

Action Oriented Training of Natural Resource Management
Case Study of Community- Based Natural Resource Management
in Wodebeyesus Village, Debaitilatgin Woreda, Ethiopia

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LIST OF ACRONYMS & ABBREVIATION

ANRS	Amahara National Regional State
BoFED	Bureau of Finance and Economic Development
CBO	Community Based Organization
CoLF	Community Learning Forum
CDF	Community Development Fund
DA	Development Agent
FDRE	Federal Democratic Republic of Ethiopia
FTC	Farmers' Training Center
GIS	Geographic Information System
GO	Government Organization
HIV/AIDS	Human Immuno Virus/Acquired Immuno Deficiency Syndrome
Ha.	Hactar
ILRI	International Livestock Research Institute
IWSM	Integrated Water Shade Management
KA	Kebele Administration
LBL	Livelihood Based Learning
Masl	Meter above sea- level
Mm	Milimeter
NGO	Non-Government Organization
NR	Natural Resource
NRM	Natural Resource Management
OSC	Orgut Scanagri Consortium
PCU	Program Coordination Unit
PLA	Participatory Learning and Action
PRA	Participatory Rapid Appraisal
SARDP	Sida Amahara Rural Development Program
Sida	Swedish International Development Agency
SWC	Soil and Water Conservation
TNA	Training Need Assessment
TN	Training Need
WPCC	Woreda Program Coordinating Committee

DEFINATION OF SOME AMAHRIC (NATIONAL LANGUAGE) WORDS

Ato is equivalent to Mr.

Idir, Mehaber, Senbete, Equib are different self-help community organizations.

Kebele is equivalent to Village.

Teff is a local cereal crop used as a food crop in most parts of Ethiopia.

Woreda is equivalent to District.

Woizero(W/o) is equivalent to Mrs.

ABSTRACT

Development is largely perceived as a process of building capacities, hence empowering people through training is to able to handle their affairs by them selves.

The research examined the practical significance of action oriented training as a basic approach for sustainable management of natural resources (soil and water). The effectiveness of the natural resource management (NRM) is mainly determined by the needs and strategies of the farming community.

Farmers have to be exposing to innovations and technologies through trainings and demonstration to increase capacity in solving problems in their living environment by their own effort.

SARDP focuses on the conservation and rehabilitation of the natural resources and much effort was exerted in capacity building of the community through organizing intensive training programs on the conservation and management of natural resources. However, the natural base of the area is not improved.

Despite much level of interactions has done, less practical changes have taken place by the farmer community to which are not keen to make use of the information, knowledge and technology they gained through trainings.

The research identified the problem on how learning has taken place in natural resource management (soil and water), and why there is a problem to employ by the farming community at large scale.

During field work, it was revealed through the interview that some of the farmers were trained intensively in different training areas, while some of the respondents didn't participate in any training, demonstrations, and experience sharing visits. This has created differences in attitude and capacity in maintaining the natural resources that can contribute for improved agricultural production indeed.

Training Need Assessment (TNA) has not ever been conducted to discuss and endorse in the areas of the community's need either in the government or donor supported programs. Participation is limited only to consulting, that is to obtain acknowledgement from the public during meetings or gathering. The trainees were also selected by the Kebele Administration, Woreda Agriculture Office or by the development agents (DAs) giving no room for the community to play any role in the decision of selecting the appropriate trainees, where, when to train and on the content of the training themes.

The Woreda Program Coordination Committee (WPCC), which is responsible to coordinate the Sida-supported program, replied on the role of the community and how the overall development activities of planning and implementation are taking place. Thus planning in the areas of training is done solely by the experts. The experts diagnose constraints at each Kebele and at the same time identify training topics like SWC, seed multiplication, horticulture development, etc. that seem appropriate for each Kebele(village). Then the whole process is reviewed and endorsed for implementation.

According to the respondent farmers, in addition to the absence of participatory need assessment, there is no properly scheduled evaluation of the outcome and feed back of the trainings to take corrective measure and/or replicate the good practices. Sometimes training outcomes were evaluated during community conferences with other political, social and economic issues.

Problems and challenges that halted the achievement of the objectives of the different trainings as mentioned by the interviewed farmers and actors are outlined. Besides, factors enhancing learning are also indicated.

CHAPTER ONE: INTRODUCTION

1.1. Introduction

The issue of conservation and protection of the environment that is formed through the interactions of the biosphere (air, water, land, vegetation and climate), socio-economic and cultural set-up to sustainable support livelihood is currently a theme of utmost importance in many forums of national as well as international concerns. To realize this, the government and non-government organizations promised to dedicate and devote their resources in promoting the conservation and protection of the natural resources without compromising the benefits of the future generations. Therefore, a number of programs and projects were launched all over the world in developing as well as developed countries.

In most developing countries which are striving to pursue development in rural areas based on external assistance, the programs are often implemented with direct influence of the donor. This kind of donor intervention could be directed towards supplying financial and /or material assistances in order to enhance capacity of the local people so as to promote wise utilization and conservation of natural resources.

The Swedish International Development Agency (Sida) has been supporting a comprehensive rural development in the Amhara National Regional State (ANRS) of Ethiopia. The overall objective of the Sida-Amhara Rural Development Program (SARDP) is to contribute to poverty reduction of the Amhara Region by improving the food security conditions of the rural community and improve rural livelihoods. The program is designed to involve several components including crop production, livestock production, natural resources conservation, rural infrastructure, economic diversification, community capacity building, gender mainstreaming, family planning, and HIV/AIDS prevention.

In this research, I shall focus on the natural resources (soil and water) conservation and development component of SARDP as it is planned and implemented by the local government and the rural community.

This research will highlight the possible causative barriers which could be cited as a bottleneck for continuation of knowledge transfer (learning) in natural resource management.

The perception of each actor in the interaction and facilitation of the learning process will be assessed since the frontline implementer is the state organization.

Moreover, the contemporary social and political situations of the study area and the suitability of public participation in social learning to change the natural environment will be the focus of discussion in this study.

The research document comprises six chapters. The first chapter contains introduction of the research to be followed by chapter two dealing with literature review. Chapter three elaborates general descriptions of the study area. Results of this study are presented in chapter four while chapter five enlightens on the analysis and discussion of the findings. Conclusions and recommendations of the study are presented in chapter six.

1.2. Background of the Study

The study area, Wodebeyesus Kebele (Village), the smallest administrative unit with average household number of 1000, is found in Debai tilat gin Woreda(District) ,one of the 16 rural districts in East Gojjam Zone of the Amahara National Regional State (ANRS)¹. It is located to the Central and Eastern part of the zone, which is characterized by high mountains ranging from 2500-3000 mts. above sea level.

The bio-diversity of the study area is highly threatened due mainly to the dwindling of vegetation cover from such a naturally rugged and steeply sloped landscape exacerbated by poor agricultural practices that have been employed for ages. As a consequence of these distressing biophysical conditions, the soils are severely degraded and the fertility depleted which in turn have aggravated the food self-insecurity/insufficiency situation in the area.

Rolling (1996) in his work, towards an interactive agricultural science, states that increasing attention to the problems related to the Natural Resources (NR) and their impact on the environment. The new paradigm of social learning is recognizing the needs of collective efforts to sustain NR for future generation. It should be self evident that NR (soil, water, forest) must be central to sustainable development.

In the study area, the community's capacity is often constrained and the agricultural production, which is the main economic stay, remained still at a subsistence level; where natural resources are not well protected and utilized.

SARDP in its program framework also indicated empowerment of the community as a major principle. The creation of capacity at the local level and especially targeting the community members notably the poor farmers is critical for the success of the program. The primary focus of the program will, therefore, be to institutionalize and further strengthen the capacity of the community and their institutions through training, technical support, provision of facilities, and creation of access to financial resources (SARDP, Program Document, 2004). In this regard the program in realizing the development objectives, used training as a strategy of priority amongst all interventions made to change the attitudes of farmers & extension workers. The trainings were focused on natural resources management (NRM), mainly in soil and water conservation measures destined to maintain the fertility of the soils and use the available water resource for sustainable agricultural production.

These trainings should contribute in bringing about significant cognitive changes of new ideas and innovations to improve the livelihood of the community. Despite all the efforts made and aspirations conceived, however, the outcome did not turn out to be as expected. The topic of the present study is thus felt relevant to identify the level of knowledge transfer capacity of the farming community in Wodebeyesus Kebele to use and conserve the natural resources mainly associated with soil and water management for appropriate transformation of the traditional agriculture into a more sustainable system.

Wals (2007, p.86) emphasizes an action-oriented learning that scholars should use Kolb's theory in the field of sustainable development particularly in applying the idea of the learning cycle. It offers a concrete framework for developing activities within evolving networks for the different phases of the learning process. What makes the theory on

¹ There are eleven National Regional States in Ethiopia

learning interesting from the perspective of a sustainable development is that it focuses explicitly on the relationship between cognition and action, rather than on the increase of an individual's stock of knowledge.

1.3. Research Context

Globalization and liberalization, as the order of the day, present people with an over-changing environment and a large amount of uncertainties. It is especially serious for farmers who are dealing with living objects, those themselves are changing. Farmers have to innovate properly to adapt themselves to the changing circumstances. Otherwise they wouldn't manage their farms satisfactorily. In practice, we often see that some farmers have the capacity to harness their farms effectively and manage efficiently, while others don't. One main difference between these two types of farmers is their ability to adopt farming practices which are suitable for the changing environments, such as those which enhance the uses and conservation of the soil and water resources and cognitive change of rapid development in creating innovative ideas, and the like. This holds true also for the farmers where the present study was conducted.

Although trainings focusing on the conservation and proper utilization of the soil & water resources were repeatedly provided to the farmers, changing the knowledge acquired into practice is not satisfactory.

1.4. Problem Statement

SARDP's approach has been designed and implemented through decentralized program planning, management and financial functions handled by the local government for efficient service delivery to the rural community aiming to enhance their capacity in different development interventions amongst which natural resources management is the principal one. Farmers have to be exposed to innovations and technologies through trainings and demonstrations in order to increase their capacity in solving problems by their own effort. In a bid to foster the conservation and rehabilitation of the natural resources SARDP has been exerting a great deal of effort in changing the attitude and behavior of the farming community through organizing intensive training programs and demonstrations of best practices on the conservation and management of natural resources. However, the natural base of the area is not improved throughout the Woreda in general and cultivable land of the study area in particular. Technologies were introduced through learning programs and other means, but were not applied by the farmers as per the trainings objective. Caffarella (2004) demonstrated some barriers and enhancers to transfer learning, and some speculated key influencing factors (barriers) such as lack of the required knowledge and experience of the trainers (program participants), little match between the training environment and the application context (program design and execution), too little content (program content), no real opportunity to apply what is learned (changes required to apply what is learned), climate of resistance to innovation and change from the usual organizational context, and the community's and/or societal norms which are not supportive to changes.

The study focused identifying the barrier(s) of transfer of learning that hinder farmers to practice the skill and knowledge they gained to conserve and wisely utilize the natural resources.

1.5 Research Objectives

- To identify the constraining factors to practice the knowledge acquired from trainings on natural resources management in Wodebeyesus Kebele.
- To evaluate the community's role in participating in the planning of natural resources management training programs.

1.6 Research Questions and sub questions

1.6.1. What are the constraining factors to practice the knowledge acquired from trainings on natural resources management in Wodebeyesus Kebele?

Sub- Questions

- What are the challenges faced by the farmers to put into practice the knowledge and skill they gained from the training programs?
- What are the possible ways to enhance learning?

1.6.2. What is the community's role of participation in planning practical trainings on natural resources management?

Sub- Questions

- How are the training programs designed and implemented?
- How effective are the bylaws/norms developed by the community for the conservation and wise utilization of natural resources?

1.7 Research Methodology

1.7.1. The Study Area

The study area, Wodebeyesus Kebele has an area of 40 km². The total population is estimated to be 7000 people (48% are female) with a density of 175 inhabitants/km² (Debay tilat gin Woreda annual report for 2006/07). The area, due to the topography of the land, is highly affected by severe soil erosion, which in turn is taking a heavy toll on agricultural productivity. Conversely, however, there are ample quantities of both underground and surface water (rivers and streams) resources available in the area. These resources, however, are not yet properly utilized neither for drinking nor irrigation.

The Woreda, Debaytilat gin is so remote and pocket which is deprived of infrastructural and other forms of social and economic services. In order to support the rural community in this area, SARDP has launched its program in 1998. Notwithstanding the fact that many significant outcomes have already been achieved, the capacity of the community to undertake self-initiated NRM activities is still low. It is therefore deemed necessary, after such a long period of time that the program has been supporting the conservation of natural resources, to find out why there is such a low capacity of community-based NRM and also how far the program has addressed the targeted beneficiary farmers in knowledge transfer to conserve, maintain, and utilize the natural resources.

1.7.2. The Research Design

The strategy used to get the answers for the formulated questions included a case study whereby semi-structured and open-ended questionnaires have been used to interview individuals and groups selected from farmers and were represented by women and men. The other strategy was to interview the Woreda Program Coordination Committee (WPCC), Woreda program focal person, two NR experts and development agent (DA) of the study area. Field observations and application of PRA techniques have also been used. The farmers were part of the study to substantiate the data collected. SARDP-PCU (Program Coordination Unit) was also contacted for checking the information collected from different respondents and informants.

1.7.3. Sampling Procedure

The Woreda SARDP focal person together with the district NR conservation and development expert(s) have assisted in the selection of the intended farmers.

1.7.4 Data Collection Methods and Strategy

A) Primary Data Collection

Interview samples of 20 selected farmers comprising men, women, youths, were interviewed. 75 % of the respondents was trained, where as the remaining 25 % were non-trained farmers.

Selection of farmers was made following the snowball sampling technique. As Bernard (1988) indicated snowball sampling is useful in a small population in which people have a better contact and know each other and it is also advisable in situations where it is difficult to find people. In the research area it won't be easy to get farmers as needed due to the fact that the time of interview coincided with the peak period for sowing the major food crops. The other group interviewed was the Woreda Program Coordination Committee constituting six members of sectors office heads (the Woreda administrator is the chair person, Finance and Economic Development office head is the secretary, Agriculture & Rural Development office head, Women's Affairs office head, Capacity Building office head, and Small Scale Enterprises Agency head) including Woreda program focal person, two NR experts, and development agent (DA) of the study area.

B) Observation

Direct observation helped to firmly establish how farmers' responses are related to their actual involvement in implementing natural resource conservation measures. Moreover, attending their formal village gatherings was useful to understand how the farmers' behavior and attitudes to the NRM undertaken by SARDP including the communication between farmers and extension workers. Observations have been made also outside the study area to get an idea about the program's contribution. During the field observation PRA techniques, applying the venn-diagram to establish the various actors, their roles and influences on the SARDP's support by ranking them based on the size of the circle and distance away the farmers was used as part of the study to substantiate the data collected.

C) Secondary Data

Secondary data were collected from relevant documents such as scientific journals, books, PhD theses, proceedings from seminars, program/project documents, government reports, etc. were used to get more information.

In addition to these documents and reports, legal texts of the government on natural resources management or conservation and development legislations and directives about community-based NRM have been reviewed.

1.7.5. Data Analysis

The data obtained from the interviews have been summarized along broader categories of relationship and analyzed together with data obtained from observations. The findings of the research are in most cases qualitative in nature. The interpretations of some of the results of the study are made using the information gathered through the open-ended and semi-structured questions in the interview, observations and other relevant secondary data. The study will also include the attempts made to carefully decipher the findings of the study to wider explanations of theory. The tools used are matrix, graphs and table. Some models like David Kolb's learning cycle and the Quinn's model were also used to link theory and practice. The analysis of the findings was carried out based on the concepts and theories that have been indicated in the literature review. In this course of the analysis, the major parameters used include:

- Natural Resource Management
- Training
- Processes of training needs assessment
- Participation
- Learning

CHAPTER TWO: LITRATURE REVIEW

This chapter elaborates concepts which are related to the research themes. Natural resource management (NRM), training, training need assessment (TNA), learning, participation, and adoption are concepts of the research. The central issue of the research is NRM, where the availability of resources like land, forest, water etc. is becoming scarce and low management practices as well. A better understanding of the availability, use and management of NR might explain the environmental problems that are at stake in Wodebeyesus Kebele.

2.1 Natural Resources Management

Natural Resources Management (NRM) involves coordination between individual choices and action through rules, regulations, cultural taboos, beliefs and rites to balance needs and interests of users with the capacity of the resource system (Dangbengnon,1998).

Community based NRM is a coordinated action to mobilize and use the efforts of all for sustainable uses. It should be self evident that natural resources (soil, water, forest etc...) are the centre piece of sustainable development and it is necessary to look for alternative approaches of finding ways to conserve these resources. Qiu Sun in his PhD-thesis (2007, p.27-28) described that community based natural resources management is an integrated approach to address resource degradation and rural poverty. It places the local resource users in the center of decision-making about how natural resources should be used and managed. It aims to empower poor farmers through capacity building and participation and also pays particular attention to social and gender variables.

More attention is given to the social dimension and actors' perspective for the achievement of sustainable management of natural resources by bringing on board both traditional & scientific elements together with social factor approaches used which recognize the multiple realities and platform for collective decision and action for NR conservation.

For more effective NRM, Sayer.& Campbell (2003), indicate that (a) commitment to learning approaches, (b) types of action (what is required and where) & (c) organizing the community for implementing effective natural resources management .

As Chamber (2005) cited Probst and Hagmann et.al. (2003), much experience has been gained with participatory learning and action in NRM.

To make the NR more sustainable, actors have to be capable of working together and readily adjusting themselves to the changes. External supports need to be directed towards effective practical facilitation of capacity buildings.

According to Vansessa Scarborough et.al. (1997) sustainability is not just a question of technology. There are important social, economic, and institutional issues as well. From a social perspective, agricultural development must provide sustainable livelihoods for rural households, particularly for those with few resources and little opportunity for off-farm work. An economic perspective points to the need for farming systems to generate sufficient returns to justify the resources used. Institutional issues focus on the ability of supporting infrastructure to guarantee supplies of necessary inputs to farmers, including land, credit, and information.

Another important part of the institutional structure which supports rural development is the agricultural knowledge and information system, which includes farmers' local knowledge and abilities. Even if sustainable technology is available, it may not be widely applied if farmers' do not have the necessary knowledge and skills. Vansessa Scarborough et.al. (1997) citing Pretty (1995) state that long-standing concerns over soil

conservation have been brought into focus by recent debates about deforestation, soil erosion, desertification, pollution, and over extraction of surface and ground water.

2.2 Training

Training doesn't occur in a vacuum. Training approaches and their effectiveness are influenced by the social, economic and institutional context in which they occur. It is a transforming tool through which people learn new attitudes, knowledge or skills. (Moser C, 1993).

Pretty (1995) stated that good communication and the free exchange of information is at the heart of all training and human resource development. But this can be threatened by the barriers constructed or already present in both trainers and trainees. Barriers may reduce the effectiveness of the communication between the sender and the receiver of the messages.

Training must be tailored to what trainees want to learn and that can last for lifelong. It is often stressed that learning must be both vertical and horizontal to facilitate the learning process and to make it more practical. Indigenous knowledge that has ethical and moral values for society must be incorporated and learnt.

2.3 Training Need Assessment (TNA)

TNA is described as a gap between what is currently in place and what is needed, now and the future. http://www.ispi.org/pdf/suggestedReading/Miller_Osinski.pdf [Accessed on 27/08/08]. Training Need Assessment is the identification of target groups and topics and systematically prioritizing them in order to utilize best the training resources committed. Training is expected to commence with the identification of training needs (Ajayi et al. (2003). Caffarella (2004) also underlines that the focus of the training assessment isn't to find solution for specific problems but to clarify and define the problems. IIED (1995) states that it is essential at least to build up our own assessment through observation and discussions with the farmers to obtain and identify their basic needs either using semi structured questionnaires or using PRA tool or to consider a transect walk and speak with those you meet them to find out the necessary information and opinions to design a training that meets particular needs conducting a highly structured need assessment, as noted earlier, is one of the many ways that ideas and needs are identified for education and training program.

Training Need Assessment (TNA) approach is found to be convenient to employ in this study as an additional theory to the concepts widely described below. SARDP's approach in line with the government policy on rural development is to make the necessary efforts to ensure all the innovations and technologies made available to farmers. Caffarella (2004, pp124-126) showed a composite description of how to design a structured need assessment which includes the following points.

- Decide to conduct need assessment- make a conscious decision to complete a need assessment with a commitment to planning.
- Identify staff and develop management plan
- Determine context, purpose, and objective for the needs assessment.
- Determine logistics- layout the target dates, timelines, budget and staff.
- Choose respondents—specific individuals and/or groups to be the respondents for the need assessment.
- Determine data collection techniques
- Collect data
- Analyze data
- Sort and prioritize needs
- Communicate results

According to Vella (1994), the three need assessment (NA) tools are ask, study and observe

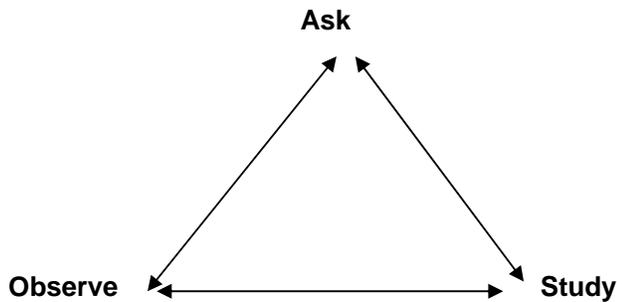


Figure 2.1 Need Assessment Tools

TNA is relevant for every organization and must be a continuous process as it results in:

- Minimizing resource wastage,
- Maximizing staff time and energy,
- Allowing flexibility in changes in the curriculum /training content, and
- Identifying weakness in an organization which otherwise might remain hidden and it affords staff with the opportunity to evaluate and reflect upon their performances if done in a participatory way. In this regard defining the appropriate training needs is a paramount issue to every organization that wants to achieve efficiency and sustainability. Need assessment must be identified from the interest points of trainees, trainers other potential sponsors, management, policy makers and the government/politicians

2.4 Participation

Chamber (2005, p102) showed among many issues, one that stood out as vital from the start was who participates, where, when, with whom, and with what equally. Who is excluded from participation, or marginalized, whether by gender, age, poverty, social group, religion, occupation, disability or other similar dimension, has been a persistent concern. He also stressed that participation, by its very nature, is always innovative. Learning and communication remain important concerns within such a negotiation approach to participation. However, effective social learning is unlikely to happen if it isn't embedded in a well-managed negotiation process. At the same time, effective negotiation is impossible without a properly facilitated social learning process (Leeuwis 2004, p.172).

Public participation is involving a wide range of activities that can range from information, through consultation to direct involvement of the public in aspects of the decision-making. Five different levels of public participation were identified by the International Association for Public Participation (IAP2, 2005).

These are:

- Inform the objective: to promote the public with the balanced and objective information to enable people to understand the problem, alternative and/or solution;
- Consult-the objective: to obtain public feedback on analysis, alternative and/or decisions;
- Involve-the objective: to work directly with the public throughout the process to ensure the public issues and concerns are understood and considered at all every stage and directly reflected in the planning, assessment, implementation and management of particular proposal or activity;

- Collaborate-the objective is to work with the public as a partner on each aspect of the decision ,including the development of alternative and the identification of the preferred solution; and
- Empower- the objective: to place final decision–making in the public.

In line with this, SARDP has been striving to improve the competence of the community in the area of natural resources management realizing the natural base of the operational area which is severely affected and degraded. Conservation and development of natural resources require joint-hand efforts of actors and multi- dimensional interventions such as raising the awareness of the community and enhancing the technical competence of government organization staffs on the subject and this will be indispensable to maintain and improve the existing natural status through providing well organized and systematically designed training. This will be realized where the different actors in the natural science management activities participate in the training need assessment process. Stakeholders like sector offices' experts, the community and facilitator of the training program should identify the main problems that aggravate degradation of the natural resources of the area and thus call for full facilitation and participation of the local community. Participation should be at the level of consultation to be followed by collaboration to identify and communicate the types of training they should get. However, the classical training program and the designing process don't fulfill this process; nevertheless, it will be investigated in the research process. Therefore, the training program from the outset should address the training need of the target community (farmers) by conducting participatory training need assessment, the participation of stakeholders at collaborative level so that the trainees will have the opportunity to fix the training period, time, place and type of the training based on the identified gaps that will make them to be motivated and responsible to accomplish their task at the end of the training program.

2.5 Adoption

Adoption of innovation refers to the decision to apply an innovation and to continue to use it (Rogers, 2003). Some farmers want to be innovators through wisdom or indigenous knowledge, while others happen to be early adopters, late adopters, or non adopters. Studies indicated that the adoption of innovation is not something that happens over night, but rather it is the final step in a sequence of stages. The most widely used characterization of stages in connection with adoption of innovation follows, as Leeuwis, C. (2004) cited from Rogers (1962, 1983), the model built heavily on theories about decision-making models and consisted of the following stages:

1. Awareness – of the existence of a new innovation or policy measure.
2. Interest -- collecting further information about it.
3. Evaluation - reflection on its advantages and disadvantages.
4. Trail - testing innovation /behavior changes on a small scale.
5. Adoption/acceptance – applying innovations/ behavior changes.

Here, farmers require information through need assessment on the trainings given to stimulate adoption and make the result more effective.

2.6 Learning

The method of dissemination of what the farmers desired to know created gap which can only be filled through learning in participatory ways. Recognition to the rural community as a development partner is pragmatic to attain the required development objective. Considerations of socio-cultural and economic background of the community and undertake the required assessments of needs in the areas where farmers to be trained and acquainted more in the NRM is pertinent. This will promote how the learning methods shall be set, when and where to decide with the involvement of farmers on the issues/ areas of training will play a role to be much successful. High level of participation in the process of need identification will have an effect on high knowledge transfer of the training content and better NRM thereof. This will improve the agricultural production and productivity for the ultimate improvement of livelihood of the community.

Learning has been looked at from various disciplines and angles, including cognitive psychology, adult education studies, management studies and complex systems thinking. Here we do not attempt to give a full overview of the resulting conceptual richness. Instead, we choose to discuss theories that bear relevance to the perspective on sustainable development outlined above, that is, to dealing with a concept that is essential normative, contestable and radical. We are especially interested in those perspectives that address action-oriented processes of learning that take place in regular societal contexts rather than in formal educational settings, Wals (2007).

Besides, learning societal character is depicted in the following way. Learning has often been studied through examining how individuals learn. The theory of learning itself has historically been conceived in psychological rather than sociological concepts and research, but learning clearly has a social dimension or context. We learn from other people and along side them, in our social relationships (Jarvis,P.et al. 2004,p.42).

Leeuwis (2004) explained that in order to arrive at coherent practices, multiple actors need to develop complementary and/or overlapping understandings about the learning fronts as a basis for effective coordinated action. Rolling (2002) also described about the importance of social learning, it uses as a key mechanism for arriving at more desirable futures, and a third way of getting things done. However, this stands in sharp contrast to the instrumental modes of thinking. More specifically he defined social learning as a move from multiple to collective or distributed cognition.

Leeuwis. (2004, p.161) states also the following aspects of learning that participants in a social learning process must go through:

- becoming aware;
- becoming interested/mobilized;
- becoming involved in active experiential (social) learning; and
- establishing adapted practices and routines.

This will help to develop better communication with farmers and transforming the required knowledge and skill to take actions. Vansessa Scarborough et al. (1997) described that training in communication skills (particularly with groups, but also in dialogue with individual farmers), in participatory rural appraisal and in problem –solving becomes increasingly important.

Learning and teaching methods used in training institutions also need to be brought in line with the requirements of 'extension for sustainability'. Communication skills are learned by trying them out and then reflecting, with the critical help of peers and trainer, on the outcome.

In relation to action learning sets, Brock Bank. A. and Mc Gill. I. (2007) described a typical template for enabling learning using learning sets.

- Five to seven individuals and the facilitator meet together to form a group.
- Each individual other than the facilitator brings the real issue/problem to the set.

- The whole set works on the issue for the benefit of the presenter
- The aim of each individual presenting the issues is to be able to take action on some aspects of the issue, to reflect upon and learn from the actions as the process progresses.
- Typically, the learning set meets for three to four hrs (or one day) every four to six weeks for a cycle of meetings over an agreed period.
- The set will create explicit conditions' ground rules' on which to operate to ensure effective working norm.

As Mullins (2002) also described there are a number of factors which can influence the speed of learning as well as the enjoyment of learning. Internal factors such as the emotions and memory, and external factors such as the environment and reward can have a direct influence on the quantity and quality of learning.

On the other hand Lee Davis (2007) citing Mumford (in Beardwell and Holder, 2001) showed that, just as there are ways to promote more effective learning, it follows that certain barriers to learning exist. He identified ten specific blocks of learning:

- Perceptual-in ability to see there is a problem
- Cultural-conditioning about the way things are done already
- Emotional-anxiety can impede learning
- Motivational-lack of willingness to take risk
- Cognitive-previous bad learning experience
- Intellectual-limited ability
- Expressive-ineffective communication skills
- Situational-lack of opportunity
- Physical-time, place, etc. inappropriateness
- Specific environment-unsupportive colleagues/superiors

2.6.1 Learning Theories and Model

Learning is needed at several levels to empower individuals, to develop human, social and cultural capital that include, among other things, enhancing human skill and capacity, norms and values into development (Hiyama and Keen2004)

Experiential learning: The process whereby knowledge is created through the transformation of experience as explained by Kolb that included concrete experience (visualizing phenomena), observation and reflection (facilitating discussion), Cognitive change or abstract conceptualization (clarifying patterns), and active experimentation (action) that function in learning cycle (Kolb 1984). The learning process often begins by a specific action by a person or group. The learner reflects critically on the experience by asking question to understand the effect of the action. The learner then tries to extract general principles that describe the experience, and to draw conclusions from these. Finally, the learner tests these conclusions by applying them in a new situation. The cycle continues, with the complexity and depth of the learning at each stage (Lewis and Williams, 1994)

The model describes how people learn through experience .This type of learning is very 'powerful'; it appears that conclusions drawn by people themselves on the basis of their own experiences tend to have a greater impact than insights formulated by others on the basis of experiences that learners cannot identify with. It is also referred to as 'learning by doing 'or 'discovery learning' (Lewis, 2004).

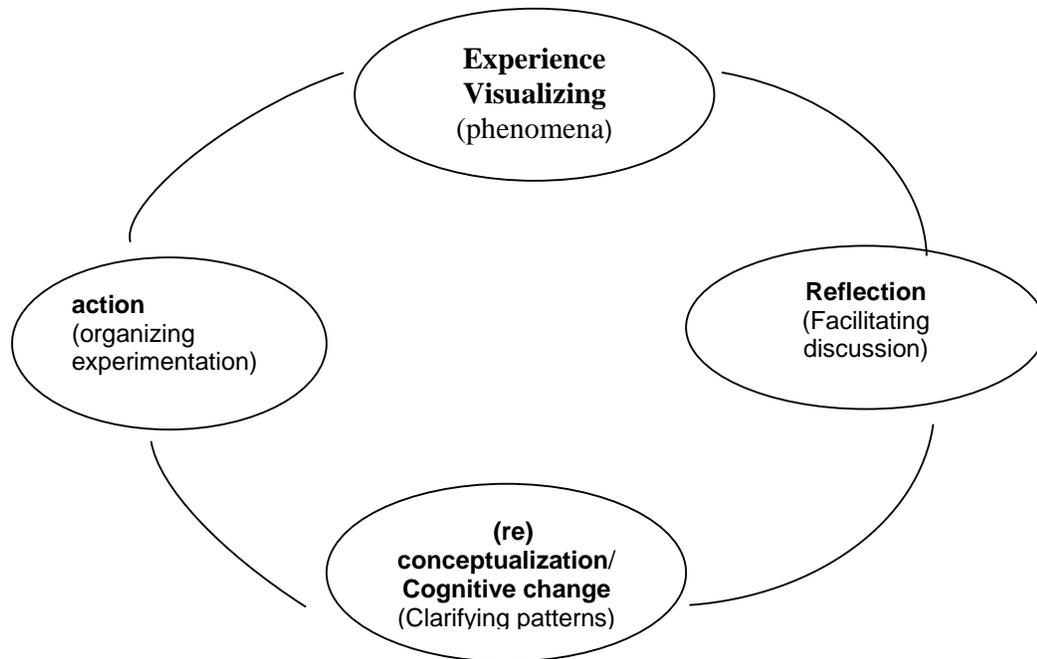


Fig. 2.2 The learning cycle with examples in brackets of ways in which the different stages can be supported by communication workers (adapted from Kolb, 1984)

Social Learning: refers to learning process among a group of people who all seek to address shared problems and take action collectively (King 2000). Different people give different meaning for social learning. However there are three communication and relation-building (Hyama and Keen, 2004) ways. First, social learning describes the collective process whereby group shares and accumulates new knowledge. Second, all participants contribute different knowledge based on their capacity and experiences. Third, social learning occurs through interaction among individuals, communities, and institutions in collective action.

Quinn's Model: the model assumes different criteria of effective communication for different competencies or role. It describes eight management roles as, the producer role (achiever), the director role (strategist), the coordinator role (anchor), the monitor role (analyst), the mentor role (helper), the facilitator role (team player), the broker role (networker), and the innovator role (pioneer). It is designed to help understand the complex and dynamic nature of organizational as well as develop their capacity and build practical skills in every area of managerial competency or skill in order to thrive in the diverse situations and changes to act in such a world.

The justification for the choice of this model is to aid in understanding the behavior of the different actors especially those in leadership positions in dealing with the farmers. Even the farmers themselves who hold leadership positions in their groups can use these competencies for their group management. However, the misuse of the roles may hinder any development within the group.

2.7 Conceptual Framework

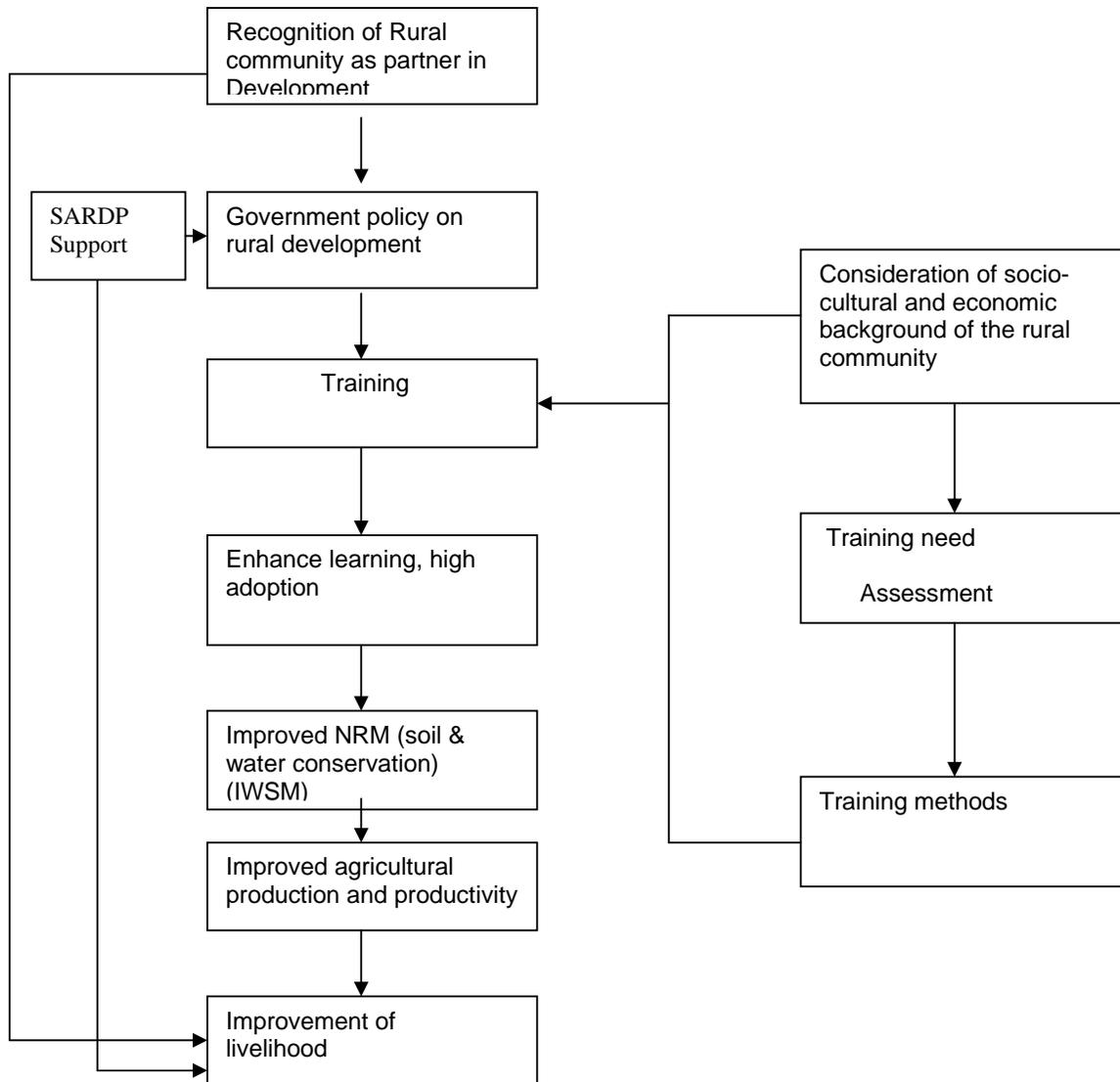


Fig. 2.3 Analytical Framework

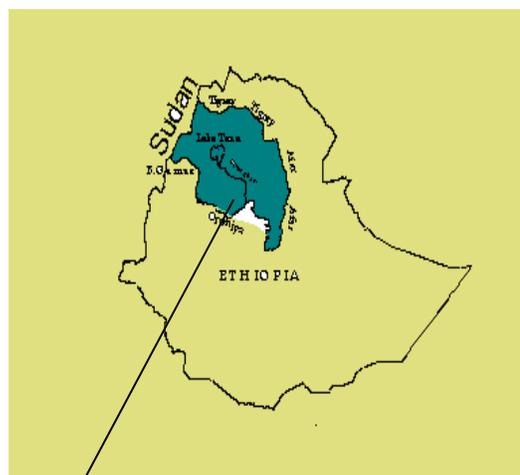
CHAPTER THREE: GENERAL BACKGROUND OF DEBAI TILAT GIN WOREDA (DISTRICT)

3.1 Location and Agro- ecology

Ethiopia has an area of 1, 97,000 km² and a population of more than 70 million. Around 85 % of the population lives in the rural areas of the country. Agriculture is the dominant economic activity and constitutes the major livelihood of the country. The population growth rate is very high (2.8% per year) as compared to its economy and the country suffers from chronic food insecurity, which makes it one of the poorest countries in the underdeveloped countries. Generally its people live below the poverty line.

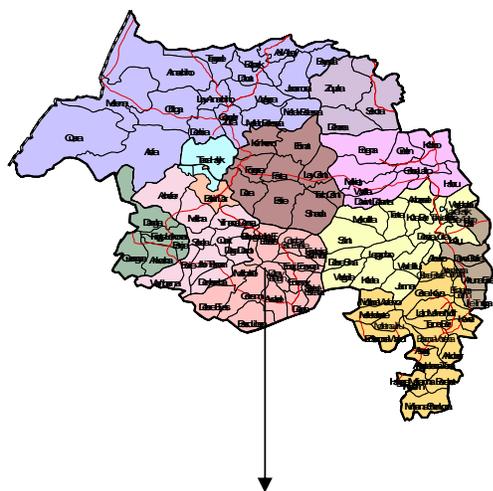
Ethiopia has eleven regional states. The Amahara National Regional State (ANRS) is one among these states. ANRS has eleven administrative zones and one hundred and thirteen woredas (districts).

Debaytilatgin woreda located in East Gojjam zone embraces twenty one Kebeles (villages or sub-districts) and Wedeb Eyesus is one among them. Debaytilatgin woreda is bordered by Enemay and Enarge Woredas in the east, by Awabel Woreda in the west, by Bibugn and Huleteju-enese Woredas in the north, and by Dejen Woreda. in the south. The area covers some 60,918ha, categorized as an highland with an elevation ranging from 2678 to 2805 masl



Amahara Region

Fig.3.1 Map of Ethiopia



East Gojjam zone

Fig.3.2 Map of Amahara Region

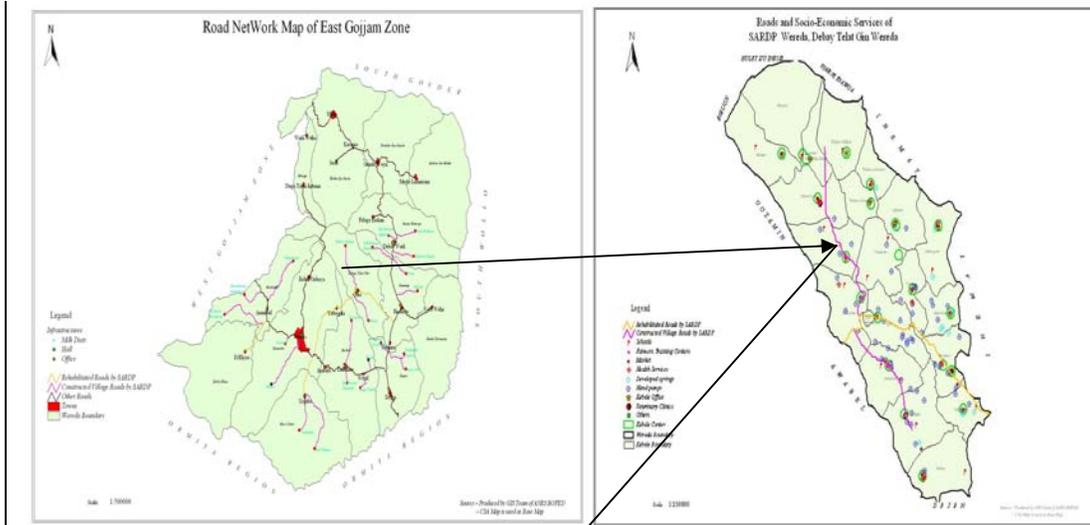


Fig.3.3 Map of East Gojjam Zone

Fig .3.4 Map of Debay Tiltat Gin

**Wodebeyesus Kebele
(The study Area)**

(Source: BoFED, GIS Department)

Regarding land utilization, 31073ha.of land (51%) is used for crop production, 18.8% for grazing, 15.2%, for settlement, 5.3% for other vegetation cover and other services constitute 9.7% of the total area. (Woreda Administration 2007/2008 Annual Report).

3.2 Population

The Woreda has a total population of 138576 (73116 male and 65460 female), out of this 134318 (97%) live in the rural areas depending on subsistence agricultural economy and the average landholding is 1.12 ha. The study area, Wodebeyesus constitutes 4000 km² with 8000 people of whom 48% are female and 52% male residents. It is located 7 kms away from the district capital Kuy (Woreda Administration 2007/2008 Annual Report).

3.3 Agriculture

The people in Debaytilatgin Woreda depend largely on crop production and livestock rearing. The woreda is 100% highland ranging in elevation from 2678 to 2805masl. and receives annual average rainfall ranging between 800 and 1100 mm. The Woreda is not exposed to drought as such, but is highly vulnerable to frost and flood and crop pests and diseases. Debay tiltat gin is also exposed to severe soil erosion, land slide and loss of soil fertility due to its rugged topography, the inappropriate farming system and occurrence of heavy floods. Irrigation agriculture is expanding in recent years. In the year 2007/2008 the total irrigated land in the Woreda was reported to have reached 3050ha, and in the study area, the Muga project, constructed under SARDP is covering 484 ha.of irrigated land (Woreda Agriculture Office, 2008).

A high crop yield was recorded under the government crop extension package program. However, given the high fertilizer prices farmers are hesitant to invest on chemical fertilizers particularly under the current credit arrangement. Given also the net benefits are minimum, any increase in food production for small landholders has to come from improved crop and land husbandry practices and use of organic means to replenish the soil fertility.

Livestock plays a critical role in the farming system but numbers have declined drastically over the years due to animal diseases, and in particular due to shortage of feed and grazing land. Information from the Woreda office of Agriculture and Rural Development indicates that veterinary service coverage in the Woreda is 26% and in many cases farmers resort to traditional practices. The farmers tell that animal diseases together with the limited veterinary service coverage also affect livestock productivity. The productivity of local livestock breeds is also very low, and efforts to introduce improved livestock breeds have been inadequate due to financial constraints and limited number and capacity of suppliers in the region.

Like in most rural areas in the country, livelihood sources in Wodeb are crop production, livestock, tannery, petty trading and weaving. Farming practices is mixed farming dominantly rain fed agriculture. The major crops in the rain fed agriculture include barely, wheat, teff, bean, field pea, niggerseed, linseed, lentil, maize and the like. Agricultural crops produced under irrigated farming include horticultural crop like potato, onion, hot pepper, cabbage, and fenugreek. Of all the horticulture crops, onion and cabbage constitute the larger share in local markets.

3.4 Infrastructure and Social Services

Education: According to the Woreda Education Office, education coverage for school-aged children in Debayilatgin is currently 92.8%. There are 40 primary schools, 1 secondary school, 21 alternate basic education centers, and one private kindergarten in the Woreda. However, the effectiveness of education in the rural schools has been constrained by shortage of teachers, books and other educational materials. Currently, 3 primary schools and 4 alternate basic education centers which are not equipped well and understaffed are providing education service at the study area. (Woreda Education Office).

Health: It is hard to say that there are better health and sanitation services in the Kebele. There is an increasing malaria incidence in the Woreda despite its highland agro ecology. Infectious diseases and those related to poor sanitation and waterborne diseases were also reported as major causes for different diseases. Incidence of HIV/AIDS and associated causes for losses in human life in the Woreda (District) capital in particular was reported to be high. Currently, there are 4 health clinics, 16 health posts, and one health center (according Woreda Health Office). In general access to health services in the Woreda has been constrained by inadequate number of health institutions, poor medical facilities and supplies, shortage of trained medical professionals, budget and transport facilities, and lack of continuity in services provided by traditional midwives. Lack of community participation in preventive health care practices and sanitation programs have also been pointed out as major constraints to the health sector.

Roads: There are all-weather roads which connect Kuy , the Woreda capital with Bichena (adjacent Woreda) and Debre Markos (zone capital), and three dry-weather roads which radiate from the district capital Kuy to villages (Kebeles) like Debreyesus, Debet, and Yebabat (Woreda Administration 2007/08 Annual Report)

3.5 Economic activity

With a subsistence agricultural economy, which is characterized by small land holding, large family size, a number of landless young farmers, unfavorable crop market and high rural population, life is becoming more and more vulnerable to food and livelihood insecurity. Moreover, food/livelihood insecurity is exacerbated by, soil erosion, drought, unreliable rainfall pattern and thus low agricultural productivity thereof. None of these factors is expected to change within a short time span and any positive development could be offset by the increasingly growing population size. It is therefore difficult to imagine agriculture to be the sole option for improving livelihood in the future.

The local communities are ready for any livelihood alternatives and to engage in small non-farm income-generating activities like small and micro - enterprises, but they lack the means, skill/experience and resources. Some barriers against such development of non-farm opportunities include: lack of longer-term credit opportunities, poor infrastructure, limited market, etc.

CHAPTER FOUR: REASERCH FINDINGS

This chapter represents the findings of the research work done at Wodebeyesus Kebele. In this section major findings of the study are discussed and analyzed based on the framework set out in the conceptual framework section. It discusses about the respondents, agricultural production in the study area (Wodebeyesus), training and need assessment process, opportunities that enhance learning, and community organization for natural resource management.

4.1 Description of the respondents

The research was conducted by interviewing 20 farmers consisted of men and women. 35% of them were women, and 25% of them have no assets and classified as poor. 75% of them were trained in different training areas (water harvesting, compost preparation, SWC, horticulture development etc...) where as the remaining 25% were non-trained farmers.

Their level of education consist, about 60% were completed first cycle primary education (Grade 1 to 4), 25 % of them also covered second level primary education (Grade 5 to 8), and 15 % of them were illiterate. Both trained and non-trained farmers were included in the sampling so that the disparities of knowledge in NRM and their farming practices could be evaluated.

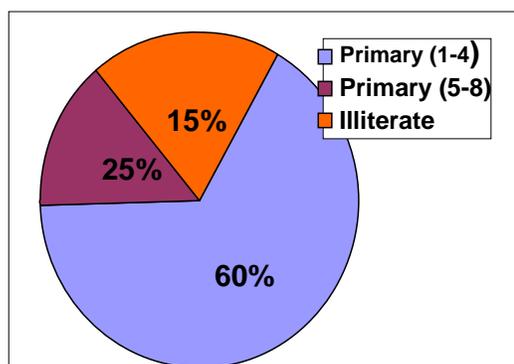


Fig.4.1 Education level of respondents

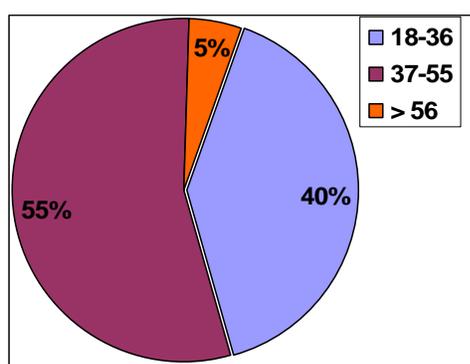


Fig.4.2 Age category of respondents

The discussion with the farmers helped to identify the actors (SLUF, SARDP, Government) involved in the learning process and the farmers who are chosen for training, demonstrations, and in cross-site visits made for sharing experiences. It has also helped to gather information in different dimensions, which led to the development of the thematic areas in relation to learning for NRM with the objective of increasing agricultural production and productivity.

The purpose of the NRM, focusing on soil and water conservation, is to give an insight as far as agricultural service delivery is concerned as it relates to the farmers decisions in their agricultural practices which contribute to learning.

Normally, the first source of information for every farmer is to obtain through discussions with other farmers during formal or informal meetings. Using the training experience of their colleagues, the farmers will test, adopt, and finally integrate the new information obtained in order to reinforce their own knowledge and farming techniques.

The NRM in Wodebeyesus is supported by a local NGO, Sustainable Land Use Forum (SLUF) that operates with the community towards improving livelihood through improved

soil and water utilization. The Sida Amahara Rural Development Program (SARDP) is also facilitating the extension activities to transfer new agricultural technologies at large, and focused in assisting the NRM mainly the soil and water conservation for sustainable use of these resources to ensure better livelihoods.

4.2 Agricultural Production in Wodebeyesus

Agricultural production, according to the interviewed farmers relies on growing of food crops mainly for home consumption and marketing as a source of income. The production size and yield are also considered for consecutive five production years (2003-2007). However, the respondent farmers said that there is generally an increase in production of crops, but fails below expectations as a result of unfavorable climatic factors (such as drought, low rain fall and erratic distribution, frost and hail damage), high population pressure, heavy removal of the fertile top soil, open grazing, inability to cover the costs of agricultural inputs (seeds, fertilizers) and also inadequate knowledge and information related to production factors such as soil fertility management which affect the yield negatively. The average land size per household is 1.12ha. which is sometimes difficult to produce the required amount to feed the household. In addition crop production; farmers at this village practice mixed farming in which cattle, sheep and poultry production supplement food and cash requirements of the household.

Farmers hope to increase production through applying the recommended practices addressing the issue of degrading soils by building terraces and check dams, using better seeds, practicing crop rotation, increasing the vegetation cover to maintain the soil fertility.

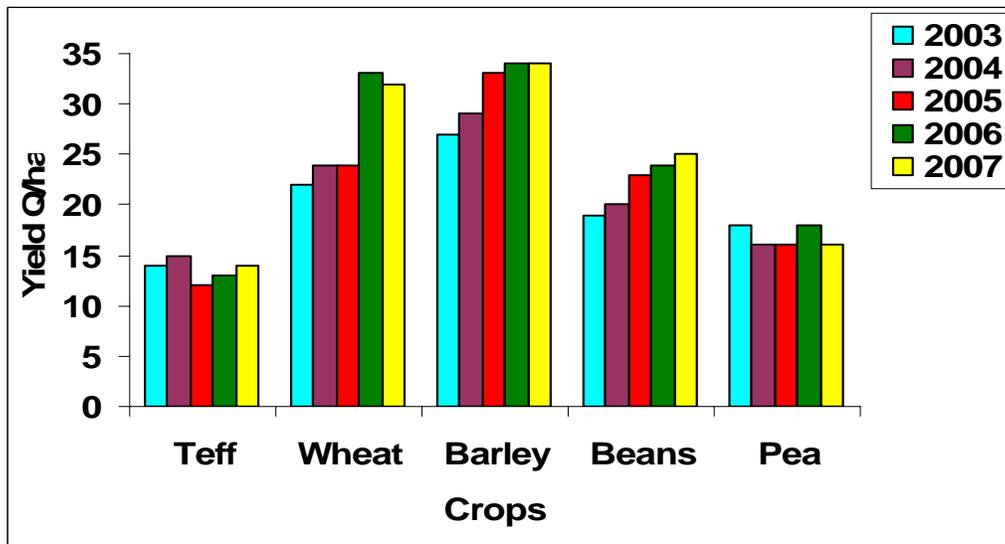


Fig 4.3 Yield of major crops at Wodebeyesus Kebele (2003-2007)

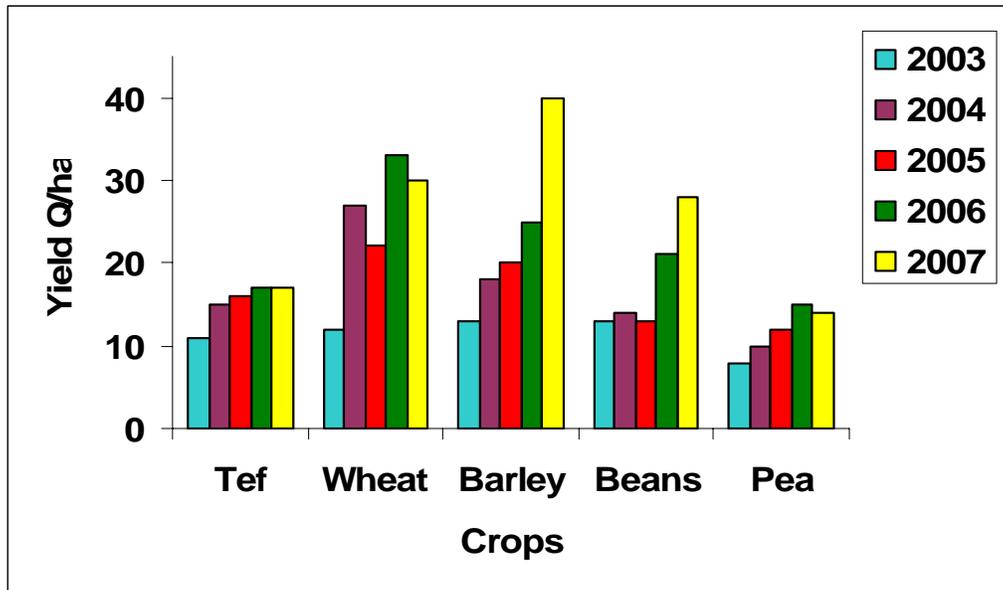


Fig 4.4 Yield of major crops in Deabaytilatgin Woreda (2003-2007)

Source: Wodebeyesus village and Deabaytilatgen Woreda Agriculture & Rural Development Offices

Agricultural production in the study area the trend in increasing productivity is insignificant for the last five years. This is due the problem of high removal of the top soil and decreasing in cultivable land because of the formation of deep gullies. While the production at Woreda level is showing some what progressive and better yield has been obtained for the reason that in addition to other farm inputs, the conservation of NR has been maintained is not as severe as in other villages as Wodebeyesus.

The field work findings show that there are several factors which constraint the practice of knowledge acquired from trainings. The following section elaborates these factors:

4.3. Training and Need Assessment process

Need Assessment is the process of determining discrepancy between desired and actual needs, services and performance. It deals also with determination of the type of intervention to be carried out like training, development activities and research. In the community where the socio-economic condition is complex, enhancing the capacity of the community through participating in all stages of development intervention is vital to bring about a sustainable development. In view of these findings from the study indicated that the community members at Wodebyesus were not able to participate actively in the process of identification of their needs.

The most guiding principle for sustainable development to create a sense of ownership by the community is to exercise an interactive participation is the norm and all the community members shall involve in collaborative and decision making processes. But in the study area the level of participation is so limited.

For any problem issue that exists in a given socio economic system, there is always some types of local or indigenous knowledge and experience relevant to understand the problem and sort out solution. Therefore, it is significantly important to understand the body of knowledge that exists in connection to the identified and prioritized problems,

challenges and opportunities. This could be realized if the training need assessment is conducted in the participation of the target community. However, the empirical findings indicated that most training programs have been provided without prior consultation and need assessment of the target population. In the field work, the major training programs organized for the target groups was assessed through discussing with the respondents and information taken from the extension worker in the study area as indicated in table 4.1 and 4.2.

Table 4.1 Major Training Types and Participants in Wodebeyesus (2004 - 2006)

Training Types	Participant Farmers	Duration	Remark
Horticulture Development (vegetable and Highland fruit production)	254	13 days	With experience sharing
Natural Resource Management (seedling plantation, gully reclamation, water harvesting)	491	15days	
Compost preparation	165	9days	
Crop protection (IPM)	350	10days	
Irrigation Agronomy	120	8days	
Land use planning	105	8days	

Source: Wodebeyesus Kebele Agriculture offices

As can be seen from table 4.1, it was revealed through the interview that some of the farmers were trained intensively in horticulture development, NRM, crop protection, land use and administration while some of the respondents didn't participate in any training, demonstrations, and experience sharing visits. This has created differences in attitude and capacity in maintaining the natural resources that can contribute for improved agricultural production indeed. All the trained respondents responded the provision of hand tools after the training to handle the tasks like gully reclamation, diverting canals, check dam construction seedling raising and plantation, but the efficiency of the labor devoted was far below the magnitude of the natural and/or man made problems that subverted the situation in the study area.

According to the informants, TNA has not ever been conducted to discuss and endorse in the areas of the community's need either in the government or donor-supported programs. Participation is limited only to consulting, that is to obtain acknowledgement from the public during meetings or gathering. The trainees were also selected by the Kebele Administration, Woreda Agriculture Office or by the development agents (DAs) giving no room for the community to play any role in the decision of selecting the appropriate trainees, where, when to train and on the content of the training themes.

The Woreda Program Coordination Committee (WPCC), which is responsible to coordinate the Sida-supported program, replied on the role of the community and how the overall development activities of planning and implementation are taking place. Thus, planning in the areas of training is done solely by the experts. The experts diagnose constraints at each Kebele and at the same time identify training topics like SWC, seed multiplication, horticulture development, etc. that seem appropriate for each Kebele. Then the whole process is reviewed and endorsed by the Woreda PCC.

Even though TNA has not been conducted at community level in the Woreda, the attempts being made by the community on gullies reclamation, area closure, etc. targeted to protect the NR are encouraging. On the other hand, the committee accepted that significant success had not yet been attained in Wodebeyesus Kebele to protect and keep the natural resources since deep gullies are still forming and becoming serious problem for agricultural production as compared to the costs incurred for training and material supply by different development partners, government and the community itself.

Table 4.2 Trainees participated in NRM

S.No	Year	2004	2005	2006	2007	Total
	Budget source					
1	SARDP	270	68	43	—	381
2	SLUF	20	30	60	30	140
TOTAL		290	98	103	30	521

Source: Woreda and Kebele Agriculture offices

I discussed the issue of participation also how trainings, experience sharing etc. are given to the farmers, and the role of GOs and NGOs interventions to support the community according to their felt needs to solve problems that are severely affecting their livelihoods. In the course of the training program, the main actor was the Woreda Agriculture and Rural Development office. Besides, findings from the study indicated that actors like SLUF and SARDP have been involved in providing different capacity building activities. It is shown that in table 4.2 farmers trained in NRM by SLUF and Sida supported program that sufficient trainees were trained since 2004. However, the overall training process was affected by different factors that include:

Factors Related to Methods of Implementation: Problems and challenges that halted the achievement of the objectives of the different trainings in the methods of implementation mentioned by the interviewed farmers are outlined below. Both the trained and non-trained farmers invariably underlined the lack of community involvement in deciding:

- On the time and venue, when and where the training (experience sharing) should be provided. In most cases trainings were provided during high/peak time of critical farming practices and the training venue arranged far from dwelling places. The farmers preferred to conduct such events during holidays and slack periods.
- Content of the training: trainings shall focus on problem understandable by the community and easily applicable. Trainers shall focus on simple communication means to illustrate the issue so that every member should understand for future implementation.
- Duration of the training time: training shall focus on availing adequate time to convey the knowledge required for change.
- Methodology of the training: – since most of the trainees are able to read and write the training method should be participatory so that the trainees should be engaged to learn in group using the local knowledge too. Training manuals should also be prepared and supplied that would assist them as a reference to put into practice.
- Competency: trainers' competencies should not be undermined during the training time in extending the required content of the subject matter in participatory ways.
- The selection of the trainees: - participants of the training shall focus on attaining the primary objective of the training. It was found in most cases selection of participants was based on kinship or affiliated to the political system. The respondent farmers stressed on the full participation of the community during the selection of participants since the community has better options in identifying who is appropriate and who is not for a particular training topic.
- Training manuals shall be prepared and supplied before or during the training, it will assist them grasp the subject of the training in a much better way or serve them as a reference for future theoretical and practical use and to disseminate information to the untrained neighbors and colleagues.

- Differences in capacity and material (hand tools) were also reflected on the management of the NR. The well trained and equipped with hand tools are practicing while the non-trained community members aren't, and this gap has to be narrowed down through equal treatment of every community member and by providing the necessary tools equitably.

Factors Related to Training Evaluation: The respondent farmers about 80% were reflected that in addition to the absence of participatory need assessment, there is no properly scheduled evaluation of the outcome and feed back of the trainings to take corrective measure and/or to replicate the good practices .15% of them replied that sometimes training outcomes were evaluating during community conferences with other political, social and economic issues.

On the other hand, periodic visits, “once in three months” to monitor the over all program implementation and to discuss with the beneficiaries on the problems encountered and to give solutions, are made by WPCC during public gatherings. Moreover, impacts/outcomes are also assessed during the same visit. Besides, regular reports are forwarded from the development agents and based on the aggregate information collected, better-performing farmers were awarded with hand tools and other working materials, and other incentives like experience sharing visits are also provided to motivate farmers for better NR conservation for increasing the agricultural production.

The respondents also pointed out that during the training time the trainers give emphasis to minimizing communication barriers and use simple or a layman's language to illustrate or describe processes which would significantly contribute to enhance learning.

4.4 Opportunities that enhance Learning

According to the respondent, factors that enhance learning include:

4.4.1 External factors

- a) When an urgent solution such as pest and disease attack occurs and to find immediate remedies, farmers need intensive training. (e.g.Integrated Pest Management)
- b) When challenged by difficult situations such as inadequate resources, farmers need to engage on supplementary income sources to diversify the economy.
- c) Equally treating all community members to train and provide the required knowledge and skill.
- d) Promote Community Learning Forum (CoLF) as a component of Participatory Learning and Action (PLA) should be taken as an umbrella and inclusive tool for conducting community training. CoLF is found as a good opportunity to gather dispersed efforts in holistic approach. It is also considered as an ideal development forum where an organized effort can be exerted to bring about successful achievements with the use of limited resources like time and human power
- e) Design and provide trainings during slack periods and holidays when farmers are free from farming activities.
- f) Carry out proper evaluation on the trainings given and provide proper feed back about the changes brought/observed in livelihoods.

4.4.2 Internal factors

- a) Applying multiplier effects methodology. This is to train the model farmers that can adopt the knowledge and skill easily and to use these farmers as trainers.
- b) Based on the interest of the farmer to change his/her attitude and behavior on the desired direction for change. Government programs, NGOs and bilateral donor intervention could fill the knowledge, information and technology gaps of the farming community as such integration would pave a smooth ground for learning.
- c) Facilitating to replicate good practices that will increase demonstrative sites which help farmers' to learn practical issues in the near by sites.

4.5 Participation

Learning and communication remain important concerns within such a negotiation approach to participation. However, effective social learning is unlikely to happen if it isn't embedded in a well-managed participation process. Stakeholders and facilitators of the training program should identify the main problems that aggravate degradation of the natural resources of the area and thus call for full facilitation and participation of the local community. But during the study, it is recognized that community participation is limited that is a rare case to decide in planning and implementing in all the development endeavors which under took with in the locality. Participation is at the level of informing and consultation that is communicating the community through the Kebele administration and/or development agents about the types of training, when and where to provide. It is also described that the community has no role in selecting the trainees. These trainees are selected by Kebele administration and /or the development agents.

4.6 Adoption

During the field work, it was observed that on the farmers' backyard farming plots significant innovative farming practices were under taken .Farmers are properly practicing what they are told during trainings if they feel and have the interest to accept, and they informed that they are dominantly focusing on high value products like vegetables, fruits ,spices etc. Most of them are carried out these farming practices through upgrading small scale irrigation schemes, collecting water in ponds during the rainy season, and by using small hand dug wells. These farmers are becoming successful in using (test and accept) the adopted innovation acquired from trainings and field experiences.

On the hand in community based NRM, it is a rare case to test the innovation acquired from trainings, because farmers are not equally responsible to have interests for communal ownerships to apply or accept what they learned .

4.7 Community Organization for Natural Resource Management

Community organized groups and bylaws set by members are important means for smooth operation and managing of the natural resources within the Kebele delineated by watersheds. In the absence of communal grazing land tenure system, community management of this area in an organized fashion is vitally important. One means of improving the existing scenario would be to organize the community to working with development agents and Kebele Administration by abiding to the bylaws set and strict follow-up of implementation of interventions and progresses through elected members. In the study area Community Based Organizations (CBOs) such as 'Idir', 'Mehaber' and 'Senbete' are types of social fora whereby the community has organized itself for helping each other as a group to undertake development activities, resolve conflicts and enhance empowerment by enabling them to make their own decisions. Fostering participation can

also facilitate cost-sharing between the local community and the government or development agencies, which in turn is instrumental to organize effective, committed, sustainable groups that can work together within the watershed bound.

These CBOs are particularly serving as administrating rules and regulations which are set by the community to rehabilitate the degraded grazing lands and protecting the soil by constructing physical structures and biological measures, and to protect the vegetation cover. The respondent farmers affirmed that although these regulations are functioning, due to over grazing the problem of deforestation and soil erosion is severely damaging the natural setup of the area. Soil fertility and water availability are especially decreasing from time to time and thus are becoming serious problem affecting the agricultural production and productivity. They repeatedly replied that unreserved follow up and assistances from the government (Kebele or Woreda Administration) side with full functioning of the CBOs are critical to maintain these resources before the worse becomes worst.

CHAPTER FIVE: ANALYSIS AND DISCUSSION

This chapter discusses about the findings of the empirical studies based on the analysis frame work set before. The chapter includes: Detail description of the respondents, Training Need Assessment, Training methods of implementation, Training evaluation, Participation, Adoption, Enhancing learning, and Community organization for improving natural resource management. In order to analyze and discuss the findings presented in chapter four, the tools described in the methodology and literature review were used to prove and / or to analyze how people learn as well as the learning styles involved. The contemporary social and political situations of the study area and the suitability of public participation in social learning to change the natural environment would be the focus of discussion. In particular David Kolb's learning model has been used as a tool to analyze the findings. Furthermore, Quinn's model was used to describe and analyze the competences needed to enhance the learning process under different state of affairs.

5.1 Detail Description of the Respondents

As described in chapter four, 75% of the respondents participated in different fields of training areas, and the education level of these respondents ie. 85% are literate, where possibly read and write. As the finding clearly showed that majority of them were well trained and most of them were also completing the first and second levels of primary education , it was believed that the trained and educated farmers would have the capacity to put in practice what they acquired the knowledge and skill from trainings. But this is different that the non-trained, illiterates and aged farmers have much concern and committed too, to protect the NR. These people gave basic information and evidences about the environment how it was looking in the past four or five decades and now how the problem comes worse due to over population, open grazing, and traditional farming practices. They confirmed also the existence of well established, powerful, and committed CBOs would mobilize the community to change the environment mainly work hard in SWC, and afforestation program to ensure sustainable community based resource conservation. Qiu Sun in his PhD-thesis (2007, p.27-28) described that community based natural resources management is an integrated approach to address resource degradation and rural poverty. For more effective NRM, Sayer.& Campbell (2003), indicate that (a) commitment to learning approaches, (b) types of action (what is required and where) & (c) organizing the community for implementing effective natural resources management .

5.2 Training Need Assessment (TNA)

Before the instigation of any training, it is obviously critical to find out a way of understanding the training needs of the relevant institutions and individuals, and the constraints present in the particular institutional settings. A pre-designed training program is rarely going to fit the specific needs of a new institution or group of trainees (see annex 1). The alternatives could be to adapt and finely tune a program and look into as much as possible the institutional context beforehand. The more the content and style is tailored to meet particular needs, the more likely it is that some permanent changes will be brought. (Box1.Basic questions for planning of trainings)

One of the findings in this study is that training needs assessment (TNA) has not ever been conducted to discuss and endorse in the areas of the community's need either in the government or donor-supported programs. Participation is limited only to informing and consulting during public meetings or gatherings so that trainees would get ready for the trainings. The trainees were also selected by the Kebele Administration, Woreda Agriculture office or by the Development Agents, finally reviewed and endorsed by the Woreda Administration for implementation, giving no room for the community to play any

role in the decision of selecting the appropriate trainees. This resulted also in such problems as shortfalls in keeping equity among the farmers which in turn created differences in attitudes, capacities and commitments towards taking care of the NR.

As stated by FDRE's policy, "trying to fill the gap without the people's participation is no more than trying to fill a leaking barrel". In contrast to this irrefutable anecdote and parallel to the FDRE's policy on the importance of public participation in rural development for achieving what has always been craved for, the process of need identification and planning of pertinent trainings is hitherto handled only by the experts or DAs behind closed doors. Moreover, the policy stresses that the local government bodies must have the capacity to identify and fill the gaps in participatory ways and to structure implementation of the rural development endeavor.

In contrast to this fundamental principle of training need assessment which at the same time is accepted by the WPCC, significant success had not yet been attained in Wodebeyesus Kebele that would otherwise have been instrumental to protect and keep the natural resources instead of the deep gullies that are still forming and becoming serious problem for agricultural production.

Box 1. Basic questions for planning of trainings

- What is the problem to be addressed by the training?
- How did this come about?
- Will training be (part of) the answer?
- What do I need to make this workshop successful?
- How will I know if successes are realized?
- How does this workshop fit into a Training Strategy?

Source: ILED ,1995 P 114 adapted from Williams et Al. (1994)

5.3. Training Methods of Implementation

It is realized during the discussion with farmers that trainings are mostly relate to the exchange of ideas and observing new innovations. The ways of learning varied according to the individual's interest. Some are learning through active participation or practice, while others learn most by listening and observation. In the study area the types of major trainings provided were horticulture development (including highland fruit production), natural resources conservation (seedling raising and plantation, gully reclamation, check dam construction water harvesting, etc...), compost preparation, crop protection, irrigation agronomy, and land use and administration. Among these trainings areas, compost preparation, biological and physical measures to control (maintain) the physical set up of the land, apple seedlings production and grafting, and irrigation agriculture require theory related practical trainings that would help to acquire more knowledge and skill considering the training time and duration, when farmers feel free and to conduct the training in the near by training centers. Experience sharing, demonstrations, farmers field days were organized also to help farmers to learn, and some farmers are changed in attitude to exercise what they learned from fields (they start growing high value crops like spices, fruits and vegetables). It is due to the content of the training which was highly problem oriented, usually growing cereal crops (which have less prices in the market) and substituted by market focused crops and the result has come to be most applicable in that particular area.

Since most of the respondents i.e. 85% of them are able to read and write and more than 90% are at productive age, agreed that the training method should be participatory, practical arranged in a form of social learning so as to promote open dialogue that the trainees could learn also from the local knowledge too. They are of the opinion that if

training manuals had been prepared and supplied before or during the training, it would have assisted them grasp the subject of the training in a much better way or served them as a reference for future theoretical and practical use and to disseminate information to the untrained neighbors and colleagues. It is said during the study that the social attitude of the farmers is positive enough to share (transmit) knowledge gained from learning to other colleague. It is proved during the observation that a known farmer (Ato Addis Gelaw) in apple and vegetable cultivation, his effort in changing his neighbors' attitude is also successful that the satellite farmers started growing largely such market-oriented crops and become economical strong too. W/o Enatenesh Mekonen , W/o Abebech, Ato Yilikal Belay and Ato Yihune Mekonen are also better performing farmers and model to the community who are changing them selves through the knowledge and skill acquired from trainings , experience sharing etc. It is understood that there is positive competition developed among the community members to know the unknown and helped to produce surplus.

IIED (1995) although has suggested many methods of instruction, asserts that no single method is better than the other and formal lectures are still the most widely used. For a training which stresses active participation and open dialogue, it is essential that trainers use a style that is consistent with the values of participation. Similarly, Leeuwis (2004) highlighting on adult experiential learning in a rural settings, explained that while dealing with adults who are involved in farming and/or other livelihood activities one is frequently confronted with changing circumstances and problems that require innovation. Here social learning is less of a goal in itself, is often more voluntary, and is immediately connected with diverse human interests and changes in professional practices. Because of the immediate relations with practice, he quoted Kolb's (1984) model of 'experiential' learning or referred to as 'learning by doing' or 'discovery learning' which is widely used as a basis for organizing communication for innovation. The model describes how people learn through experiences and this type of learning is very 'powerful' in a way that conclusions drawn by people themselves on the basis of their own experience tend to have a greater impact than insights formulated by others on the basis of experiences that learners cannot identify themselves with. Farmers apply the knowledge what they have in their experiences in controlling pests like red worm which damages teff (an indigenous food crop), producing local pesticide from indigenous plants. In addition fermented cattle urine also used as a pesticide for plants and household pest controlling purposes.

Farmers with their experiences and existing knowledge can build on or enrich and easily integrate the new knowledge acquired through trainings to pave the way for successes. In other ways, trainings enhance their level of learning and their interest and generate motivation to self-discover (e.g. farmers are largely depend on horticulture farming and spice cultivation). It also enables one to see things in a true sense and analyze the reasons for successes or failures as one observes how others could cope up and involve themselves fully. One good example farmers participated in highland fruit (apple) production some have become successful in applying the knowledge what they got from the trainings. However, some farmers refrain from put in practice what they know and as a consequence many innovative ideas remain unused, a better situation for the whole effort in up healing knowledge gained from learning. Enhancing these farmers to put into practice what they acquired through training requires much attention either from the government or local leaders or the social groups. It was also found in most cases of selection of training participants was based on kinship or affiliated to the political system. The respondent farmers stressed on the full participation of the community during the selection of participants since the community has better options in identifying who is appropriate and who is not for a particular training topic.

It is obvious that for any problem issue that exists in a given socio-economic system, there is always some type of local or indigenous knowledge and experience relevant to

understand it and sort out solution. Therefore, it is significantly important to understand the knowledge that exists in connection to the identified and prioritized problems, challenges such as unfavorable climatic factors (such as drought, low rain fall and erratic distribution, frost and hail damage), high population pressure, heavy removal of the fertile top soil, open grazing, inability to cover the costs of agricultural inputs (seeds, fertilizers) and also inadequate knowledge and information related to production factors such as soil fertility management which affect the yield negatively. And opportunities are described as to promote small scale irrigation schemes, cultivate frost resistant crops like wheat and barely than teff, covering steep lands with vegetation, reducing open grazing, promoting the uses of biological fertilizer (compost) at large than applying artificial, to promote and use local made pesticides are some. The most important factor for the unbalanced resource utilization is the rapid population growth and this problem would be solved by the government in giving due attention on implementing proper family planning education in the rural community. The body of knowledge which is apparently established over many years in the community determines the type of the attitude and behavior of the people. Likewise, for many problems raised by the community, it is crucial to primarily apply the indigenous knowledge. Then it is logical to consider outsider's knowledge whenever available. However, the outsider's knowledge is not always a readymade solution for the problem nor is it considered as non applicable option to the community.

This will result in either positive or negative learning depending on the persons' perceived consequences. This relates to which knowledge, information and technologies are concerned. It means that people make reflections on the past performances especially with the new technologies and make comparisons to find differences between the contents what they learned during the trainings and finally reach decisions on whether or not to accept. It is very important to develop a sense of self-efficiency by having farmers to develop discussions in group, or peers who are living in neighborhoods. Thus, it was noted from the group discussion and interview that farmers are willing and much confident to be successful in learning or copying innovations and thereby become better equipped to achieve more. This will increase farmers' role and responsibilities in the process of learning. Farmers having self-confidence in their day-to-day performances will help developing their problem solving capacities, managing conflicts, etc. once again confirming the fact that without any external assistance people are able to freely exchange information and promote interactions among them selves and there by get actively involved in local developments. Here the Vella's (1994) three NA tools can be applicable.

High participation or interaction among farmers in the learning process will increase their confidences in both responding to challenges and at the same time posing demands for the required services. If one intends to learn, then one looks for success stories while for future considerations.

The environment under which the learning process takes place should be conducive and should be decided by the community during TNA taking into consideration the socio-cultural and economic background of the rural community. During the provision of trainings most examples, demonstrations should relate and focus to the local environment for easy understanding and conceptualization of the course content by the participants. If not, farmers will be reluctant and unprepared to make use of the knowledge and technology intended to be transferred. Community decision on the time and venue of the training can positively contribute for the success and should be a point of concern to make the environment more convenient. Learning environment further relies on such issues as creation of awareness on the new innovation or policy measures, gathering information on it, testing and applying innovations, evaluation/reflection on the merits of the new technology, and how the adoption or acceptance of the technology would be perceived. Trainers' competencies should not be

undermined during the training time in extending the required content of the subject matter in participatory ways.

The value of creating enabling environment for the learning process, as stated by Leeuwis (2004), is such that participants in a social learning process must go through the following milestones for effective adoption and application of the knowledge acquired.

- becoming aware;
- becoming interested/mobilized;
- becoming involved in active experiential (social) learning; and
- establishing adapted practices and routines.

5.4. Training Evaluation

By assessing changes in the behavior of the learning group during the class room and fieldwork sessions, it is possible to find out not only what they feel, think, or believe as a result of the training, but also what they know and do differently (IIED,1995). Performance assessment provides an incentive for improving administration and implementation of the desired training in practice and resource management. It should also be reflected upon changes in the lives of households of the trainees. Similarly, Caffarella (2002) states that program evaluation is a process used to determine whether or not the design and delivery of a program were effective and the proposed outcomes were met

The evaluation system of SARDP considers the accomplishment of this exercise at four levels based on specified time framework, namely ex-ante, medium-term, terminal, and ex-post evaluations usually conducted by external evaluation team. The evaluation reports submitted by the respective program Woredas will be aggregate and evaluate with respect to the objective of each component and overall objective and goal of the program. The PCU submits the evaluation report to BoFED and other concerned stakeholders and feedbacks will be given (SARDP-PM&E, 2007).

In the study area the respondent farmers reflected that in addition to the absence of participatory need assessment (in any development practices), there is no proper schedule for participatory evaluation of the outcomes and/or feedbacks on the trainings and other project performances that would help to provide corrective measures to take timely and also to replicate best practices. Sometimes it is not only the training outcomes, but also all the development interventions that are evaluated altogether focusing on how the community is involved in administrating and protecting such different structures like water points, village roads, small scale irrigation schemes, natural resources conservation measures, etc. in a public gatherings. The efficiency and effectiveness of the interventions performed were not assessed in an organized way and the indicators set in the program document were not properly interpreted at the local level, nor were prepared locally applicable indicators jointly with farmers or other stakeholder to measure successes or failures and the associated changes in the livelihood of the community.

On the other hand, periodic visits, once in ‘three months’ are made by WPCC to monitor the overall program implementation and progresses and to discuss, with the beneficiaries, on the problems encountered and to give solutions. However, this doesn’t ensure the community to participate in the monitoring process. Moreover, impacts/outcomes are also assessed during the same visits. Regular reports are submitted from the Kebele to the WPCC and no proper feedbacks are forwarded to the farmers based on the aggregate information collected.

It is obvious that longer time is required to measure the success or failure of training results as it is also suggested by IIED (1995) who argues that training is a process and requires sufficient time for effectiveness.

5.5 Participation

Community members are the major stakeholder of any development projects. The community shall participate in the planning, implementing, monitoring and evaluation of all the project activities articulating on the ground.

There has been a constant debate on the methods and sequence of enabling people to participate in the development process. Earlier development strategies treated people as “objects” or “target groups” to whom development was to be delivered by outsiders. In other words, such concepts perceive, from the outset, the rural poor as passive recipients who wait for outsiders to come to their assistance.

Conversely, participatory approaches consider the rural poor as active partners who should decide their own future, which is therefore encouraged and highly supported by the program (SARDP). A number of areas of activities in development have become closely associated with the promotion of community empowerment, such as participation in project planning and implementation. However, there are clearly limits on the extent to which such activities themselves can be said to be genuinely empowering. This suggests that not just activities and policy frameworks but also organizational structures and processes need to be examined in promoting empowerment. Empowerment is demonstrated by the quality of people’s participation in making decisions on processes affecting their lives.

Participation in a development partnership in planning implementing and evaluation needs to be more than a mere process of involvement in endorsing decisions already made elsewhere. Strategies to support community empowerment should encourage participation at all stages of projects, including evaluation. Attention to location and timing of meetings are also important to ensure community participation. In this way, the process of participation should itself be empowering.

It was depicted by the finding of this research that participation is indeed limited only to providing information or consulting the community on the opportunities either on public gatherings or meetings. Chamber (2005) showed that participation by its very nature is innovative.

The Federal Democratic Republic of Ethiopia’s policy on public participation on rural development ascertains that the decisive factor for rapid rural development is to democratically persuade the people and make them participate in the process of development. Local government bodies must have the capacity to fill the gap, and the structure to implement it. This is in line with the findings of the present study that because the level of participation in planning, implementing and evaluating is low, the communal NR conservation attempts are low and the physical appearance of the area is still seriously damaged by different agents. The resulting soil erosion and overall ecological fragility have adverse consequences on agricultural production and productivity more than ever before.

The agricultural sector in Ethiopia has been recognized as the main engine of rapid and equitable social and economic development. However, the productivity of the sector is still very low. The government of Ethiopia has made a strategic shift, with a view to address food insecurity and rural poverty alleviation by developing the human capital in the rural areas such that farmers training centers (FTCs) have been established at Kebele level so that the agricultural skills of farmers could be upgraded by providing them subsequent and module-based trainings. The government has planned to train

50,000 frontline extension workers to help and train farmers at these training centers in areas of crop and livestock production and natural resources management. Production of high-value crops for export is also the other priority area of the sector. To improve productivity and introduce high value-crops, the Ethiopian government has made a strategic shift to decentralize agricultural research institutions in all the 9 regions of the country and enhanced their capacity in terms of human power and logistics whereby a functional linkage among research, extension and farmer could be instilled.

Consistent with the government's strategy and policy, SARDP's supports were mainly poverty-focused with core values of empowering the community; promoting gender equality; enhancing environmental care and the principle of decentralization as the driving force of community empowerment while considering Woreda development.

5.6 Adoption

Farmers make reflections on the past performances especially with the new technologies and make comparisons to find differences between the contents what they learned during the trainings and finally reach decisions on whether or not to accept. As described in the previous chapter, farmers are willing enough to accept new ideas, innovation or technology and test in practice expecting that the output would provide them immediate benefits. It is also obvious that challenges will face usually managing communal properties even though people acquire skill and have interests to put into practice e.g. in NRM. This is true in the study area that continuous and intensive trainings were provided by SLUF, SARDP etc. on land use and administration but the interest of the farming community to apply it on the ground mainly in conservation area is minimal. High gullies are widely created and narrowing the farming and grazing plots. The volume of rivers and stream is decreasing from time to time. The vegetation cover is highly devastated too. Therefore, it is observed that in problem identification, or due to the absence of need assessment farmers have no idea about the trainings that would help them to stimulate adoption and make the result effective.

5.7 Enhancing Learning

Problems and challenges that halted the achievement of the objectives of the different trainings, as mentioned by the interviewed farmers and actors are described in chapter four. Training must be supported by an explicit mandate supporting participatory development from the top of the organization, which is communicated to all levels (IIED1995).

In the process of need assessment the information obtained as a result of interacting with different actors complement each other and all direct towards achieving the same goal of improving the standards of living of the community, by improving their agricultural production.

That is the reason for desiring complementarities of ideas to make people think and learn more. Learners in participatory environments have high levels of self-efficacy and self-motivation and use learning as a primary transformative force.

Therefore, as the community replied that, in order to accept and put into action, the transferred knowledge and skill they have to decide and reach into agreement with actors in respect to the following learning-enhancing items:

- Setting the time and venue requires attention prior to providing the training (experience sharing). In most cases trainings were provided during peak time of farming practices. Therefore, the convenient time should be specified, agreed upon and fixed through discussions with farmers. Normally, farmers prefer to conduct such events during holidays and slack periods. The training venues should also be arranged near the dwelling places. In most cases participants refrain from attending regularly (especially women participants) under

circumstances where the venues and homesteads are far apart. When these situations are not fulfilled, it is likely that interruption of the whole program may occur and thus adversely affecting to meet the expected objective of the training.

- Trainings should be focused on problem-solving subjects which are easily understandable and applicable by the community. Trainers should also employ simple communication methods matching the level of the local knowledge to illustrate the issue so that every member can understand for future implementation.
- Trainings should also allow availing adequate time to convey the required knowledge to bring about the desired changes in life.
- Trainees should be encouraged more to learn in groups using the local knowledge. Training manuals should also be prepared and supplied that would assist them as a reference while putting into practice what has been learned.
- Trainers' competences are crucial to enhance learning. The Quinn's model is used for getting insight into the skills and characteristics needed to fulfill certain competences to enhance learning in one or another situation. The justification for the use of this model is to aid in understanding the behavior of the different actors (District Administration, District Agriculture and Rural Development Office, Kebele Administration, Kebele Agriculture and Rural Development Office, NGO, CBOs, etc) especially those in leadership positions and experts who are daily dealing with the farmers. These organizations have to play an effective communication for different innovations in order to thrive in the diverse situations and changes.
- In selecting the trainees, the community must be considered as the frontline player since it has better options in identifying who is appropriate and who is not for a particular training. As it is pointed out also by the respondents, this avoids any biases or undue favoring of some individuals.
- Differences in capacity and material ownership (hand tools) were also reflected on the management of the NR. The trained farmers are better equipped with hand tools and are properly practicing the knowledge they gained from the training while the non-trained community members are not in possession of such important tools and this gap has to be narrowed or avoided and all members of the community should be treated alike to enhance learning.
- At last, the farming community has to build confidences in using indigenous knowledge and use local resources in responding to the challenges by itself rather than looking for assistance from the outsiders.

5.8. Community organization for Improving Natural Resource Management

Land degradation and soil erosion are serious challenges to agricultural productivity in East Gojjam zone .Overgrazing, deforestation, traditional tillage and land use practices further aggravate the situation. At present about 29% of the total area of the ANRS is being highly affected by erosion hazard which accounts for a soil loss of 51 - 200t/ha/year, and another 31% with moderate erosion problem with a loss of 16-50t/ha/year (ILRI, 2002 cited by ARARI).

Land, water, vegetation and animals together constitute an important part of the natural resources endowment. This resource, however, is virtually dwindling as a result of its over exploitation and mismanagement by alarmingly increasing human population. The problem of depletion of natural resources, in Ethiopia in general and in ANRS in particular is further exacerbated by indiscriminate expansion of cultivation into marginal lands. Consequently land, water and forests are fast getting debilitated which in turn is posing serious threat to sustainability of agricultural production and productivity and thus leading to destitution of livelihood of the rural communities. In an attempt to counteract these trends, SARDP adopted Integrated Watershed Development strategy as a major approach to arrest the degradation of natural resource base, thereby improving livelihood

and reduce rural poverty in the program Woredas. The crucial components of this strategy are community participation, empowerment through trainings and adoption of holistic development approach, rather than focusing on natural resources management aspects in a piecemeal manner.

The principles and approaches required for successful integrated watershed development have gone through many changes in the past decade. This process of change is still continuing as we learn from past weaknesses, and becomes more comprehensive combining technical and participatory elements in managing natural resources and integration of different development activities among different disciplines of government offices in a watershed context.

In the present study, the respondent farmers affirmed that due to over grazing; the natural setup of the area is severely damaged. Soil fertility and water availability are especially decreasing from time to time and thus are becoming serious problem affecting the agricultural production and productivity. From the WPCC side the root causes of the challenges are assumed to be the loss of confidence by the community to rely on local resources and solve the problem by themselves. After recurrent and intensive training, the community still needs agitation and persuasion from the outsiders to take action. The second factor is the problem of open grazing, that the community for the sake of temporary benefits is inadvertently practicing, is damaging the bio- physical resources of which some components are not renewable in a short time.

Preposterously, however, the understanding of decision makers, experts and DAs about watershed development could not go beyond soil and water conservation work or natural resources management.

As a solution, therefore, physical, biological, agronomic, soil and water conservation measures should be undertaken in such steeply lands often bungled by free grazing. To reduce runoff and improve infiltration, such practices as, semi-circular earth bunds, contour earth bunds or terraces, stone bunds, retention ditches and vegetative barriers need to be employed. Construction of stone and wooden check dams with full participation of the community would be undertaken in the gullies along with permanent grass cover to convert these lands into productive sites.

Through the full awareness of the community management practices like closure of denuded grazing lands to let them rest for a given period of time until full recovery of the vegetation along with soil and water conservation activities mentioned above have to be implemented. The stock exclusion areas have to be kept away from animal and human interferences until the fodder species establish well and the soils stabilize. During this period the smallholder farmers need to practice cut and carry system for stall feeding. This works mainly for communal grazing lands where members of the community are well sensitized, organized and established bylaws and takeover the whole care and maintenance of the area with full responsibilities while sharing all the benefits.

Logical integration of various activities was the intention and some single practices have shown promising results along with some elements of empowerment activities of the watershed communities. Some of the salient features from these activities and experiences of some successful watershed activities are briefly enumerated as follows:

- Soil and water conservation including gully rehabilitation was given priority. Physical and biological conservation and rehabilitation measures were employed. Gullies impassable for human and livestock were fully reclaimed and became forage production sites.
- Denuded upper catchments were closed, ecologically rehabilitated and down stream farms and grazing lands were saved from erosive runoff forces and silt deposition where healthy crop stands were realized.

- Plantations of Multipurpose Tree Species (PMTS) were undertaken in closed areas, gullies, bunds and pockets of the watersheds which therefore became source of income for farm families from the sale of seed, supply of wood for construction, fuel and fodder particularly during the dry season. Controlled rather than open grazing of animals made possible through the 'cut-and-carry' system.
- Community and group-owned forage seed/planting materials production and tree nurseries became source of cash contributing to the generation of additional income for the households thus to the improvements of their livelihoods.
- Springs developed made possible for the community to have access to clean water for human and animal drinking, sanitation, and the leftover water can be used for irrigated vegetable production.
- Crop and livestock productivity is enhanced through adoption of improved crop varieties, soil fertility management practices, moisture and forage availability, which all contributed for better market enticement and higher prices thereof. Improved housing & home management and production and utilization of fuel saving stoves contribute for the reduction of biomass use. Households in the watershed would create assets like oxen, cows, sheep and pack animals, and are able to send their children to schools fulfilling school requirements and better access to health services.
- The communities elected watershed committees who organize planning, implementation, monitoring and evaluation of the activities. Presence of good watershed leaders is one of the key factors for securing the achievements. The leaders were considered by the community to be honest, sincere and well respected. Where watershed communities lack such leaders the achievements were found very poor.
- The sub watershed communities drafted, discussed and endorsed bylaws which are accepted by all the members and in some cases recognized by the Kebele Administration. These bylaws are not only used for sub watershed development activities but also for administrative purposes like conflict resolution among the watershed members.
- Participation of community members by directly involving in decision making processes related with the development interventions was ensured apart from contributing physical labor and supply of locally available materials as part of cost-sharing effort.

CHAPTER SIX: CONCLUSION AND RECOMENDATIONS

This chapter summarizes briefly those issues mentioned in the previous chapters focusing on the assessment of training needs and the conservation of NR. Moreover, the chapter brings back the research issues asked in the research questions as well as supportive literatures reviewed. The finding pointed out that participatory need identified training provision is pivotal for sustainable NRM and rural development at large.

6.1 Conclusion

It synthesizes the analysis of the findings and discussions of the study on the question related to the challenges faced by the farmers to put into practice the knowledge and skill they gained from the training programs.

The problems that farmers encountered and equally underlined the absence of community involvement in the planning and implementation of trainings as one of the root cause to put the learning into practice. Some of the problems indicated included the provision of the training coinciding with the high/peak time of farming practices, the content of the training, duration of training time, methods of trainings provision, trainer's competencies, and identifying/selection of the trainees are the major ones.

From the WPCC side, on the other hand, these challenges are appreciated but assumed as a loss of confidences by the farming community to rely on local knowledge and resources to solve the problems by themselves instead look for outside assistance. In line with the low success in NR conservation, the committee underlined the problem associated with open grazing that facilitating the rapid run off and forming deep gullies not only in the study area but throughout the district.

In the process of need assessment the information obtained as a result of interacting with different actors complement each other and all strife towards achieving the same goal of improving the standards of living of the rural community, by improving their agricultural production. The learning environments should be interactive which should include a common problem to solve as well as the room to maneuver towards learning. Learning environments need to support learners in articulating what their goals are in any learning situation.

That is the reason for the desire for complementarities of ideas to make people think and learn more. Learners in participatory environments have high levels of self –efficacy and self –motivation and use learning as a primary transformative force.

Corresponding to question on what are the possible ways to enhance learning most pertinent ideas were gathered during interviewing the farmers. According to the respondents, factors that enhance learning are: to pay high attention when particular problem arises and that need urgent solution, threatened by difficult situation such that inadequate availability of resources, promoting community learning and action forums, and community involvement in identifying training areas and in the selection of trainees. Training must be supported by an explicit mandate supporting participatory development from the top of the organization, which is communicated to all levels (IIED1995). Alternatively, training farmers and to use these farmers as a trainer is most crucial.

According to the informants, on how was the training programs designed and implemented, TNA has not ever been conducted to discuss and endorse in the areas of the community's need either in the government or donor-supported programs. Participation is limited only to consulting, that is to obtain acknowledgement from the public. The trainees were also selected by external actors like Kebele & Woreda Administration, Woreda Agriculture office or by the Development Agents giving no room

for the community to play any role in the decision of selecting the appropriate trainees, where, when to train and on the content of the training themes

The Woreda Program Coordination Committee (WPCC), coordinating the Sida-supported program, relied on the role of the community and how the overall development activities of planning and implementation are taking place. Thus planning in the areas of training is done only by the experts. The experts diagnose constraints at each Kebele and at the same time identify training topics like SWC, seed multiplication, horticulture development, etc. that seem appropriate for each Kebele. Then the whole process is reviewed and endorsed by the WPCC.

It was revealed through the interview that some of the farmers were trained intensively in different disciplines while some of the respondents didn't participate in any training, demonstrations, and experience sharing visits. This has created differences in attitudes and capacities in maintaining the natural resources that can contribute for improved agricultural production indeed.

“Trying to fill the gap without the people's participation is no more than trying to fill a leaking barrel.” This is stated under the FDRE's policy on the importance of public participation in rural development to achieve the required targets, where as need identification and the planning process of trainings are only handled by the experts or DAs. This is reviewed and endorsed for implementation by the local government in Debaytilatgin Woreda. On the other hand the policy stressed that the local government bodies must have the capacity to cover and identify the gaps, in participatory ways and to structure implementing the rural development endeavor with the community. The need for TNA is explained by Ajayi et.al(2003) that training need assessment is the identification of target groups and topics and systematically prioritizing them in order to utilize best the training resources committed.

Training is a means to bring attitudinal changes required to boost the role of the community, improve participation, openness and transparency essential for accountability. However, for many bureaucrats, participation is likely to be seen as a threat rather an opportunity. It challenges both traditional ways of working and traditional power relationships. These fears need to be addressed openly and the opportunities of participation made clear.

Community Based Organizations (CBOs) like 'Idir', 'Mehaber' and 'Senbete' are types of social fora whereby the community has organized itself for helping each other as a group to undertake development activities, resolve conflicts and enhance empowerment by enabling them to make their own decisions. Fostering participation can also facilitate cost-sharing between the local community and the government or development agencies, which in turn is instrumental to organize effective, committed, sustainable groups that can work together within the watershed bound.

These CBOs are particularly serving as administrating rules and regulations which are set by the community to rehabilitate the degraded grazing lands and protecting the soil by constructing physical structures and biological measures. The respondent farmers on how effective are the bylaws/norms developed by the community for the conservation and wise utilization of natural resources affirmed that although these regulations are developed and functioning over grazing is the overwhelming problem of deforestation and soil erosion that severely damaging the natural setup of the area. Soil fertility and water availability are especially decreasing from time to time and thus are becoming serious problem affecting the agricultural production and productivity. They demanded that unreserved follow up and assistances from the government (Kebele or Woreda

administration) side with full functioning of the CBOs are critical to maintain these resources.

6.2 Recommendations

- PLA shall be design to realize one of the centers of excellence in the community which is used by different NGOs in learning/training in the country. Community Learning Forum (CoLF) as a component of Participatory Learning and Action (PLA) has to be taken as an umbrella and inclusive tool for conducting community education, training, participatory research and extension and Livelihood Based Learning (LBL) all in one. CoLF is found as a good opportunity to gather dispersed efforts in holistic approach. It is also considered as an ideal development forum where an organized effort can be exerted to bring about successful achievements with the uses of limited resources. Principal function of CoLF can be summarized as generation, utilization, documentation and sharing of knowledge on participatory learning and action in the area of agriculture, natural resources management and emerging social issues up on the needs and gaps of the community. Rolling (2002) as described about social learning, it uses as a key mechanism for arriving at more desirable futures.
- Promoting and strengthening decentralized planning and community capacity building through community empowerment, strengthened Community Based Organizations (CBOs) such as 'Idir', 'Mehaber', 'Senbete' 'Equb', etc, federated farmers groups, enhancing community development (CD) and strengthen documentation and information management system from sub watershed to Kebele then at Woreda level. This will empower farmers to take their own decisions on appropriate development for their own welfare. Joining these groups from sub watershed level to Kebele and then to the Woreda level farmers' organizations empowers the farming community better than ever. Motivating the farmers to take improvements of their destiny into their own hands is a pre-requisite to group formation of their union. This will require considerable efforts envisioning and capacity building of the farmers and their leaders.
- At community level, participation approaches are meaningless unless people feel the freedom and opportunity to participate. To develop real participation, community members need to feel empowered to challenge authorities. Participation also loses its meaning if the process is captured by local elites specific efforts need to be made to bring marginal groups in to the process, and to ensure that the greatest range of interests is presented. Sufficient capacity building efforts are required in facilitation for the members of the community organizations or development facilitators should come out from the community itself. To the extent possible technical assistance should be on demand basis.
- Integrated watershed development is one example where interventions technically integrate and can be illustrated. The concept of integrated watershed development should go beyond land management and should focus on holistic development approach leading to the real positive changes in livelihood. The conventional 'watershed management' which mainly focuses on the natural resources management aspect should change to the 'management of integrated development' efforts with some work on capacity building aspects of the farming community and the technical staff. To this effect concerted efforts of different departments and disciplines of government and non government institutions along with community based organizations need to work as an entity. In this

context integration of activities in agricultural productivity, natural resources management, improving infrastructure and social services, gender equality, family planning, health/ HIV/AIDS, and environmental protection and their proper linkage during planning and implementation is paramount importance in a sub watershed context.

REFERENCES

Ajayi,A.O.,Farinde,A.J.and Laogun,E.A.,2003 .Women Farmers Training Needs and Their Correlates for Effective Extension Program And Poverty Reduction in Oyo state ,Nigeria. *Journal of Extension Systems*, 19(1), P 91

Amahara Regional Agricultural Research Institute,2003. Sida Amhara Rural Development Program: *Natural resource Management*, series No1. p.1

Brockbank,A and McGill. I., 2007. *Facilitating Reflective Learning in Higher Education*. 2nd edition: Society for Research into Higher Education and Open University Press.

Caffarella, R., 2002.*Planning Programs for Adult Learners*. Second Edition. San Francisco: Jossey-Bass Publishers.

Chambers, R. & Conway G., 1992. *Sustainable Rural Livelihoods: Practical Concept for the 21st century*. *IDS Discussion Paper*, No. 296. Sussex: Institute of Development studies.

Dangbegnon, C., 1998. *Platforms for Resource Management*, Case studies of successor failure in Benin and Burkina Faso,WAU,Netherlands.

Debay tilat gin Woreda Administration,2008. *Annual Progress Report 2008*, Kuy:Woreda Administration .

Debay tilat gin Woreda Agriculture and Rural Development office,2008. *Report on Agricultural Production 2004-2008* ,Kuy :Agriculture & Rural Development office.

Ellis, F., 2000. *Livelihoods and Diversity in Development Countries*. Oxford: Oxford University Press.

Hiyama ,C.& Keen,M.,2004. Analysis of Learning Cycles in participatory Demonstration and Training Extension System.*Journal of Social Development in Africa*.Vol.18(1):49-83.

Jarvis,P.et al., 2004.*The Theory & Practice of learning*.2nd ed. Great Britain:st Edmundsbury Press Ltd,BurySt. Edmunds,Suffolk.

King,C.A.,2000. *Systematic process for facilitation Social Learning: Challenging the Legacy*,Swedish University of Agriculture Sciences, Uppsala.

Kolb, D.A., 1984. *Experiential Learning: Experience as the source of Learning and Development*.

Leuwis, C.,2004. *Communication for Rural Innovation. Rethinking Agricultural Extension*.3rd Edition. UK: Blackwell Science Ltd.

Lee-Davis. L., 2007.*Developing work and study skills*:Thomas Learning,High Holborn House;50-51 Bedford Row,London WC1R 4LR.

Lewis,L.H.& Williams,C.J., 1994.*Experiential Learning: Past and Present*, In L. Jackson and R.S.Caffarella(eds). *Experiential Learning: A new Approach*, Jossey-Bass Publishers,San Fransisco;5-16.

Moser,Caroline O.N.,1993.*Gender Planning and Development. Theory, Practice and Training*: 1st edition.Routledge:11New Fetter Lane, London EC4P4EE.

Mulins,L., 2002.*Management and Organizational Behavior*, Harlow: FT Prentice hall.

SARDP, 2005. *Phase III Program Document*, SARDP-PCU ,Bahir Dar, Ethiopia.

Pretty, N Jules et.al.,1995. *A Trainer's Guide for Participatory Learning and Action*. Sustainable Agriculture Programme, International Institute for Environment and Development.:3 Endsleigh Street,London WC1H ODD,UK.

Rolling, N.,2002. *Beyond the aggregation of individual preferences .Moving from multiple to distributed cognition in resource dilemmas*. In:Leewis,C. and R.Pyburn (eds),Wheel barrows full of frogs.Koninklijke van Gorcum. Assen,the Netherlands.

Training Need Assessment

http://www.ispi.org/pdf/suggestedReading/Miller_Osinski.pdf. [Accessed on 27/08/08]

Sayer, J. & Campbell, B., 2003.*The Science of Sustainable Development*. Local Livelihoods and the global environment: Cambridge University Press, Cambridge.

SARDP, 2007. *Participatory Monitoring and Evaluation System*, SARDP-PCU,Bahir Dar, Ethiopia.

SARDP, 2007. *The Contribution of SARDP to Poverty Reduction in ANRS*, SARDP-PCU, Bahir Dar, Ethiopia.

SLUF, 2006. *Wodeb Eyesus Kebele Sustainable Land Use Practices Project Terminal Evaluation*, SLUF, Kuy, Ethiopia.

SLUF, 2006. *Annual Progress Report 2007 & 2008*. Kuy: SLUF.

Sun, Qiu., 2007. *Rebuilding Common Property Management: A case study of Community – Based Natural Resource Management in rural Guizhou, China*: PhD-Thesis, Wageningen University.

Southern Africa Institute for Environmental Assessment (SAIEA). , 2005. *Training course-Public Participation in Environmental Assessment in Southern Africa*. Developed as part of the SAIEA Calabash Project, First edition.

Vanessa Scarborough, et.al., 1997. *Farmer-led extension: Concepts and practices*, Intermediate Technology Publications on behalf of the Overseas Development Institute.

Vella, Jane., 1994. *Learning to listen, Learning to teach: The Power of Dialogue in Educating Adults*, Jossey-Bass, inc., publisher.

W, Arjen.E.J., 2007. *Social Learning: a sustainable world*. 1st ed. The Netherlands: Wageningen Academic Publisher.

Ministry of Information, Press and Audiovisual Department, FDRE., 2001. *Rural Development Policies, Strategies and instruments, draft*, Addis Ababa, Ethiopia.

Ministry of Finance and Economic Development, FDRE., 2006. *Building on progress, A plan for Accelerated and Sustained Development to End Poverty (PASDEP) 2005/06 – 2009/10*, volume I, Addis Ababa, Ethiopia.

ANNEXES

ANNEX1 ANYLITICAL FRAME WORK OF LEARNING AND ACTION PROBLEMS

Challenges/problems	Knowledge of the local people	Prevailing attitude/practice of the community	Outsider knowledge	Identified knowledge gaps	Discussion/Learning issues
1. Free grazing	<ul style="list-style-type: none"> -Free grazing and crop residues are the best type of animal feed -Confined animals are not productive -Confined animals are weak in body condition. 	<ul style="list-style-type: none"> -practicing free grazing all year round -when oxen are confined, it becomes weak to plough -Trekking animals to low land areas during rainy season -using crop residue as supplementary feed. 	<ul style="list-style-type: none"> -free grazing exposed animals to disease and some time physical injury - animals loose energy while they let them range freely -cut and carry feeding system by developing improved forage reduce free grazing. -closed breeding improve productivity 	<ul style="list-style-type: none"> -Lack of knowledge on advantage and disadvantage of free grazing and confined breeding -Knowledge impact of free grazing on environmental degradation -Improved forage development techniques and its utilization system. 	<ul style="list-style-type: none"> -Closed and open live stock production system -Free grazing and environmental degradation -crop residue conservation and utilization techniques -improved forage production and utilization techniques -types of grazing system.
2.population pressure	<ul style="list-style-type: none"> -Interruption of giving birth is sin -born baby grow by their prospect - give birth until God will. 	<ul style="list-style-type: none"> -children are considered as an asset -having too many children gets respect ion among the community -giving birth beyond its economic status -contraceptives causes serious health problem on mothers 	<ul style="list-style-type: none"> -birth could be controlled using alternative contraceptive methods -Giving birth should consider economic status of the family to fulfill need and rights of new born children 	<ul style="list-style-type: none"> -knowledge on family planning service -low awareness on population pressure -population pressure and its effect on natural resources and economic growth of the country in general the family in particular. 	<ul style="list-style-type: none"> -Effects of population pressure -Economic growth and population pressure -Family planning methods

Analytical Frame work (Contd.)

Challenges/problems	Knowledge of the local people	Prevailing attitude/practice of the community	Outsider knowledge	Identified knowledge gaps	Discussion/Learning issues
3. Gender inequality	<ul style="list-style-type: none"> -Male are muscularly stronger than female. -Men are knowledgeable than female to make rational decision. - All domestic works should be responsibility of the women 	<ul style="list-style-type: none"> -Men play leadership role in any socio-economic activities - Women who speak on public forum are not socially accepted. -Women have access to resource but deciding power is the role of men 	<ul style="list-style-type: none"> -sustainable development can be achieved when gender equality is ensured. -Women have significant role on social, economic, political and environmental issues -Women are knowledgeable and rational decision maker if they are given the opportunity 	<ul style="list-style-type: none"> - Lack of knowledge on basic concept of gender -low attention for reproductive role of women -lack of knowledge on gender policy. 	<ul style="list-style-type: none"> -Basic gender concepts -Roles of women in development efforts -Gender policy -Effects of gender equality in sustainable development -strategic and practical needs of women
4. Illiteracy	<ul style="list-style-type: none"> - Illiterate man/women is like a blind person - less punishment to the illiterates than literates in cases of criminals -Illiterate person could not be a leader 	<ul style="list-style-type: none"> -Being literate has no benefits to farmer since he could accomplish farming activities -Community members have low attention for education/literacy program 	<ul style="list-style-type: none"> -Education is a basis of development for any country -Literate community enhance development efforts -Literacy/education should be considered during election of leaders at local level. 	<ul style="list-style-type: none"> -Lack of knowledge on reading and writing skill - Lack of knowledge on advantage of being literate in improving income and production 	<ul style="list-style-type: none"> -Livelihood literacy program -Education and development

Analytical Frame work (Contd.)

<p>5. Deforestation</p>	<p>-Population pressure aggravated deforestation -Absence of alternative fuel source and construction materials causes serious damage on forest coverage. -The demand for cultivable land resulted deformation -Deforestation results soil erosion -Water table reduced as a result of deforestation and low infiltration. -Deforestation results drought.</p>	<p>- Small scale farmers. -Deforestation results drought</p>	<p>-Availability of on farm and community nurseries -Favorable Government policy for environmental protection and rehabilitation</p>	<p>- Free grazing -Slow pace of land use policy implementation.</p>	<p>-Community led and benefit oriented forestation program -Practicing integrated watershed approach -Building the capacity of CBO and Kebele leaders to protect and rehabilitate environment.</p>
<p>6. Soil degradation</p>	<p>-Topography and landscape of the area is vulnerable to soil erosion -Over cultivation and mismanagement of the soil causes nutrient depletion in the cultivated land -limited and poorly constructed soil and water conservation practices in the area</p>	<p>-Topography and landscape of the area is vulnerable to soil erosion -Over cultivation and mismanagement of the soil causes nutrient depletion in the cultivated land -limited and poorly constructed soil and water conservation practices in the area</p>	<p>-Recognition of the problem by the community and local government to protect the soil -Experience of the community on construction of traditional terrace shall be strengthened</p>	<p>-Free grazing -Slow pace of land use policy implementation.</p>	<p>-Conduct community led SWC activities -Capacity building of GO staffs and the community in NRM. -Promote and practice IWSM approach</p>

ANNEX 2. DATA COLLECTING CHECKLIST FOR INTERVIEW

Farmers

1. What is the current agricultural production and productivity?
2. What are the causes? Whether bad or good.
3. What problem you faced during the production?
4. How would you tackle it?
5. Have you participated from trainings, experience sharing, farmers' field days etc.? When and where?
6. Who chose these participants?
7. How the training (learning) programs were designed (TNA)? What was your involvement in the planning of trainings, experience sharing, etc.?
8. Who supported to put into practice? (implementation ,evaluation, and to provide feedback about the trainings)
9. The influence (Challenges) of the training to put into practice (NRM)?
10. What do you think the ways to enhance learning? (technology transfer)
11. What material assistance did you get? (hand tools), What was your contribution?
12. Who plays the coordination role to manage the trainings?(the community, DAs, NGO)
13. What are the bylaws/norms (either traditional or official) related to the use of NR? How it functions? Who defined such norms?
14. Do you think that such bylaws/norms have been followed by the community (farmers) why? , (how?)
15. Are you satisfied with the bylaws/ norms?
16. Do you feel that these bylaws/ norms have been changed over the years?
Can you give an example and explain how did it happen? Who was involved?
How the changes were took to implement?
17. Can you tell the uses of the NRs for you?
18. Do you think some NRs are becoming scarce? Can you give an example?
19. What do you do to keep these resources?

Woreda (District) Development Committee (WPCC)

1. What are the roles and responsibilities of the WPCC in relation to SARDP?
2. How did you manage the participatory planning & implementation of development activities? How trainings were designed and implimented?
3. How did you influence farmers to learn and put in practice new ideas (techniques)?
4. How do you monitor and evaluate the out come and impacts of the projects including trainings?
5. How did you complement SARDP resource and others in the process of implementation?
6. Why challenges appeared to conserve and use the NR as per the farmers' knowledge gained through trainings, demonstration...?