate		No available		
	Count	%	Count	%	Count	%	
Food secured woreda	59	39.3	91	60.7	0	0.0	0.250
Food insecure woreda	51	34.0	97	64.7	2	1.3	

	Health center						Contingency Coefficient
	Adequate		Inadequate		No available		
	Count	%	Count	%	Count	%	
Food secured woreda	22	14.7	121	80.7	7	4.7	0.001*
Food insecure woreda	5	3.3	131	87.3	14	9.3	

	Veterinary center						Contingency Coefficient
	Adequate		Inadequate		No available		
	Count	%	Count	%	Count	%	
Food secured woreda	5	3.3	114	76.0	31	20.7	0.003*
Food insecure woreda	1	0.7	93	62.0	56	37.3	

	Electricity						Contingency Coefficient
	Adequate		Inadequate		No available		
	Count	%	Count	%	Count	%	
Food secured woreda	3	2.0	4	2.7	143	95.3	0.423
Food insecure woreda	1	0.7	2	1.3	147	98.0	

	Telephone/post						Contingency Coefficient
	Adequate		Inadequate		No available		
	Count	%	Count	%	Count	%	
Food secured woreda	5	3.3	55	36.7	90	60.0	0.042*
Food insecure woreda	15	10.0	59	39.3	76	50.0	

	Land degradation perception						Contingency Coefficient
	Degraded slowly		Degraded at faster rate		No change		
	Count	%	Count	%	Count	%	
Food secured woreda	111	74.0	36	24.0	3	2.0	0.158
Food insecure woreda	107	71.3	43	28.7	0	0.0	

	Forest degradation perception						Contingency Coefficient
	Degraded slowly		Degraded at faster rate		No change		
	Count	%	Count	%	Count	%	
Food secured woreda	130	86.7	9	6.0	11	7.3	0.071**

Food insecure woreda	123	82	20	13.3	7	4.7	
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	Water degradation perception						Contingency Coefficient
	Degraded slowly		Degraded at faster rate		No change		
	Count	%	Count	%	Count	%	
Food secured woreda	127	84.7	20	13.3	3	2.0	<b>0.000*</b>
Food insecure woreda	132	88.0	2	1.3	16	10.7	

## Causes of land degradation: FS Vs FIS woreda

	Population pressure				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	54	36.0	96	64.0	0.904
Food insecure woreda	55	36.7	95	63.3	

	Over grazing				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	57	38.0	93	62.0	0.144
Food insecure woreda	45	30.0	105	70.0	

	Nature				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	9	6.0	141	94.0	0.156
Food insecure woreda	4	2.7	146	93.0	

	Land clearing/ deforestation				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	70	46.7	80	53.3	0.028*
Food insecure woreda	89	59.3	61	40.7	

	Cultivation practice				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	98	65.3	52	34.7	0.264
Food insecure woreda	107	71.3	43	28.7	

	Susceptibility of soil for erosion				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	

Food secured woreda	3	2.0	147	98.0	0.077*
Food insecure woreda	9	6.0	141	94.0	

	Steepness of the land				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	19	12.7	132	87.3	0.327
Food insecure woreda	25	16.7	125	83.3	

## Mitigation measure for land degradation: FS Vs FIS woreda

	Tree Plantation				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	22	14.7	128	85.3	0.069
Food insecure woreda	12	8.0	138	92.0	

	Soil bund				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	4	2.7	146	97.3	0.005*
Food insecure woreda	16	10.7	134	89.3	

	Stone bund				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	26	17.3	124	82.7	0.001*
Food insecure woreda	52	34.7	98	65.3	

	Grass strip				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	4	2.7	146	97.3	0.176
Food insecure woreda	1	0.7	149	99.3	

	Terracing				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	139	92.7	11	7.3	0.029*
Food insecure woreda	147	98.0	3	2.0	

	Organic fertilizer application				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	6	4.0	144	96.0	0.152
Food insecure woreda	2	1.3	148	98.7	

## Cause of forest degradation: FS Vs FIS woreda

	Population pressure				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	95	63.3	55	36.7	1.000
Food insecure woreda	95	63.3	55	36.7	

	Cultivation practice				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	12	8.0	138	92.0	0.476
Food insecure woreda	9	6.0	141	94.0	

	Deforestation				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	98	65.3	51	34.0	0.221
Food insecure woreda	110	73.3	40	26.7	

	Over grazing				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	2	1.3	147	98	0.510
Food insecure woreda	1	0.7	149	99.3	

## Mitigation measure for forest degradation: FS Vs FIS woreda

	Terracing				Contingency Coefficient
	No		No change		
	Count	%	Count	%	
Food secured woreda	149	99.3	1	0.7	0.317
Food insecure woreda	150	100.0	0	0.0	

	Tree plantation						Contingency Coefficient
	Yes		No		No change		
	Count	%	Count	%	Count	%	
Food secured woreda	131	87.3	18	12.0	1	0.7	0.451
Food insecure woreda	136	90.7	14	9.3	0	0.0	

	Guarding				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	8	5.3	142	94.7	0.627
Food insecure woreda	10	6.7	140	93.3	

	Private pond				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	0	0.0	150	100.0	
Food insecure woreda	0	0.0	150	100.0	

## Causes for water degradation: FS Vs FIS woreda

	Population pressure						Contingency Coefficient
	Yes		No		No change		
	Count	%	Count	%	Count	%	
Food secured woreda	56	37.3	91	60.7	3	2.0	0.008*
Food insecure woreda	47	31.3	87	58.0	16	10.7	

	Cultivation practice						Contingency Coefficient
	Yes		No		No change		
	Count	%	Count	%	Count	%	
Food secured woreda	1	0.7	146	97.3	3	2.0	0.002*
Food insecure woreda	5	3.3	129	86	16	10.7	

	Land clearing						Contingency Coefficient
	Yes		No		No change		
	Count	%	Count	%	Count	%	
Food secured woreda	98	65.3	51	34.0	1	0.7	0.221
Food insecure woreda	110	73.3	40	26.7	0	0.0	

	Over grazing						Contingency Coefficient
	Yes		No		No change		
	Count	%	Count	%	Count	%	
Food secured woreda	1	0.7	146	97.3	3	2.0	0.009*
Food insecure woreda	1	0.7	133	88.7	16	10.7	

	Water harvesting				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	1	4.7	143	95.3	0.007*
Food insecure woreda	0	0.0	150	100.0	

	Water harvesting				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	49	32.7	101	67.3	0.027*
Food insecure woreda	32	21.3	118	78.7	

	Tree plantation				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	

Food secured woreda	75	50.0	75	50.0	0.001*
Food insecure woreda	103	68.7	47	31.3	

## Perception of sustainable land management: FS Vs FIS woreda

	Community integrated conservation				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	100	66.7	50	33.3	0.317
Food insecure woreda	108	72.0	42	28.0	

	Integrated watershed management				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	11	7.3	139	92.7	0.000*
Food insecure woreda	74	49.3	76	50.7	

	Self initiated agro forestry				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	108	72.0	42	28.0	0.379
Food insecure woreda	101	67.3	49	32.7	

	Self initiated soil and stone bund				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	34	22.7	116	77.3	0.091*
Food insecure woreda	47	31.3	103	68.7	

## Practices for sustainable use of land for agriculture: FS Vs FIS woreda

	Increase in inorganic fertilizer use				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	126	84.0	24	16.0	0.012*
Food insecure woreda	108	72.0	42	28.0	

	Increase in organic fertilizer use				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	79	52.7	71	47.3	0.021*
Food insecure woreda	59	39.3	91	60.7	

	Soil bund for sustainable land use				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	23	15.3	127	84.7	0.000*
Food insecure woreda	49	32.7	101	67.3	

	Stone bund for sustainable land use				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	23	15.3	127	84.7	0.000*
Food insecure woreda	76	50.7	74	49.3	

	Terrace for sustainable land use				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	132	88.0	18	12.0	0.716
Food insecure woreda	134	89.3	16	10.7	

	Tree plantation				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	102	68.0	48	32.0	0.616
Food insecure woreda	106	70.7	44	29.3	

	Grass strip				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	6	4.0	144	96.0	0.520
Food insecure woreda	4	2.7	146	97.3	

	Agro-forestry				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	3	2.0	147	98.0	0.625
Food insecure woreda	2	1.3	148	98.7	

		Food secured	Food insecure	Contingency Coefficient
No NGO	Count	135	36	0.000*
	%	90.0	24.0	
World Bank	Count	1	43	
	%	0.7	28.7	
AMELD, GZZ, REST, WFP, KFW and World Vision	Count	0	71	
	%	0.0	43.3	
FCE, IPMS, MURED and Pass Finder	Count	14	0	
	%	9.4	0.0	

## Services obtained from public institutes

	Extension services				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	

Food secured woreda	93	62.0	57	38.0	0.470
Food insecure woreda	99	68.0	51	34.0	
	Input supply				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	123	82.0	27	18.0	0.001*
Food insecure woreda	97	64.7	53	35.3	

	Credit				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	79	52.7	71	47.3	0.162
Food insecure woreda	91	60.7	59	39.3	

	Land registration				Contingency Coefficient
	Yes		No		
	Count	%	Count	%	
Food secured woreda	107	71.3	43	28.7	0.000*
Food insecure woreda	143	95.3	7	4.7	

## Number of month household consume own production in good season : FS Vs FIS woreda

Number of month	Food secured woreda		Food insecure woreda		Contingency Coefficient
0	Count	2			0.000*
	%	1.3			
2	Count	0	0	0	
	%	0	0	0	
3	Count	0	1	0.7	
	%	0	0.7	0.7	
4	Count	0	9	6.0	
	%	0	6.0	6.0	
5	Count	1	26	17.3	
	%	0.7	17.3	17.3	
6	Count	3	16	10.7	
	%	2	10.7	10.7	
7	Count	0	8	5.3	
	%	0	5.3	5.3	
8	Count	3	8	5.3	
	%	2	5.3	5.3	
9	Count	3	4	2.7	
	%	2	2.7	2.7	
10	Count	10	15	10	
	%	6.7	10	10	
11	Count	8	0	0.0	
	%	5.3	0.0	0.0	

12	Count	120	50	
	%	80	33.3	

## Number of month household consume own production in bad season: FS Vs FIS woreda

Number of month	Food secured woreda		Food insecure woreda	Contingency Coefficient
0	Count	2	0	0.000*
	%	1.3	0	
1	Count	0	2	
	%	0	1.3	
2	Count	0	33	
	%	0	22.0	
3	Count	3	21	
	%	2.0	14	
4	Count	2	13	
	%	1.3	8.7	
5	Count	5	20	
	%	3.3	13.3	
6	Count	10	21	
	%	6.7	14.0	
7	Count	16	12	
	%	10.7	8.0	
8	Count	20	12	
	%	13.3	8.0	
9	Count	22	3	
	%	14.7	2.0	
10	Count	34	9	
	%	22.7	6.0	
11	Count	8	2	
	%	5.3	1.3	
12	Count	28	2	
	%	18.7	1.3	

***Annex 4: Proclamations:***

Proclamation No. 89/1997, Federal Rural Land Administration Proclamation

Proclamation 133/2006, the revised Amhara National Regional State Rural Land Administration and Use Proclamation

Directive No. 28/2007, Regional Administrative Council Directive to Provide for the Valuation and Determination of Compensation for Properties on Land Expropriated for Public Purpose in Amhara Regional Towns

Proclamation 97/2006, Rural Land Administration and Utilization Proclamation, Tigray

Regulation 37/2007, Tigray Land Administration and Utilization Regulation

Proclamation 117/2007, A Proclamation to Re-establish the Tigray National Regional State Road Authority and to Provide for its Duties and Responsibilities

**Annex 5: Questionnaire and Checklist****SARD-M Ethiopia Study**

Questions for preliminary data collection

**I. General**

1.1 Region (1) Amhara \_\_\_\_\_ (2) Tigray \_\_\_\_\_

1.2 Woreda \_\_\_\_\_ Kebele \_\_\_\_\_

1.3 Agro-ecology: 1. Dega \_\_\_\_\_ 2. Weyne dega \_\_\_\_\_

1.4 Respondent Name \_\_\_\_\_ sex \_\_\_\_\_ Age \_\_\_\_\_

1.5 Education level : Illiterate \_\_\_\_\_ Religious \_\_\_\_\_ Primary (1-6) \_\_\_\_\_ Junior (7-8) \_\_\_\_\_  
High school (9-12) \_\_\_\_\_ College \_\_\_\_\_ Other, specify \_\_\_\_\_

1.6 Primary occupation \_\_\_\_\_ Secondary occupation \_\_\_\_\_

1.7 Household size: Total \_\_\_\_\_ Male \_\_\_\_\_ Female \_\_\_\_\_

1.8 Family age structure : 1) Less than 10 years \_\_\_\_\_ (2) 10-14 years \_\_\_\_\_ (3) 15-64 Years \_\_\_\_\_ (4) Over 64 years \_\_\_\_\_

1.9 Family education structure: (1) Illiterate \_\_\_\_\_ (2) Religious \_\_\_\_\_ (3) Primary (1-6) \_\_\_\_\_ (4) Junior (7-8) \_\_\_\_\_ (5) High school (9-12) \_\_\_\_\_ (6) College \_\_\_\_\_ (7) Other, specify \_\_\_\_\_

**II. Natural Resources and Infrastructure Status**

2.1 What is your perception about the status of natural resource in this area?

Natural Resource	Status (Code A)	Reason (Code B)	Mitigation Measures taken by the community (Code C)
Land			
Forest			

Water			
-------	--	--	--

**Code A** (1) Degraded slowly (2) Degraded at a faster rate (3) no change

**Code B** (1) Population Pressure (2) Cultivation Practice (3) Land Clearing (4) Over Grazing (5) Others (Specify) \_\_\_\_\_

**Code C** (1) Soil Bund (2) Stone Bund (3) Terracing (4) Fania-ju (5) Tree planting (6) Grass Strips (7) Water harvesting (8) private pond construction (9) Others (Specify) \_\_\_\_\_

2.2 What is your perception on the concept of sustainable land management? (1) I know it because I participate in community integrated conservation practice \_\_\_\_\_ (2) There is an integrated watershed management activities by GO and NGO \_\_\_\_\_ (3) Self initiated agro forestry practice \_\_\_\_\_ (4) Self initiated soil bund and stone \_\_\_\_\_ (5) other, specify \_\_\_\_\_

2.3 What have you done to make your land sustainably used for agriculture?

(1) Increased application of inorganic fertilizer \_\_\_\_\_ (2) Increased application organic fertilizer \_\_\_\_\_ (3) Soil Bund \_\_\_\_\_ (4) Stone Bund \_\_\_\_\_ (5) Terracing \_\_\_\_\_ (6) Fania-ju \_\_\_\_\_ (7) tree planting \_\_\_\_\_ (8) Grass Strips \_\_\_\_\_ (9) agro-forestry \_\_\_\_\_ (10) Others, specify \_\_\_\_\_

2.4 What are the impacts observed in the sustainability of your land? (1) Soil fertility increase \_\_\_\_\_ (2) Productivity increase \_\_\_\_\_ (3) soil degradation decrease \_\_\_\_\_ (4) other, specify \_\_\_\_\_

2.5 How do you evaluate the condition of the following Infrastructure in your locality?

Type of Infrastructure	Adequate	Not Adequate	Not available
	1	2	3
Road			
Potable drinking water (Birka/piped)			
Irrigation water			
School			
Health Center (Human)			

Veterinary center			
Electricity			
Telephone and Post			

2.6 Please rank the following household energy source according to the frequency of use.

Source of Energy	Rank
Wood/twigs	
Charcoal	
Livestock Dung	
Straw	
Kerosene	
biogas	
electricity	
Other, specify	

2.7 Do you use fuel saving technology? (1) Yes \_\_\_\_\_ (2) No \_\_\_\_\_

2.8 If yes, specify? (1) Lakich \_\_\_\_\_ (2) Mirte (concrete) \_\_\_\_\_ (3) Gonze (Soil) \_\_\_\_\_ (4) Other, specify \_\_\_\_\_

2.9 Do you practice Irrigation agriculture? (1) Yes \_\_\_\_\_ (2) No \_\_\_\_\_

2.10 If yes, what is the source of Irrigation Water? (1) River \_\_\_\_ (2) Spring \_\_\_\_ (3) Water Harvesting (homestead pond) \_\_\_\_ (4) Well \_\_\_\_ (5) Others Specify \_\_\_\_\_

2.11 Who developed the irrigation Infrastructure? (1) Personal \_\_\_\_ (2) Community \_\_\_\_ (3) Government \_\_\_\_ (4) NGO \_\_\_\_\_

2.12 What is the total area of your own land under Irrigation (in ha)? \_\_\_\_

2.13 Which crops are produced using irrigation water? (1) Cereals \_\_\_\_ (2) Fruits and Vegetables \_\_\_\_ (3) Pulse and oil crops \_\_\_\_ (4) forage Crops \_\_\_\_ (5) Others (Specify) \_\_\_\_\_

### III. Food security and livelihood

3.1 What have you produced in the last two years in the main season (1999, 2000)?

Crop type	1999 E.C		2000 E.C	
	Hectare	Quantity produced (kg)	Hectare	Quantity produced (kg)
Wheat				
Teff				
Maize				

3.2 What improved technologies have you used in the last two years in the main season (1999, 2000)?

Technology type	Amount in Kg		Source (see code A)	Remark
	1999 E.C	2000 E.C		
Improved seed (specify by type)				
Fertilizer				
Pesticide				

**Code A:** (1) private, (2) Government, (3) Cooperative (4) NGO,

3.3 What problems did you encounter to access improved technologies? (1) Cost increment \_\_\_\_ (2) lack access to credit \_\_\_\_ (3) in-adequacy of credit \_\_\_\_ (4) delayanes to get credit \_\_\_\_ (5) other, specify \_\_\_\_\_

3.4 What other improved practices have you used?

Technology type	Currently used (1.yes, 2.No)	If Yes, Year started in E.C	Who introduced the technology (Code A)	If No, Reason (Code B)
Improved seed (specify by type)				
Fertilizer				
Herbicide				
Improved forage				
Improved livestock breed				
Modern hives				
Improved poultry				

Improved farm implements				
Natural resources conservation methods				
Improved agronomic practices				
Improved post harvest practices				

**Code A:** (1) private, (2) Government, (3) Cooperative (4) NGO,

**Code B:** (1) Not available (2) Not chosen by the administration (3) Lack of money (4) Lack of credit (5) Fear of risk (6) Is not better than the traditional technology, (7) Other, specify \_\_\_\_\_

3.5 Has your land holding changed? (1) Declining over time \_\_\_\_\_ (2) No change \_\_\_\_\_ (3) Increasing over time \_\_\_\_\_

- 3.6 If declining over time, why? (1) division within the family \_\_\_\_\_ (2) Redistribution by the government \_\_\_\_\_ (3) expropriated for public development work \_\_\_\_\_ (4) Expropriation for private investment \_\_\_\_\_ (5) Other, specify \_\_\_\_\_
- 3.7 If increase overtime, how? (1) Cultivation of swampy area \_\_\_\_\_ (2) Cultivation of forest area \_\_\_\_\_ (3) land renting/sharing \_\_\_\_\_ (4) cultivation of grazing area \_\_\_\_\_ (5) cultivation of sloppy area \_\_\_\_\_ (6) other, specify \_\_\_\_\_
- 3.8 What measures did you take to overcome this problem? (1) Sharecropping \_\_\_\_\_ (2) Land renting \_\_\_\_\_ (3) Land intensification (Use of inputs, improved varieties, irrigation and management) \_\_\_\_\_ (4) Other, specify \_\_\_\_\_
- 3.9 Perception on land security: (1) Secured \_\_\_\_\_ (2) not secured \_\_\_\_\_
- 3.10 If not secured why? (1) Expect land redistribution \_\_\_\_\_ (2) Expect expropriation for development work purposes \_\_\_\_\_ (3) Unofficial take away by Kebele officials \_\_\_\_\_ (4) Other, specify \_\_\_\_\_
- 3.11 What is the state of landlessness in your kebele? (1) Increasing \_\_\_\_\_ (2) Decreasing \_\_\_\_\_ (3) No change \_\_\_\_\_
- 3.12 If increasing, what do you think is the reason? (1) Increased number of youth \_\_\_\_\_ (2) In migration \_\_\_\_\_ (3) Degradation \_\_\_\_\_ (4) Urban encroachment \_\_\_\_\_ (5) Expropriation for public works \_\_\_\_\_ (6) Expropriation for private investment \_\_\_\_\_ (7) Other, specify \_\_\_\_\_
- 3.13 How many of the following do you have? (1) Oxen \_\_\_\_\_ (2) cows \_\_\_\_\_ (3) sheep \_\_\_\_\_ (4) goats \_\_\_\_\_ (5) Horse/mules \_\_\_\_\_ (6) donkeys \_\_\_\_\_
- 3.14 Did you or any other member of your household ever participated in extension package program (1) Yes \_\_\_\_\_ (2) No \_\_\_\_\_
- 3.15 Did you have access to credit in the last two years? (1) Yes \_\_\_\_\_ (2) No \_\_\_\_\_

3.16 If yes, please specify the source and amount.

Source	Purpose (Code A)	Amount in Birr		What are the problems encountered (Code B)
		1999 E.C	2000 E.C	

**Code A:** (1) Petty Trade (2) Fertilizer (3) Seed (4) Livestock (5) Bee keeping (6)Consumption credit

**Code B:** (1) small size loan (2) Not available when needed (3) high transaction cost (4) Package inflexibility (5) other, specify \_\_\_\_\_

3.17 If no, why? (1) Lack of awareness \_\_\_\_\_ (2) Enough own capital \_\_\_\_\_ (3) selection mechanism of the credit institutes \_\_\_\_\_ (4) other, specify \_\_\_\_\_

3.18 Provide details on your labour allocations for different activities listed below.

Activities	Full time			Par time		
	Adult male	Adult Female	Children (<15 yr)	Adult male	Adult Female	Children (<15 yr)
Agriculture (crop and livestock)						
Trade						
Charcoal making and fuel wood collection						
Beverage making						

Wage employment						
Carpenter, Weaver, pottery and other						
Production Safety net						
Others (specify) ____						

3.19 Alternative sources of livelihood and the gender division of task

Source	Mostly done by			Last Year estimated earning
	men	women	both	In Birr
Crop farming				
Home gardening				
Dairy				
Live animal				
Apiculture				
Poultry				
Charcoal making				
Fire wood fetching				
Domestic beverage				
Cart services				

Petty trade				
Handcraft				
Wage employment in the vicinity				
Seasonal Migration				
Others, specify _____				

3.20 How much money do you get annually in the form of remittance? \_\_\_\_ Birr

3.21 What are your main sources of income, (rank starting with 1=the highest source of income) (1) \_\_\_\_\_ (2) \_\_\_\_\_ (3) \_\_\_\_\_

3.23 How many times do your family members eat per day?

Members classification	Frequency			
	breakfast	lunch	dinner	snack
Adults				
Mothers on maternity				
Children				

3.24 During normal years, for how many months does your annual food production provide food for your family? \_\_\_\_\_ months

3.25 During bad years, for how many months does your annual food production provide food for your family? \_\_\_\_\_ months

3.26 Are you a participant in Productive Safety Net Programme? (1) Yes \_\_\_\_ (2) No \_\_\_\_

3.27 Which type of houses are relatively food secure in your area?

(1) Female headed \_\_\_\_ (2) Male headed \_\_\_\_\_

3.28 What type house you have? (1) Grass roofed hut \_\_\_\_ (2) tin roofed hut \_\_\_\_ (3) other, specify \_\_\_\_\_

3.29 Do you consider your family as poor? (1) Yes \_\_\_\_\_ (2) No \_\_\_\_\_

3.30 Why? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## IV. Rural-Urban linkage

### 4.1 Frequency of travel to the *nearest* urban center, purpose and cost of travel

Purpose	Distance from home (kg)	Means of transport (Code A)	Cost of transport in Birr	Frequency of travel (Code B)
Marketing				
health				
Personal administration matters				
Meetings called by the administration				

**Code A:** (1) On foot, (2) Pack animals, (3) Carts (4) Vehicle (5) Other, specify \_\_\_\_\_

**Code B:** (1) Once a week, (2) twice a week, (3) once a month, (4) twice a month (5) Other, specify \_\_\_\_\_

4.2 Where did you get market information? (1) Cooperative \_\_\_\_\_ (2) Mass media \_\_\_\_\_ (3) Agriculture and rural Development Office \_\_\_\_\_ (4) Brokers \_\_\_\_\_ (5) Neighbor \_\_\_\_\_ (6) Input suppliers \_\_\_\_\_ (7) Other, specify \_\_\_\_\_

4.3 What are the available market infrastructures in the nearest market center? (1) Shelter \_\_\_\_\_ (2) Storage \_\_\_\_\_ (3) Toilet \_\_\_\_\_ (4) Pack animal hold area \_\_\_\_\_ (5) waste disposal \_\_\_\_\_ (6) other specify \_\_\_\_\_

4.4 Who comes to the village from the urban center? (1) Traders to buy farm produce \_\_\_\_\_ (2) private input suppliers \_\_\_\_\_ (3) Relatives to visit \_\_\_\_\_ (4) others, specify \_\_\_\_\_

4.5 Purchasing power parity **perception** assessment (Trend of price comparison)

Item		agricultural input (improved seed, fertilizer, pesticide)	Health services	Clothing	Basic consumption items (salt, oil, sugar, kerosene)
		A	B	C	D
<b>1</b>	Crop products				
<b>2</b>	Live animals (cattle, sheep, goat)				
<b>3</b>	Dairy products				
<b>4</b>	Poultry/egg				

4.6 What is your overall view on the Rural-Urban linkage: (1) Strong \_\_\_\_ (2) Weak \_\_\_\_

4.7 If strong, Why? (1) Work closely with traded at urban \_\_\_\_\_ (2) It is where we get input \_\_\_\_\_ (3) all support social service are located here \_\_\_\_\_ (4) other, specify \_\_\_\_\_

4.8 If weak, why? \_\_\_\_\_

4.9 What services do you get from the nearest urban center in recent year? (1) health center \_\_\_\_ (2) Veterinary service \_\_\_\_ (3) school \_\_\_\_ (4)Postal \_\_\_\_ (5) administration \_\_\_\_ (6)Telecommunication \_\_\_\_ (7) Bank \_\_\_\_ (8) Microfinance \_\_\_\_ (9) other, specify \_\_\_\_\_

4.10 Are you satisfied or not with these services? (1) Yes \_\_\_\_ (2) No \_\_\_\_

## 5 Local Institutions

### 5.1 Associations and membership

Association	Membership (1=yes, 2=no)	Service obtained (Code A)
Farmers		
Women		
Youth		
cooperatives		
Others (specify)		

**Code: A** (1) access to input, (2) access to credit, (3) marketing, (4) dispute/ conflict resolution (5) other, specify \_\_\_\_\_

5.2 What kind of services do you get from public institutions? (1) extension\_\_\_\_ (2) supply of inputs (seed , fertilizer, and herbicide) \_\_\_\_\_ (3) credit, \_\_\_\_\_ (4) land registration and certification, \_\_\_\_\_ (5) dispute/conflict resolution \_\_\_\_\_ (6) other, specify \_\_\_\_\_

### 5.3 How do you evaluate the performance of cooperative?

Services	Satisfactory	Fair	Not satisfactory	Not available
Fertilizer supply				
Improved seed supply				
Pesticide Supply				
Improved forage supply				
Credit				
Price Information				

Product market				
Saving				
Storage				
Others, specify _____				

5.4 Which NGOs are operating in the area and what support they give?

Name of the NGO	Duration of operation	Support /development activities rendered (Code A)

**Code A:** (1) Water supply (2) School construction (3) Health center (4) Veterinary service (5) Road construction (6) improved technologies (7) Credit (8) Natural resource management (9) Other, specify \_\_\_\_\_

5.5 Which institutions are often used to solve conflicts/problems arising from the use of natural resources? (1) customary\_\_\_\_\_ (2) formal administration\_\_\_\_\_

**End!! Thank You**

## Chick lists

### SARD-M Ethiopia Study

#### Check list for the discussion with key informants (Institutions or experts) Draft prepared by Demese

1. Do you consider this region/woreda as a mountainous one? Why?
2. What policies and strategies are in place at federal/regional/woreda level to guide the sustainable development (***development that meets the needs of the present without compromising the ability of the future generations to meet their own needs***) efforts in view of
  - Economic and social activities (trade, price levels, employment, investment and population)
  - Agriculture and rural development (to influence rural income, agriculture resource base, agriculture production, consumption of agricultural products, agricultural price levels and variability, and the quality of food)
  - Markets (market institutions, infrastructure, and property rights)
  - Participatory process
  - Natural resource use and protection of the environment
3. What are the instruments
4. What kinds of impacts (positive or negative) do the policies and strategies brought to this area?
5. Have the policies created inequalities?
6. What policies and strategies should be reviewed or formulated new at federal/regional/woreda level to guide the sustainable development efforts of the area.
7. If review is considered, what have been the challenges?
8. Are their **unique** norms, policies or strategies that are followed by the community or local administration to address sustainable development issues/programmes in the area? List and discuss them.
9. What are the programmes/projects that are taking place in this region/woreda to bring a sustainable development)?
10. Which budget category is the major source of finance for sustainable development programmes/projects: recurrent or capital? Why? Was it planned adequately? If not why?

11. What are the strengths and weaknesses of the existing institutions responsible for formulating and implementing SARD policies and strategies at federal/regional/woreda levels?

## SARD-M Ethiopia Study

### Check list for the discussion during farmers FGD

Draft prepared by Demese

1. Do you consider this area as mountainous?
2. Describe the state of natural resources and the environment in a historical perspective
3. If the natural resources availability and use is declining and if the environment has changed then ask why?
4. What efforts are exerted by the community, the local administration and other GO and NGOs to mitigate the problems of natural resources degradation?
5. Are there conflicts which arise from the use of natural resources, and if yes what customary and formal mechanisms of resolving conflicts are used?
6. What is the major economic base of the area? Is agriculture a sustainable livelihood base in rural areas? Why or why not?
7. What are the sources of livelihoods in the area and how have they been started? What strengths and weaknesses exist in the rural urban linkage?
8. What is the relationship between the community and those citizens and institutions (private or public including businesses) in the nearby small urban centers?
9. What is the role of associations in terms creating conducive environment for sustainable development?

## Institutions/Offices to visit

- N1. Region/woreda Administration/Council
- N2. Bureau/Office of Agriculture and Rural development
- N3. Bureau/Office of works and urban development
- N4. Bureau/Office of Trade and Industry
- N5. Bureau/Office in Charge of Water Resources Development works
- N6. Bureau/Office in charge of Rural Roads Construction
- N7. Cooperatives/Farmers association
- N8. Chamber of Commerce/Trade Associations
- N9. Municipalities

## SARD-M Ethiopia Study

### Check list for the discussion with key informants (Institutions or experts) Draft prepared by Demese: To Region/woreda Administration/Council

1. Do you consider this region/woreda as a mountainous one? Why?
2. What policies and strategies are in place at federal/regional/woreda level to guide the sustainable development (***development that meets the needs of the present without compromising the ability of the future generations to meet their own needs***) efforts in view of
  - Economic and social activities (trade, price levels, employment, investment and population)
  - Agriculture and rural development (to influence rural income, agriculture resource base, agriculture production, consumption of agricultural products, agricultural price levels and variability, and the quality of food)
  - Markets (market institutions, infrastructure, and property rights)
  - Participatory process
  - Natural resource use and protection of the environment
3. What are the instruments
4. What kinds of impacts (positive or negative) do the policies and strategies brought to this area?
5. Have the policies created inequalities?
6. What policies and strategies should be reviewed or formulated new at federal/regional/woreda level to guide the sustainable development efforts of the area.
7. If review is considered, what have been the challenges?
8. Are their **unique** norms, policies or strategies that are followed by the community or local administration to address sustainable development issues/programmes in the area? List and discuss them.
9. What are the programmes/projects that are taking place in this region/woreda to bring a sustainable development)?
10. Which budget category is the major source of finance for sustainable development programmes/projects: recurrent or capital? Why? Was it planned adequately? If not why?
11. What are the strengths and weaknesses of the existing institutions responsible for formulating and implementing SARD policies and strategies at federal/regional/woreda levels?

## SARD-M Ethiopia Study

Check list for the discussion with key informants (Institutions or experts) Draft prepared by Demese: To Bureau/Office of Agriculture and Rural development

1. Do you consider this region/woreda as a mountainous one? Why?
2. What policies and strategies are in place at federal/regional/woreda level to guide the sustainable development (***development that meets the needs of the present without compromising the ability of the future generations to meet their own needs***) efforts in view of
  - Economic and social activities (trade, price levels, employment, investment and population)
  - Agriculture and rural development (to influence rural income, agriculture resource base, agriculture production, consumption of agricultural products, agricultural price levels and variability, and the quality of food)
  - Markets (market institutions, infrastructure, and property rights)
  - Participatory process
  - Natural resource use and protection of the environment
3. What are the instruments
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9. What are the programmes/projects that are taking place in this region/woreda to bring a sustainable development)?
10. Which budget category is the major source of finance for sustainable development programmes/projects: recurrent or capital? Why? Was it planned adequately? If not why?
11. What are the strengths and weaknesses of the existing institutions responsible for formulating and implementing SARD policies and strategies at federal/regional/woreda levels?

## SARD-M Ethiopia Study

Check list for the discussion with key informants (Institutions or experts): Draft prepared by Demese: to Bureau/Office of works and urban development

1. What policies and strategies are in place at federal/regional/woreda level to guide the sustainable development (***development that meets the needs of the present without compromising the ability of the future generations to meet their own needs***) efforts in view of
  - Economic and social activities (trade, price levels, employment, investment and population)
  - Agriculture and rural development (to influence rural income, agriculture resource base, agriculture production, consumption of agricultural products, agricultural price levels and variability, and the quality of food)
  - Markets (market institutions, infrastructure, and property rights)
  - Markets (market institutions, infrastructure, and property rights)
2. What are the instruments
3. What kinds of impacts (positive or negative) do the policies and strategies brought to this area?
4. Have the policies created inequalities?
5. What are the programmes/projects that are taking place in this region/woreda to bring a sustainable development)?
6. Which budget category is the major source of finance for sustainable development programmes/projects: recurrent or capital? Why? Was it planned adequately? If not why?
7. What are the strengths and weaknesses of the existing institutions responsible for formulating and implementing SARD policies and strategies at federal/regional/woreda levels?

## SARD-M Ethiopia Study

Check list for the discussion with key informants (Institutions or experts): Draft prepared by Demese: to Bureau/Office of Trade and Industry

1. What policies and strategies are in place at federal/regional/woreda level to guide the sustainable development (***development that meets the needs of the present without compromising the ability of the future generations to meet their own needs***) efforts in view of
  - Economic and social activities (trade, price levels, employment, investment and population): *trade*
  - Markets (market institutions, infrastructure, and property rights)
2. What are the instruments
3. What kinds of impacts (positive or negative) do the policies and strategies brought to this area?
4. Have the policies created inequalities?
5. What policies and strategies should be reviewed or formulated new at federal/regional/woreda level to guide the sustainable development efforts of the area.
6. If review is considered, what have been the challenges?
7. Are their **unique** norms, policies or strategies that are followed by the community or local administration to address sustainable development issues/programmes in the area? List and discuss them.
8. Which budget category is the major source of finance for sustainable development programmes/projects: recurrent or capital? Why? Was it planned adequately? If not why?

## SARD-M Ethiopia Study

**Check list for the discussion with key informants (Institutions or experts): Draft prepared by Demese:  
To Bureau/Office in Charge of Water Resources Development works**

1. What policies and strategies are in place at federal/regional/woreda level to guide the sustainable development (***development that meets the needs of the present without compromising the ability of the future generations to meet their own needs***) efforts in view of
  - Natural resource use and protection of the environment
2. What are the instruments
3. What kinds of impacts (positive or negative) do the policies and strategies brought to this area?
4. Have the policies created inequalities?
5. What policies and strategies should be reviewed or formulated new at federal/regional/woreda level to guide the sustainable development efforts of the area.
6. If review is considered, what have been the challenges?

## SARD-M Ethiopia Study

Check list for the discussion with key informants (Institutions or experts): Draft prepared by Demese: to Bureau/Office in charge of Rural Roads Construction

1. What policies and strategies are in place at federal/regional/woreda level to guide the sustainable development (***development that meets the needs of the present without compromising the ability of the future generations to meet their own needs***) efforts in view of
  - Agriculture and rural development (to influence rural income, agriculture resource base, agriculture production, consumption of agricultural products, agricultural price levels and variability, and the quality of food)
  - Natural resource use and protection of the environment
2. What are the instruments
3. What kinds of impacts (positive or negative) do the policies and strategies brought to this area?
4. Have the policies created inequalities?
5. What policies and strategies should be reviewed or formulated new at federal/regional/woreda level to guide the sustainable development efforts of the area.
6. If review is considered, what have been the challenges?

## SARD-M Ethiopia Study

Check list for the discussion with key informants (Institutions or experts): Draft prepared by Demese: to Cooperatives/Farmers association

1. What policies and strategies are in place at federal/regional/woreda level to guide the sustainable development (***development that meets the needs of the present without compromising the ability of the future generations to meet their own needs***) efforts in view of
  - Economic and social activities (trade, price levels, employment, investment and population)
  - Markets (market institutions, infrastructure, and property rights)
2. What are the instruments
3. What kinds of impacts (positive or negative) do the policies and strategies brought to this area?
4. Have the policies created inequalities?
5. What policies and strategies should be reviewed or formulated new at federal/regional/woreda level to guide the sustainable development efforts of the area.
6. If review is considered, what have been the challenges?

## SARD-M Ethiopia Study

Check list for the discussion with key informants (Institutions or experts): Draft prepared by Demese: to Chamber of Commerce/Trade Associations

1. What policies and strategies are in place at federal/regional/woreda level to guide the sustainable development (***development that meets the needs of the present without compromising the ability of the future generations to meet their own needs***) efforts in view of
  - Economic and social activities (trade, price levels, employment, investment and population)
  - Markets (market institutions, infrastructure, and property rights)
2. What are the instruments
3. What kinds of impacts (positive or negative) do the policies and strategies brought to this area?
4. Have the policies created inequalities?
5. What policies and strategies should be reviewed or formulated new at federal/regional/woreda level to guide the sustainable development efforts of the area.
6. If review is considered, what have been the challenges?

## SARD-M Ethiopia Study

Check list for the discussion with key informants (Institutions or experts): Draft  
prepared by Demese: Municipalities

1. What policies and strategies are in place at federal/regional/woreda level to guide the sustainable development (***development that meets the needs of the present without compromising the ability of the future generations to meet their own needs***) efforts in view of
  - Economic and social activities (trade, price levels, employment, investment and population)
  - Markets (market institutions, infrastructure, and property rights)
  - Participatory process
2. What are the instruments
3. What kinds of impacts (positive or negative) do the policies and strategies brought to this area?
4. Have the policies created inequalities?
5. What policies and strategies should be reviewed or formulated new at federal/regional/woreda level to guide the sustainable development efforts of the area.
6. If review is considered, what have been the challenges?

## ***Annex6: The TOR***

*Assessment of the strengths and weaknesses of policies, institutions and processes to support sustainable agriculture and rural development in mountain/highland regions in Ethiopia*

### **Background**

The Project for Sustainable Agriculture and Rural Development in Mountain Regions (SARD-M) of FAO addresses policy issues and bolsters institutions. It aims to support the rural livelihoods of mountain people by facilitating the design, review, implementation and evaluation of relevant policy packages and institutional processes for promoting SARD in mountain regions at global, regional, national and local levels.

The SARD-M Project Steering Committee (PSC) agreed in its Fifth Meeting (14 April 2008) on the importance of the SARD-M Project to conduct activities in Sub-Saharan Africa (SSA) and on the Global Mountain Programme being the Project Regional Focal Point (RFP) for the SSA Region. One of the main concerns in this part of the world is the alarming rate of degradation of natural resources of mountains/highlands areas, which are home to the majority of the total population and economic activity. Although there is general agreement on what the problems are and what needs to be done, there are very little practical mechanisms in place to promote sustainable utilization of natural resources and enhancing SARD-M in a way that is clearly linked to the livelihoods of the inhabitants within the SSA mountains/highlands as compared to the severity of the problem.

Development of policies for sustainable development is an iterative process that allows the national and local levels to act in a coordinated and participatory manner to develop coherent policies that balance the economic, social and environmental objectives of sustainable development. In accordance to this the above mentioned directions, the consultant for Ethiopia will assess the strengths and weaknesses of mountain policies, including social, economic, environmental, legal and institutional aspects, and policy formulation processes in relation to SARD-M principles (see annex 2) and filter key intervention areas towards possibility of establishing effective mechanisms that motivate the land users to sustainably manage the natural resources. Given that Sustainable Agriculture and Rural Development in Mountains (SARD) is a process that involves multiple actors strongly linking agriculture and rural development at all levels, this assessment will pay attention to the opinions of the different components of society at different levels, i.e. national and decentralized levels of government, civil

society, including the private sector, end-users, and also take into consideration the multi-sectoral nature of SARD. The assessment will be done at national level and two regional states, i.e., Amhara and Tigray.

## Objective

The major objective is to assess the strengths and weakness of mountain policies, institutions and processes on SARD with a particular emphasis to sustainable natural resources management and utilization in the mountains and highlands of Ethiopia as the first phase case study areas in SSA. Specific objectives are:

1. Assess key NR and livelihoods related problems and assess perceptions of these problems as well as contributing factors at grassroots level;
2. Assess mitigation measures being undertaken on identified NRM problems mainly focusing on soil, water and forest management using specific case study areas;
3. Analyze the existing NRM related policies at a local & national level focusing on what policies are in place, what works and what doesn't, gaps and future areas of improvement;
4. Assess institutional systems in relation to policy development, implementation and revision as well as policy formulation and implementation process at different levels;
5. Organize a national workshop to present initial findings and enrich the results and begin a dialogue with local and national representatives on how to improve policies and NRM.
6. Write a report on key findings and facilitate dialogue towards translation of findings into policy and development actions.

## Description of activities

The consultant will perform the following general activities<sup>51</sup>:

- a) Assess the strengths and weaknesses of mountain policies, including social, economic, environmental, legal and institutional aspects, in relation to SARD principles, in Ethiopia. Taking into consideration the FAO practical guide for a rapid assessment of policies, institutions and processes for SARD in mountain regions (Annex 2), the actions to realise the study will include:
  - i) Preliminary steps ;

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<sup>51</sup> We adapt the definitions of policy used in the Methodological Framework developed by the SARD-M project (Annex 2). The consultant will use the rural-urban linkage focal areas as case study areas and will collect relevant information and make appropriate analysis as per the study objective.

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- Provision of background information on the country under study: description of important issues facing agriculture and rural development in the country under study and socio-economic situation of people living in mountain areas; identification of the problematic or priority issues and the role and importance of mountains and their specificities (i.e. potentials, constraints and diversity)
  - Selection and justification of an entry point for SARD-M policy assessment in this case natural resources management related problems, perceptions and mitigation measures being undertaken in highlands/mountains areas of the country
  - Identification of policy frameworks and policies for SARD in highland/mountain regions of the country
  - Outline governance structure and institutional setting for the selected policies
- ii) Collection of policy data on NRM at the local, regional (sub national) and national levels using secondary data, and direct information from government officials and employees, community representatives and project staffs of NGO and donors at different levels. Policy information on natural resources management (NRM) (availability, potentials, constraints, gaps and requirements) will be collected focusing on the following broader categories:
- Local and regional strategies, regulations, and laws.
  - National strategies, regulations, and laws.
  - International strategies, regulations, and laws that have impact on local, regional and national strategies and laws
  - Key gaps along policy formulation, implementation and institutional mechanisms at different levels
  - Perception and attitude during policy formulation and implementation processes at all level
- iii) Supplementation of secondary information with a short survey in the regional administrations in Ethiopia to understand community's perspective of why poor management of natural resources (NR) is an issue and why NR are not being managed more sustainably using formal interviews, and through key informant group discussions. This includes perceptions of communities of NRM policies and regulations and their level of participation in the development and implementation processes (see annex 1 for detailed actions)
- iv) Analysis of existing policies and laws in relation to the identified key problems in Ethiopia and pinpoint good policy examples. In comparative analyses the study will address the following key questions:
- What are the primary objectives of the selected policies at national, regional and local levels?
  - How does the policy address mountain specificities; i.e. fragility, inaccessibility, marginality and diversity?

- How has the policy impacted on the livelihood and environment of the mountain communities?
  - Which elements of the policy have facilitated positive developments and what elements have constrained the development or produced negative impacts?
  - How do policies weaken or strengthen the positive or negative components of rural urban linkages in mountains?
- v) Assessment of institutional issues associated with policy implementation at different levels.
- vi) Employment of both qualitative and quantitative data analysis techniques to analyse the data focusing on perceived constraints at different levels related natural resources management (such as water access and management, soil management, forest management) and livelihoods.
- vii) A draft report, assessing key findings and all relevant information, including recommendations and proposals of follow-up activities at Ethiopian level; this report will recommend dialogue points with local and national representatives on how to improve policies and will support a national workshop.
- b. Organisation of a national workshop, to present and validate the findings and recommendations of the draft report, to discuss future direction, and propose follow-up activities.
- c. A final report, taking into consideration the discussions during the national workshops.

### **Time frame:**

The consultant will finalize the study on January 15,2009.

### **Terms and Conditions**

The final comprehensive report of the consultant should be submitted to the GMP within 2 months from the signing of the contract. In the mean time, however, the consultant is expected to keep the GMP informed of progress of the research. The GMP will cover all costs associated with this research, and shall pay a lump sum professional fee to the consultant in three installments, as per details given in the contract agreement form signed by the two parties.

## Required qualification

The consultant should be a PhD on Economics, Agricultural Economics, Policy or related fields and a minimum of 10 years experience.

## Annex 1: Guide for detail assessment of policies, institutions and processes (for secondary and primary data)

### Sub-activity 1.1: Analysis of the national, regional and local policies, strategies and norms (problems and gaps) including shortcomings associated with their implementation

- 1.1.1 Collection and analysis of the local, regional and national norms, policies and strategies that affect sustainable use of natural resources (water, soil and forests) and problems associated with their implementation.
  - a) Collect secondary information at national level focusing on the following organizations: MoARD (Ministry of Agriculture and Rural Development), MoWR, EPA, EIAR, MoWUD, MoFED, Federal Affairs, EDRI, AAU, Addis Ababa Municipality, MoME, BoFS, donors (FAO, WB, WFP, GTZ, UNDP, SIDA, CIDA, etc), Private sector groups, professional Associations (EAAP & EEPA), and other relevant stakeholders
  - b) Collect secondary information at regional level following similar procedure indicated on 'a' above. Focused institutions are: Regional Government, BoARD, BoFED, BoWR, EPLUAA, BoME, RARIs, Regional Universities, Private Sector groups (if any), BoFS, Donor supported Projects, Bahir Dar and Mekele Municipality, etc.
  - c) Conduct the same assessment at Districts level (selected two Districts i.e., one food secure district in Amhara and one food insecure district in Tigray) following the same procedure but adapted to local situation. Focus can be given to implementation of policies, strategies and local norms.
  - d) supplement the secondary data collection with primary information collected from experts and policy makers of the above institutions through interviews and focused group discussions
- 1.1.2 Compile information and make preliminary synthesis

**Sub-activity 1.2: Identify perceptions of communities about NR (water, soil and forest) policies and their effect on rural development. The steps to follow are:**

- 1.2.1 Identify two districts (one food secure and one food insecure) as specified in section 1.1.1 c.
- 1.2.2 Identify two kebeles in each district (one from high altitude (Dega), one from middle altitude (Woyna Dega)), overall four Kebeles, two from high altitude and two from middle altitude
- 1.2.3 Design tools to collect primary information on kebele level
- 1.2.4 Define and prepare participatory diagnostic tool (survey tool)
- 1.2.5 Select 75 households in each kebele taking into consideration gender, age and wealth category mix and carry out interviews (overall 300 households)
- 1.2.6 Analyse the information at kebele level and aggregate at district level.

**Sub-activity 1.3: Aggregate data generated from local, regional and national level findings and make preliminary analysis**

- 1.3.1 Policy and strategy availability, gaps and problems associated to policy formulation, implementation and institutions at different levels
- 1.3.2 Available norms (weakness and strengths) and direction of improvement at different levels
- 1.3.3 Perception of policies, strategies and norms by stakeholders at different level
- 1.3.4 Key recommendations for future actions or interventions

**Sub-activity 1.4: Organize a national workshop to present and validate the results found at local, regional and national levels.**

- 1.4.1 Design a national workshops (select participants at district, region and national level considering fare level of composition between state and non-state actors)
- 1.4.2 If possible circulate preliminary findings to participants for their comments
- 1.4.3 Prepare information to present
- 1.4.4 Hold workshop at the national level
- 1.4.5 Update findings based on workshop recommendations

**Sub-activity 1.5: Writing final report.**

- 1.5.1. The final report will contain a description of the strengths and weaknesses of the policies and strategies that affect mountain populations and environment, perceptions, and also the recommendations and proposed follow-up activities. In the annex will be general tables, summary of workshop results, final list of institutions and persons interviewed and surveyed, key policy documents reviewed, questionnaires, consultant's TOR and any other relevant document that makes the final report complete.