



**Ethiopia**

# **Terminal Evaluation of Coping with Drought and Climate Change in Ethiopia**



## Executive Summary

The Terminal Evaluation of the *Coping with Drought and Climate Change in Ethiopia Project* (CwDCC) was completed in conformance with GEF and UNDP guidelines and in accordance with the Terms of Reference (ToRs) for the evaluation that were provided by UNDP Ethiopia. The evaluation was primarily based on (a) review of documents, reports and surveys that described progress on project outputs, outcomes and objectives as per indicators in the project design, (b) interviews with project participants and beneficiaries to verify achievements and to identify issues related to project design and implementation, and (c) selective site visits and field observations to compile evidence of site achievements and to consult with beneficiaries and stakeholders.

The *Coping with Drought and Climate Change Project* was intended to demonstrate and promote adoption of a range of measures related to improved seeds, irrigated farming, conservation agriculture methods, integrated pest management, watershed rehabilitation, livestock development and localised weather forecasting. Three outcomes were expected from the project:

**Outcome 1:** Livelihood strategies that enhance the resilience of vulnerable farmers to cope with drought and climate change adopted and sustained.

**Outcome 2:** Enhanced use of early warning systems in agricultural systems at selected pilot sites.

**Outcome 3:** Farmers/agro-pastoralists outside the pilot sites replicated successful approaches to cope with drought and climate change.

Overall, the project has effectively achieved most of the expected results to a satisfactory level. It has particularly shown the viability of drought-tolerant crop varieties, small scale irrigation for vegetable and fruit production, livestock development, composting, fodder and honey production and watershed rehabilitation as a multi-dimensional approach to addressing drought and climate change in Kalu district. It has also introduced local rainfall monitoring to assist weather forecasts and improved advice to farmers on the timing of land preparation and planting.

The project has tested an important set of multi-dimensional agronomic, livestock and watershed measures that serve as a framework for advancing drought mitigation in conjunction with government programs. Development effects of distributing improved high yielding, drought resistant and early maturing crop seeds were significant, including much higher crop yields (30-50% or more) and increased household incomes. Other interventions with positive results included urea treatment for improved fodder and composting for enhanced soil fertility. The diffusion of appropriate drought-resistant agricultural ‘technologies’ through “models farmers” demonstrating the technologies, “followers” of the model farmers, and “laggards” was a central

strategy. The project is having a very positive impact on agricultural production and food security for the direct beneficiaries and therefore reducing their vulnerabilities. The viability and cost-effectiveness of the project technologies have been successfully demonstrated. Less certain is the extent to which these technologies are disseminating and replicating as expected to have a major effect on resilience across all six project areas.

The introduction and promotion of small-scale irrigated farming has demonstrated the importance of this technology for growth and diversification of crops and income. The project provides evidence of the significant income effects of shifting from rainfed to irrigated farming. The best of the model farmers reported that they were able to make 60,000 ETB/yr from vegetable and fruit farming, in the seasons before and after rainfed cropping. An average farmer made in the range of 10,000-20,000 ETB/yr from vegetable and fruit production through farm ponds and irrigation systems. The improved seeds provided by the project allowed farmers to generate estimated average annual farm incomes of 879 ETB for cereal crops, 836 ETB for pulse crops and 6659 ETB for vegetable crops based on 1,617 farmers who received improved seeds. Crop yields increased by one-third to one-half and thereby incomes increased substantially.

The livestock development component, involving distribution of sheep and goats to carefully selected beneficiaries and transfer of livestock offspring to subsequent rounds of beneficiaries was greatly appreciated by the communities involved. The experience in the project kebeles showed transfer rates (% of new livestock created through direct beneficiary-to-beneficiary transfers) of 26% for sheep and 49% for goats (Annex 6, Table 6-3). The original distribution of 570 sheep and 760 goats led to another 200 sheep and 730 goats being given the two subsequent rounds of beneficiaries. The low transfer rate for sheep suggests that the landscape and limited fodder were unsuitable for these animals.

One of the most promising interventions is Integrated Pest Management because of the prevalence of 'stock borer' affecting staple food crops (sorghum, maize) and the effectiveness of this indigenous method of crop pest control treatment which farmers state significantly reduces their losses reportedly allowing double the yield they would normally obtain and saving the cost of chemical pesticides. The return on investment makes this method sustainable with appropriate organisational and microfinance support at the kebele level.

The introduction of local rainfall monitoring and early warning systems improved the weather information available to farmers, although further development and validation are needed.

The project implementation approach involved demonstration and promotion of a wide range of drought mitigation and climate change adaptation measures with farmers through the kebele organisations and cooperatives, with support from woreda staff. These measures principally aimed to increase and diversify crop and livestock production and incomes, strengthen rural

household assets, and enhance weather forecasting. The main issues in delivery of the project related to (i) efficacy of the government procurement process, (ii) availability and mobilisation of expertise from government experts and woreda and regional level, and (iii) the focus on distribution of agricultural technologies and infrastructure without systematic monitoring data on performance and sustainability.

The project was delivered through a highly decentralized management system at the woreda and with the active involvement of DAs and farmer groups at the kebele level. At the field level, the kebele leaders were mobilized in support of the project, with support from kebele administrators. The woreda office of agriculture assigned three Development Agents (DAs) to facilitate the project at each kebele. These DAs in the target communities worked directly on project activities, with backstopping from the project manager and the woreda technical experts. Different community based committees were formed and worked on different sectors of the project. The decentralised approach provided significant advantages of being close to the beneficiaries and enhancing participation.

The main operational progress issues that were noted in reports included the project delays in activities' completion and early reporting gaps due to changes in project managers, the constraints associated with dependence on the government modalities, and a project strategy of technologies dissemination that was not well elaborated. The monitoring system focused on activities completed rather than empirical evidence of dissemination and replication. The reporting on achievement of outcomes and outputs was based on too generalized assessment of changes in vulnerabilities and bold assumptions about the extent of uptake and replication.

Several lessons were learned for future adaptation projects in Ethiopia:

- Project implementation needs to be fully enabled within government systems.
- The woreda management model should have a higher level of engagement and administrative agreement with woreda, regional and zonal authorities.
- Project inception phase should focus on developing a comprehensive implementation strategy (including relevant business models) and monitoring plan.
- Extension and training plans require greater attention and technical guidance.
- Development Agents play a critical role but staff turnover and technical capacity are constraints.
- Project management of procurement is time-consuming and detracts from the focus on project results.

**Six recommendations** are presented for immediate implementation during the closure of the *CwDCC Project*, and **ten recommendations** are presented for future climate change adaptation projects.

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Alan Ferguson

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## Acronyms and abbreviations

|        |  |
|--------|--|
| AWP    | Annual Work Plan   |
| CCI    | Community Complementary Irrigation Program   |
| CO     | Country Office   |
| CwDCC  | Coping with Drought and Climate Change in Ethiopia Project                                   |
| DA     | Development Agent  |
| DRMFSS | Disaster Risk Management Food Security Sector  |
| EA     | Executing Agency (EMA)   |
| EIAR   | Ethiopian Institute of Agriculture Research  |
| ETB    | Ethiopian Birr   |
| FTC    | Farmer Training Centers  |
| GEF    | Global Environmental Facility  |
| HAB    | Household Asset Building Program   |
| IPM    | Integrated Pest Management   |
| MERET  | Managing Environmental Resources to Enable Transitions to More Sustainable Livelihoods (WFP) |
| MoA    | Ministry of Agriculture  |
| MoARD  | Ministry of Agriculture and Rural Development  |
| NMA    | National Meteorological Agency   |
| PMU    | Project Management Unit  |
| PSC    | Project Steering Committee   |
| PSNP   | Productive Safety Net Program  |
| Qt     | Quintal  |
| RTA    | UNDP/GEF Regional Technical Advisor  |
| SCCF   | Special Climate Change Fund  |
| UNDP   | United Nations Development Programme   |
| UNFCCC | United Nations Framework Convention on Climate Change  |
| USD    | US dollar  |
| WTWG   | Woreda Technical Working Group   |



## 1. Introduction

### 1.1 Purpose of the evaluation

The *Coping with Drought and Climate Change in Ethiopia Project (CwDCC)* is a medium-sized project funded by the Special Climate Change Fund (SCCF), a UNFCCC fund managed by the GEF. The project objective is to *develop and pilot a range of effective coping mechanisms for reducing the vulnerability of farmers, particularly women and children, in Kulu Woreda/district to drought*. Kalu woreda (district) is one of the highly degraded, drought prone, chronically-food insecure areas and is one of the safety net program woredas in the region.

The executing partner is the Ministry of Agriculture, Early Warning and Response Directorate, and the executing partner is UNDP Ethiopia. At district level, sector offices engaged in project implementation included woreda District Administration, Office of Agriculture, Office of Water Resources, Office of Environmental Protection, Kombolcha Meteorology Directorate, and the Office of Cooperatives.

The Terminal Evaluation is an independent review that aims to determine progress made towards the achievement of outcomes; to identify the relevance, effectiveness, efficiency and timeliness of project implementation; to highlight issues requiring decisions and actions; and to present initial lessons learned about project design, implementation and management. The objective of this evaluation is to provide *a comprehensive and systematic accounting of performance, and assess project design, implementation, likelihood of sustainability and possible impacts*. The GEF and UNDP terminal evaluation guidelines specify five evaluative criteria, described as follows and further elaborated in **Annex 1: Terms of Reference**.

1. **Relevance.** Were the project's outcomes consistent with the focal areas/operational program strategies and country priorities?
2. **Effectiveness.** Are the actual project outcomes commensurate with the original or modified project objectives? If the original or modified expected results are merely outputs/inputs, the evaluators should assess if there were any real outcomes of the project and, if there were, determine whether these are commensurate with realistic expectations from such projects.
3. **Efficiency.** Was the project cost effective? Was the project the least cost option? Was project implementation delayed, and, if it was, did that affect cost effectiveness? Wherever possible, the evaluator should also compare the costs incurred and the time taken to achieve outcomes with that for similar projects.
4. **Sustainability.** Can the beneficial project results be sustained? What is the likely ability of an intervention to continue to deliver benefits for an extended period of time after

completion? Projects need to be environmentally, as well as financially and socially sustainable.

- 5. Impact.** What are the positive and negative, foreseen and unforeseen changes to and effects produced by a development intervention? Results include direct project outputs, short to medium-term outcomes, and longer term impact, replication effects and other local effects.

The above criteria and the questions and elements listed in the Terms of Reference are addressed under five headings for the evaluation report – 1) Project Formulation (including relevance, formulation and assumptions and risks) 2) Project Implementation (including effectiveness, efficiency, financial management, project management and monitoring and reporting), 3) Project Results (including achievements, sustainability, mainstreaming/conformance, catalytic effect and impacts), 4) Lessons Learned (including implications for scaling-up), and 5) Conclusions and Recommendations.

An Interview Guide (**Annex 2**) were prepared to further guide the evaluation. The in-country interviews are listed in **Annex 3**. It also includes the list of persons interviewed. Various documents that were reviewed are listed in **Annex 4**.

## **1.2 Key issues and constraints**

The following key evaluation issues were identified in an initial review of the various project documents, surveys and reports:

- **Project start-up delays** – Government re-organisation, approval processes and staff turnover, and procurement processes have been noted as sources of significant delays in initiating and executing the project. Timelines and relevant bottlenecks should be identified.
- **Quality of outputs under rushed timelines** - The delays created a very short catch-up period that forced rushed implementation of activities in the past two years. The project managed to greatly accelerate the pace of delivery during these two year.
- **Project design and monitoring** – the changes in the project results framework (June 2010) and the quality of the monitoring data suggest some lack of clarity at the inception stage about the expected end results and their measurement. The monitoring information does not give much insight into relative performance of the interventions.
- **Local management of the project** - The project has been directly managed at the woreda level, which may be an innovative approach in Ethiopia; decentralized management can have advantages and disadvantages which could be usefully considered from this project.

- **Financial drivers of adaptation technologies** – The financial viability of the agronomic, livestock and watershed management technologies is an important aspect of sustainability and replication that has not been directly assessed to date.
- **Risks of direct distribution of assets** – This practice is fraught with potential pitfalls related to selection of beneficiaries, the extent of in-kind equity, and the problems of follow-up conditions of sharing second/third generation; have they been avoided here?
- **Replication outside of the project kebeles** – Outcome 3 anticipates spread of climate-resilience technologies to farmers given brief exposure to the project sites, and further dissemination to other villages. Can distinct improvements in crop and livestock production outside the project be clearly linked to the project?
- **Effectiveness of increased local rainfall measurement** – Better access to rainfall data is intended to enhance early warning systems. How are the data interpreted by DAs and farmers and what effect does the distribution of rain gauges have on farming practices and production?
- **Performance under drought conditions** – Many agricultural innovations are effective in good rainfall years but do not meet expectations during drought conditions. How robust are the project adaptation technologies?

GEF project evaluations have some clear limitations related to the limited time and resources for full assessment of performance. Typical constraints to be faced in this evaluation include:

- generally weak logic models and theory of change in the project design;
- lack of baseline data and changes in monitoring indicators in mid-course;
- lack of systematic monitoring data on the outputs generated across project sites;
- monitoring and other field reports that tend to be selective, anecdotal and promotional;
- lack of full evidence to support attribution (the project “caused” the observed result) and counterfactual argument (comparable results in absence of the project);
- an emphasis on short term ‘project expenditure effect’ which can distort conclusions on results: beneficiaries’ lives temporarily improved during project livelihood support; and
- insufficient documentation of the relative performance (success and failure) and cost-effectiveness of various interventions under different circumstances.

### **1.3 Methodology of the evaluation**

The terminal evaluation aimed for an evidence-based, transparent and participatory approach consistent with the *GEF Monitoring and Evaluation Policy*, the *Guidelines for GEF Agencies in Conducting Terminal Evaluations (2008)* and the *Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed projects (2012)*. The evaluation focused on the evaluation criteria and questions presented in the Terms of Reference. It also endeavored to compare the pre-project baseline conditions to current conditions. An Evaluation Inception Report and a

summary of the status of project outcomes and outputs were prepared during the initial phase of the evaluation.

The evaluation methodology was based on (a) review of documents, reports and surveys that describe progress on project outputs, outcomes and objectives as per indicators in the project design, (b) self-assessment of project achievements by project staff, (c) interviews with project participants and stakeholders to verify achievements and to identify issues related to project design and implementation, (d) where feasible, group discussions to review project experiences and lessons learned, (e) selective site visits and field observations to compile evidence of local achievements and to consult with beneficiaries and stakeholders, (f) triangulation and corroboration of comments by project participants regarding project results, implementation and lessons.

Taking into account the limited systematic quantitative data and the need to validate the stated project results, the proposed approach aimed to generate a small sample of performance data from selected sites and beneficiaries. The field sampling focused on **several core questions**:

- (1) What specific changes in crop and livestock diversity and productivity, household incomes, and food security have occurred at representative project sites (Outcome 1)?
- (2) What specific change in the use of weather forecasts in farming practices have occurred at representative project sites (Outcome 2)?
- (3) What level of uptake of the project technologies (adaptation strategies) has occurred at non-project sites by farmers who received training or exposure to these strategies (Outcome 3)?
- (4) What financial, technical and community factors<sup>1</sup> have influenced project results and sustainability at representative project sites?

The Interview Guide (**Annex 2**) assisted discussions with stakeholders. The site visits were organized to capture representative project sites and activities.

In all of the discussions, an emphasis was placed on collegial and constructive dialogue and compiling reliable observations project performance and lessons. The interviews, assisted by an Interview Guide, provided lead questions that facilitated consistency and triangulation of responses from those interviewed. The evaluation involved an objective and independent

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<sup>1</sup> E.g., these factors could include food security and income returns that enhance viability of replication of the adaptation measures, the capacity and commitment of extension officers and subject matter experts, presence and effectiveness of community organisations and institutions, etc.

review of the *weight of evidence* compiled from reports, interviews/group discussions and site visits.

In accordance with UNDP/GEF evaluation requirements, the M&E systems, project results, implementation, sustainability, and catalytic role were rated in terms of:

*Highly satisfactory (HS).* The project had no shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.

*Satisfactory (S).* The project had minor shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.

*Moderately satisfactory (MS).* The project had moderate shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.

*Moderately unsatisfactory (MU).* The project had significant shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.

*Unsatisfactory (U).* The project had major shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.

*Highly unsatisfactory (HU).* The project had severe shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.

#### **1.4 Structure of the evaluation**

The evaluation structure focuses on (i) project formulation (including relevance, formulation and assumptions and risks), (ii) implementation (effectiveness, efficiency, financial management, project management, monitoring and reporting), (iii) results (outcome achievements, capacity building) and (iii) sustainability (institutional, financial, etc.) based on the format recommended by UNDP and GEF guides for terminal evaluation.

Sections 1 and 2 provide background context for the project, including an outline of expected results. These results are further defined and assessed in Annexes 5 and 6.

In Section 3, the Evaluation Findings are organized into Project Formulation (3.1), Project Implementation (3.2) and Project Results (3.3), as required by UNDP evaluation guidelines.

The project performance Ratings and reasons for the summary ratings are provided in Section 4.

The Lessons Learned (Sec 5) and Conclusions (Sec 6.1) have important messages for future projects, while the Recommendations (Sec 6.2) provide for proposed actions as part of the project closure and follow-up activities.

## 2. The Project and its Development Context

### 2.1 Project history

The CwDCC Project Document (Sept. 2007) describes the increasing long-run temperature and declining rainfall scenarios for the Northern half of Ethiopia, including the pilot district for this project (Kalu woreda of the South Wollo Zone) that were negatively affecting agricultural production, infrastructure and livelihoods of the rural poor. Predicted climate change, including variability, exerts additional pressures on the already weakened subsistence economy of the pilot areas. The project therefore proposed to “build adaptive capacity of the rural poor in the selected pilot sites to cope with drought and climate change and in doing so, contribute towards the reduction of the threat of climate change on livelihood opportunities. The project will build capacities of key stakeholders at different levels to disseminate and utilize effective climate and early warning information in agricultural planning processes.”<sup>2</sup>

UNDP-GEF’s *Coping with Drought Project* was initially conceived as a Full Size Regional GEF Project for East and Southern Africa. For a number of logistical and programming reasons, the regional project was subsequently submitted as four separate Medium Sized Projects to GEF Council. However, the regional dimension of the GEF pipelined project was retained through the specification of an outcome that focused on the regional dimension of the project in each of the separate MSPs.<sup>3</sup>

The original project design for the Ethiopia project approved by GEF Council involved four outcomes: (i) Livelihood strategies and resilience of vulnerable farmers in the selected pilot sites improved and sustained to cope with drought and climate change, (ii) Enhanced use of Early Warning information in agricultural systems at the selected pilot sites, (iii) Drought mitigation and preparedness activities integrated across sectors and programmes at various levels of society in the pilot sites and (iv) Farmers/pastoralists outside the pilot sites replicate successful approaches to cope with drought.

The project was budgeted at \$2.861 M USD, with \$ 2.362 M in cash and the remainder in-kind contribution: \$0.995 M from GEF (SCCF), \$0.25 M from Government MOFED, about \$ 1.117 M from WFP, as well as in-kind contributions of \$0.25 M from National Meteorological Association and \$ 0.25 M from MOFED.<sup>4</sup> The Project Document was signed on September 4, 2007.

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<sup>2</sup> ProDoc, 2007, p. i.

<sup>3</sup> Terms of Reference for the Regional Component of the UNDP-GEF Coping with Drought and Climate Change Project in Ethiopia, Zimbabwe and Mozambique, Annex to the ProDoc, 2007, p. 32

<sup>4</sup> ProDoc, 2007, p. 39

A Stakeholders (Inception) Workshop was held September 29-October 1, 2009 in Kombolcha, involving 43 participants including key stakeholders from Kalu Woreda administration, South Wollo Zone, Amhara National Regional State, Federal Ministries, Ethiopian Institute of Agricultural Research, NMA, UNDP, WFP and representatives of the 6 Kebele communities from the two selected Woredas.<sup>5</sup>

There were some obvious changes in the project after the 2009 inception:

- The six project kabele's were selected within one rather than two woredas and project sites were selected within one micro-watershed of each of the kebeles;
- the original Outcome: "Drought mitigation and preparedness activities integrated across sectors and programmes at various levels of society in the pilot sites" was dropped; and
- the original Results Framework was revised in 2010 with new indicators.

The slow start to the project and high staff turnover is also reflected in the key events summarized in the Project Timeline in Table 1.

**Table 1: Project Timeline**

| Date           | Activity/Events  | Comments   |
|----------------|--|--|
| September 2007 | Project Document approved  |  |
| March 2008     | Re-structuring of MARD; reassignment of Dr. Bateno, previous NPC; UNDP letter requesting new appointment | Uncertainty about letter of agreement and responsibilities |
| January 2009   | National Project Coordinator appointed   | Mr. Beyene Sebeku appointed                                |
| March 2009     | Project Document signed  |  |
| May 2009       | Planned Inception workshop delayed   |  |
| September 2009 | Inception Workshop held in Kombolcha   | 43 participants; 6 kabeles in 2 woredas selected           |
| October 2009   | 1 <sup>st</sup> Project manager left   | Stayed only two months                                     |
| May 2010       | Legasse Gellaw, 2 <sup>nd</sup> Project manager  | Stayed less than one year                                  |
| August 2010    | New LFA introduced (revised Results Framework and indicators)  | One Outcome was dropped and indicators were revised        |
| March 2011     | Mr. Legasse departed and replaced by Mr. Kassahun Bedada, 3 <sup>rd</sup> Project manager                | Mr. Kassahun Bedada was the National Project Director      |
| 2012           | New NPC appointed  | Mr. Muluken Kefani appointed                               |

<sup>5</sup> Stakeholders Workshop on Coping with Drought and Climate Change, Results and Agreements of the Inception Workshop, UNDP, Belay Simane, 2009

|                    |  |  |
|--------------------|--|--|
| June 4-12, 2012    | Site Visits by UNDP, GEF researcher RTA, UNDP GEF program Analyst and government officials |  |
| October 2-5, 2012  | Site visits by UNDP Country Director and GEF Program Analyst and IDDR Day 2012 Media Tour  |  |
| October 14-19 2012 | Regional visits from CwDCC project representatives from Kenya, Mozambique and Zimbabwe     |  |
| December 1-2, 2012 | Project presentation made at "Adaptation Practitioners Day", Doha                          | Presented by DRMFSS Director, Mathewos Hunde |
| January 2013       | Vulnerability Analysis Report prepared   |  |
| Feb – March 2013   | Terminal Evaluation  | Field visits March 11-15                     |
| March 31, 2013     | Project closure  |  |

## 2.2 Problems that the project seeks to address

The climate of Ethiopia varies greatly with a temperate climate on the plateau and hot in the lowlands. At Addis Ababa, which ranges from 2,200 to 3,100m the maximum average temperature is 26 °C and average minimum is 4°C. The weather is usually sunny and dry except for the short (*belg*) rains that occur from February to April and the big (*Kiremt*) rains from mid-June to mid-September. In addition to the variation in climate dependent on elevation, the year may be divided into three seasons. Winter, or the cold season, lasts from October to February, and is followed by a dry hot period, which about the middle of June gives way to the *Kiremt* rainy season.

Increasing long run temperature and declining rainfall scenarios for the northern half of Ethiopia, including the project pilot sites, is negatively affecting agricultural production, deteriorating infrastructure and livelihood assets of the rural poor. Predicted climate change including variability will exert additional pressures on the already weakened subsistence economy of the pilot areas. The CwDCC Project was implemented as a pilot project in Kalu Woreda of the South Wollo Zone (see **Figure 1**). There are 39,187 households in the woreda, with an average 5 person/household and a total population of 200,768.<sup>6</sup> The dominant crops grown in the district are sorghum, teff, vegetables, mung bean, haricot bean, chickpea, and maize during the wet and belg seasons.

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<sup>6</sup> The 2005 woreda population has also been estimated at 219,080 by the Central Statistical Authority, with some assumptions due to changes in kebele boundaries; see WFP Livelihood Zone Reports, 2007.



South Wollo Zone and Kallu Woreda Kebeles Base Map

Client - UNDP  
 Consultant - SuDCA  
 Project Area - Amhara Region  
 Project Zone - South Wollo  
 Project Title - Food security  
 Baseline Survey Mapping

Map Title - South Wollo Zone  
 Woreda:- Kallu Woreda

Legend

- South\_Wollo\_Road
- Kallu
- Amhara\_Region\_Boundary
- Amhara\_Zones

Projection:- UTM Zone 37N  
 Spheriod:- Clark 1880  
 Datum:- Adindan

Logo

N

1:198,752

0 45 9 15

Water Source

The project kebeles are included in two WFP livelihood zones, with populations as follows<sup>7</sup>:

**Chefa Valley Livelihood Zone**

|             |        |
|-------------|--------|
| Adamie      | 6,990  |
| Aba Hilimie | 5,314  |
| Gira Amba   | 10,089 |
| Resa        | 9,201  |

**South Wollo Belg Livelihood Zone**

|               |       |
|---------------|-------|
| Wereba        | 7,185 |
| Benko Debelle | 8,571 |

In the Chefa Valley zone, sorghum production provides three quarters of the annual food requirements of the better off households and about one-third of the poor households. Annual incomes (2007) range from 2250-2750 ETB for the very poor households to 7000-8000 ETB for the better-off households. Agriculture activities are rainfed and planned around the *kremt* rainfall season which lasts from June to mid-September. An erratic *belg* short rainy season lasts from February to April.

In the South Wollo Belg zone, the main harvest is from the *belg* rains because in most localities of this zone the larger *kremt* rains are heavy and create waterlogging, making this zone chronically food insecure due to dependence on the early rains, the small landholdings and soil fertility constraints. Annual incomes (2007) range from 1700-2000 for the very poor households to 8700-9200 for the better-off households. In both these zones, the poor/very poor households depend on PSNP support for at least one-third on their annual incomes.<sup>8</sup>

Drought is an intermittent hazard in the woreda, occurring about once every five years. Thus, the project has sought to build adaptive/coping capacity of the rural poor in the selected pilot sites to cope with drought and climate change and in doing so, contribute towards the reduction of food security and livelihood vulnerability to climate change. The project also sought to build capacities of key stakeholders at different levels to disseminate and utilize effective climate and early warning information in agricultural planning process.

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<sup>7</sup> WFP, Amhara Livelihood Zone Reports, Kalu Woreda, 2007

<sup>8</sup> WFP, op.cit., 2007.

### 2.3 Expected results

The project has three Outcomes intended to benefit approximately 41,421 people (in 6 Kebeles/villages) in the KaluWoreda (District), Amhara Regional State, Ethiopia. The three Outcomes are:

**Outcome 1:** Livelihood strategies that enhance the resilience of vulnerable farmers to cope with drought and climate change adopted and sustained.

**Outcome 2:** Enhanced use of early warning systems in agricultural systems at selected pilot sites.

**Outcome 3:** Farmers/agro-pastoralists outside the pilot sites replicated successful approaches to cope with drought and climate change.

### 2.4 Main Stakeholders

The principal stakeholders include:

- farmers in the six project kebeles (population approx. 41,000)
- woreda agencies:
  - Ministry of Agriculture
  - Water Development Office
  - Kombolcha Meteorology station
  - Environmental Protection Authority
  - Kalu Woreda administration office
  - Disaster Risk Management Food Security Office
- Ministry of Finance and Economic Development
- Environmental Protection Authority

The project had also worked in coordination with other sectors such as the

- Wollo University,
- Bako Agricultural Mechanization Center,
- Sirinka Drylands Agricultural Research Center,
- Kombolcha Technical & Vocational Training College,
- Kombolcha Pests Surveillance and Research Center and the
- Federal Ethiopia Institute for Agricultural Research

### **3. Evaluation Findings**

#### **3.1 Project Formulation**

##### **3.1.1 Implementation approach**

The project implementation approach can be summarized as “demonstration and promotion of a wide range of drought mitigation and climate change adaptation measures with farmers through the kebele organisations and cooperatives, with the support from woreda staff and line agency experts.” These measures principally aimed to increase and diversify crop and livestock production and incomes, strengthen rural household assets, and enhance weather information to address rainfall variability and scarcity and improve farming decision making.

The concept of diffusion of appropriate drought-resistant agricultural ‘technologies’ through “models farmers” demonstrating the technologies, “followers” of the model farmers, and “laggards” was central to the promotion and replication of many of these technologies.

The project was delivered through a highly decentralized management system at the woreda and with the active involvement of DAs and farmer groups at the kebele level. Regular management of activities and expenditures was overseen by a woreda Project Steering Committee. The “persistent commitment of the district Project Steering Committee members” was identified as the critical factor for success of the project.<sup>9</sup>

##### **3.1.2 Country ownership/drivenness**

The project was designed and delivered in full alignment with the development and climate change adaptation priorities and programs of the Government of Ethiopia. The implementing agencies and staff were part of the government system, guided by the woreda management committee and the kebele organisations. Community and farmer direction, ownership and replication of the project technologies and activities was a major focus of the project design and implementation.

##### **3.1.3 Stakeholder participation**

Stakeholder participation was a key element in the design and inception of this community-based project. The beneficiaries had a direct role in selecting the agricultural interventions and livestock procurement. The community development priorities were determined through local consultation processes with an explicit focus on those households in need of support and efforts toward gender equity. The project engaged a large number of stakeholders.

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<sup>9</sup> Mathewos Hunde, Coping with Drought and Climate Change Project Kalu district, Ethiopia, Presentation to COP, Doha, 2012.

### 3.1.4 Replication approach

The approach to replication through (a) Outcome 3 awareness-raising demonstration activities, (b) a model farmer approach that sought to influence “followers” and “laggards” in the uptake of demonstrated technologies, (c) the revolving distribution of livestock with obligations of beneficiaries to give livestock offspring to other beneficiaries, and (d) farmers receiving improved seeds returning an equal quantity to the kebele cooperative seed banks. The evidence of improved yields and incomes helped the uptake of the technologies, although the subsidies involved may affect sustainability. Information on the effectiveness of the replication strategies through exposure, training, technical support and subsidies was not available.

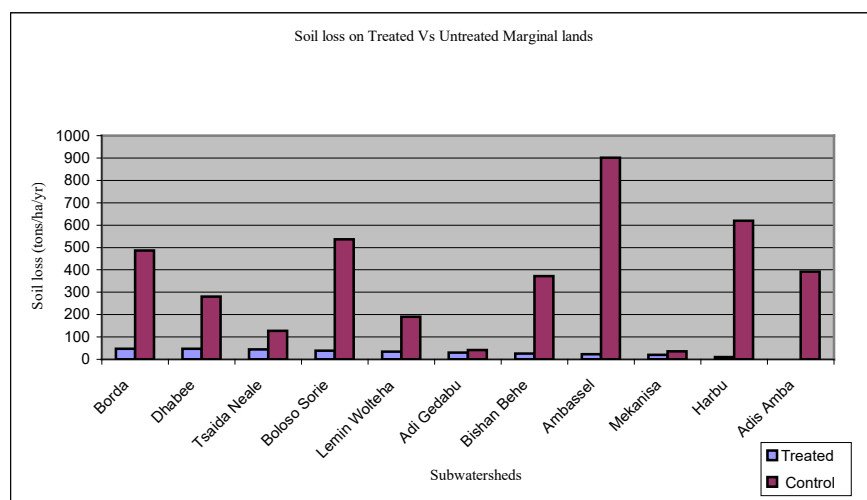
### 3.1.5 Cost-effectiveness

The project was planned on the basis of sound evidence of the cost-effectiveness of environmental improvements and small scale irrigation. The focus on establishing and disseminating financial viable technologies and practices was considered a key driver in expanding the scope of beneficiaries. Shifting from rainfed to small-scale irrigated farming has proven effective as a key strategy in drought-prone areas.

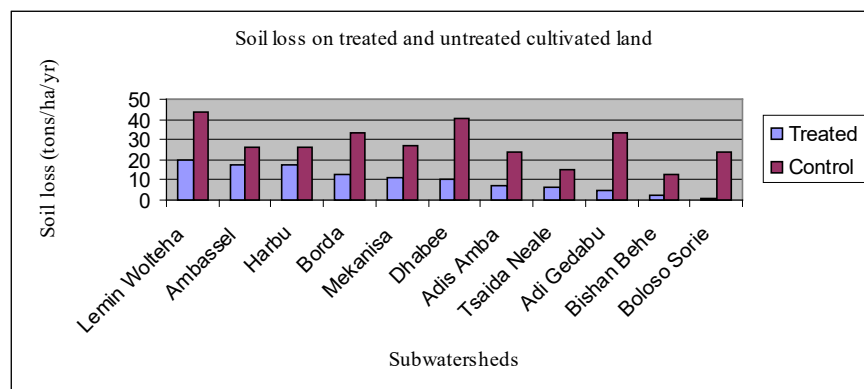
The planned cash component of the project from GEF (\$995,000) served to leverage an estimated \$1.86 M in additional financing, including large contribution from WFP – MERET which is working in the woreda on watershed rehabilitation.

Previous studies have shown major changes in soil loss, soil moisture and the profitability of conservation from the farm household’s view point. Internal rates of return for conservation agriculture in Ethiopia are in the range of 11-17%. Studies of soil conservation for example show high economic viability<sup>10</sup>:

**Figure 2: Benefits of Soil Conservation**



<sup>10</sup> WFP, Report on the Cost-Benefit Analysis and Impact Evaluation of Soil and Water Conservation and Forestry Measures (Draft), MERET, Addis Ababa, February 2005, p.28-30



The investments in agricultural technologies also led to significant benefits for the beneficiaries and could potentially lead to longer term benefits throughout the district. The cost-effectiveness of the project included utilizing government staff to deliver most of the project implementation activities. Only a project manager, finance officer and driver were employed directly by the project.

### 3.1.6 UNDP comparative advantage

The strengths of UNDP in managing this project included their established working relationships with government, the experience with GEF projects and the links between climate and poverty reduction and livelihoods development that cross UNDP practice areas. In addition, UNDP was well placed to organize experiences-sharing with other African countries engaged in the CwDCC program.

### 3.1.7 Linkages between project and other interventions within the sector

There were direct links included in the project formulation with government partners associated with the Productive Safety Net Program (including HAB and CCI), mass mobilization for watershed rehabilitation, and the World Food Programme's MERET program (food for watershed rehabilitation work), and other government programs, including the annual mass mobilization for watershed rehabilitation.

### 3.1.8 Indicators quality and utilization

The project indicators in the original project document did not prove to be effective and therefore the results framework (LFA) was updated in 2010 to provide the following key indicators:

#### Objective:

- % change in vulnerability to climate change of men, women and children living in pilot sites.

#### Outcome 1:

- % of households (disaggregated by gender) adopted alternative livelihood strategies introduced by the project.
- % of area of the target villages covered by dryland farming and sustainable land management practices introduced by the project

**Outcome 2:**

- % of pilot sites that have posted the weather/drought info on kebele notice board or disseminate it on public gatherings.
- % of households (disaggregated by gender) get and use information on weather/drought situation from DAs or kebele administration

**Outcome 3:**

- % of farmers/agropastoralists (disaggregated by gender) outside the target area that adopted/replicated best practices among those visited the pilot site and or participated farmers day

The difficulty with these indicators was that there was no monitoring plan developed at the design/inception stages and little systematic data collection process that reliably tracked progress on outcome and output achievements. Household-related indicators depend upon household surveys for a representative sample of the sites. Despite three field studies<sup>11</sup> (and this terminal evaluation), the information on indicator-based results is mostly anecdotal and skewed toward the model farmers, best performers and optimistic statements. There are also challenges in measuring the percentage change in vulnerability to climate change that have not been fully addressed by this project, either in design or implementation.

### **3.1.9 Management arrangements**

The original management structure for the project included a National Steering Committee, A project Secretariat housed in MoARD with a project manager and other support staff, a Woreda Technical Working Group (WTWG) and a sub regional steering committee that was to include UNDP's Dryland Development Centre. This structure was radically simplified during the course of the project, probably due to the difficulties in start-up of the project and the reduced focus on the multi-national scope of the project activities. At the inception workshop it was proposed that a Woreda level project management team be set up incorporating all the relevant stakeholders and non governmental agents who would also be members of the WTWG.<sup>12</sup>

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<sup>11</sup> UNDP, The Best Practices of the Coping with Drought and Climate Change Project, Kallu District of South Wollo Zone, Amhara Region Ethiopia, January 2013; Belay Simane, Vulnerability Assessment of Ethiopia adaptation project: Coping with Drought and Climate Change, February 13, 2013; and Kuhl L., Technology Transfer in the Coping with Drought Project in Ethiopia, Oct. 2012.

<sup>12</sup> *Stakeholder's Workshop Report*, September 29-October 1, 2009, Kombolcha, p. 17

The eventual management arrangement focused on a Project Steering Committee at the woreda, and extensive involvement of various kebele level committees, including a Development Committee that comprises farmers, women, teachers and extension agents. The *kebele* government structure and different community based committees were heavily engaged in the selection of beneficiaries, the implementation of bylaws, farmers groups and related activities. This appears to have been an effective strategy, with some caveats as outlined in Sections 3.2 and 5.1 below, related to mobilizing government support both at the woreda level and regional/zonal levels.

### **3.2 Project Implementation**

#### **3.2.1 Implementation issues**

The key issues affecting project implementation are discussed in Section 1.2 above. The main operational progress issues that were noted in reports were:

- (a) the project delays in activities' completion and early reporting gaps due to changes in project managers;
- (b) the constraints associated with dependence on the government modalities for procurements and other decision making;<sup>13</sup> and
- (c) a project strategy that was not well-defined in terms of technology dissemination and farmer learning processes and the particular interventions and project activities and subsidies that were 'necessary and sufficient' to overcome the barriers to uptake by farmers.<sup>14</sup>

There may have been fewer delays if the project annual workplans had also been tied to clear administrative agreements and incentives that facilitated woreda decision making as well as support from regional and national levels in pushing the project forward. The wide distribution of interventions across many sites and the isolated location of some of the sites meant that localized impact of a combination of project technologies was less evident and that supervision of the more remote locations was difficult due to transport constraints. Given the many field constraints and the imprecision in the dissemination strategy, the project nevertheless was managed in a very active and diligent manner in the final years and achieved, to varying degrees, many of the expected results.

There were also normal field implementation constraints related to the lack of transport for DAs and woreda experts in government. It also needs to be recognized that in Ethiopia, like many

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<sup>13</sup> Third Quarter Narration Report, Oct. 12, 2012.

<sup>14</sup> The project funded a very wide array of activities to most of the woreda departments within a short period with a strong focus on distributing assets. In 2011, an alternative energy scheme was also started to distribute fuel efficient stoves, but later it was determined not directly linked to climate change adaptation and discontinued; Project Second Quarter Report, 2012, p. 16



other countries, modest incentives are required to ensure that project work is completed in a timely manner on the ground. Small per diems for travel, good transport and equipment, communications, computers and project-related professional development opportunities go a long way to facilitating effective project implementation through government agencies. GEF and other international projects carry added management obligations that need to be recognized at the inception stage (see Section 5.1).

### 3.2.2 Financial planning and co-financing

The data on project annual budgets and expenditures was not complete due to the poor start of the project and the limited support for field level management. It was not possible to reconcile the original planned co-financing (Table 2) and the final cash and in-kind contributions. The government accounts did not take account of non-GEF expenditures. An estimate of Government of Ethiopia co-financing is provided below. The cash MOFED contribution may be associated with the costs of the annual watershed rehabilitation work through 'mass mobilization' of communities but there has been no monitoring of co-financing. Table 3 summarizes available expenditure data and similarly, there is little basis to assess the financial and activity delivery rate. The project is currently undertaking a financial audit as required by UNDP.

**Table 2: Planned Co-financing (USD)**

|                 | Year 1        | Year 2        | Year 3        | Year 4        | Year 5        | Total            |
|-----------------|---------------|---------------|---------------|---------------|---------------|------------------|
| GEF             | 157500        | 264500        | 233500        | 162000        | 177500        | 995,000          |
| NMA (in kind)   | 50000         | 50000         | 50000         | 50000         | 50000         | 250,000          |
| MoFED (in-kind) | 60000         | 50000         | 50000         | 40000         | 50000         | 250,000          |
| MoFED (in Cash) | 40000         | 50000         | 50000         | 60000         | 50000         | 250,000          |
| WFP in-cash     | 116667        | 500000        | 300000        | 100000        | 100000        | 1,116,667        |
| <b>TOTAL</b>    | <b>424167</b> | <b>914500</b> | <b>683500</b> | <b>412000</b> | <b>427500</b> | <b>2,861,667</b> |

Source: 3787 Ethiopia, CwDCC ProDoc, 4 sept. 2007, P. 18-20

#### **Estimated Government of Ethiopia Co-financing:**

1. Office Space : ETB 1500x34 months= ETB 51,000
2. Vehicle use : ETB 1000x 34 months= ETB 34,000
3. Finance section support: ETB 3000x34 months x1/2 = ETB 51,000
4. Woreda Experts support: ETB 1500 x16x34 monthsx1/2= ETB 408,000
5. DAs support : ETB 980x18x34 monthsx1/2 =ETB 299 880

**Total Government contribution = ETB 843,000 or USD \$ 46, 038.19 ( based on current exchange rate 18.33)**

#### **Assumptions**

Project duration : March 2010- March 2013 = 36 Months

1. Office space : 36 Months
2. Vehicle use : 36 Months

3. Expert engagements duration: 34 Months
4. Two finance section personnel (one cashier and one accountant)
5. Woreda Experts 16
6. DAs 18 (3 per kebele)

**Table 3: Project Budget and Expenditures – available data (USD)**

| Outcomes      | Original budget | 2009 expenditures | 2010 expenditures | 2011 expenditures | 2012 expenditures |
|---------------|-----------------|-------------------|-------------------|-------------------|-------------------|
| Outcome 1     | 499,000         | -                 | -                 | 305,082           | 49,246            |
| Outcome 2     | 127,500         | -                 | -                 | 35,042            | 17,012            |
| Outcome 3     | 126,000         | -                 | -                 | 12,935            | 0                 |
| PMO costs     | 61,000          | -                 | -                 | 34,705            | 23,818            |
| Total         | 827,000*        | No data           | No data           | 387,764**         | 197,448**         |
| UNDP CDR Exp. | 995,000         | 18,453            | 291,490           | 314,395           | 258,146           |

Sources: Project Document, Project annual reports and UNDP \* Note: Two outcomes were dropped from the original budget \*\* These are data from the woreda project reports.

### **3.2.3 Monitoring and reporting process**

During the inactive years of the project 2009-mid 2010, there was little apparent reporting. Once the new project manager arrived and the project was mobilized in 2010, the quarterly reports have been submitted as required.

The project has completed three annual project monitoring reports (Project Implementation Review – PIR report) for monitoring years July-June 2009-2010, 2010-2011 and 2011-2012. Several summary reports on vulnerability assessment and achievements to date have also been completed by the project.

Approximately 30 ‘model’ farmers were assisted in each kebele with heavily subsidized inputs and support, yet there was no monitoring system to track the performance of these lead beneficiaries, nor even a clear record of their names and locations. The estimates of ‘followers’ of the lead farmers and indirect beneficiaries appear to be very qualitative.

The (revised) project design included quantitative targets but the means of collecting and analyzing relevant data to assess progress toward these targets was not sufficiently considered. The monitoring information therefore focused on summaries of activities completed and inputs/livestock distributed. The reporting on achievement of outcomes and outputs was based on approximate, generalized assessment of changes in vulnerabilities and assumptions about the extent of uptake and replication. Some of the estimates on the widespread effect of the project in changing the food security status of the project kebeles may not have sufficient and reliable field evidence to justify the conclusions about the scale of project impact.

#### **3.2.4 Execution and implementation modalities**

At the field level, the kebele leaders were mobilized in support of the project, with support from kebele administrators. The woreda office of agriculture assigned three Development Agents (DAs) to facilitate the project at each kebele. These DAs in the target communities worked directly on project activities, with backstopping from the project manager and the woreda technical experts. The DAs reportedly monitored the daily project activities and frequently met for bimonthly evaluation of the project implementation. The DAs also had regular meetings with the kebele administration and leaders to discuss the implementation of the project and solve problems. Challenges beyond the kebele capacity were referred to woreda for assistance. The integration of partners in all activities of the project is viewed as a key aspect that helped the proper implementation of the project activities.<sup>15</sup>

The project depended upon major equipment subsidies (50-85%) and/or cost-recovery loans from the kebele cooperatives to encourage farmers to participate. In drought-prone, food insecure woredas this is the standard approach to household asset building. Some reluctance of farmers to take drip irrigation on a cost recovery basis, technical capacity limitations to implement certain project activities (e.g. design of pond and irrigation infrastructure), and the need for watershed management and sediment control activities to be implemented parallel to the pond construction to minimize sedimentation were mentioned as issues that required consideration during project implementation.<sup>16</sup>

Within the constraints associated with government budgets and procedures, the decentralised approach provided significant advantages of being close to the beneficiaries and enhancing participation. Different community based committees (water users associations, IPM groups, environmental management committee, seed supply and marketing cooperatives, irrigation users associations, groups, etc) were formed and worked on different sectors of the project. These structures reportedly provided active support. The selection of beneficiaries, the implementation of bylaws, and related activities were effectively managed by the committees and anything beyond the capacity of these structures were solved by the kebele administration. These committees were working and could ensure the sustained use of project outcomes.

A disadvantage of the multi-agency, demand-driven approach at the woreda level is that all participants expected a budget to undertake activities related to agriculture, natural resources, health, water supply and environmental education, not all of which may have been directly linked to the project outcomes. However, since the project started late, the urgency to

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<sup>15</sup> The Best Practices of the Coping With Drought and Climate Change Project, Kallu District of South Wollo Zone, Amhara Region Ethiopia, January 2013, p. 8.

<sup>16</sup> Shemelis Fekadu and Wubua Mekonnen, Back to Office Field Monitoring Visit Report March 25-30, 2011.

accelerate activities meant some flexibility was needed in the strategy to address drought and climate change to accommodate a wide range of needs at the woreda level.

The project also obtained important cooperation from Wollo University, Bako Agricultural Mechanization Center, Sirinka Drylands Agricultural Research Center, Kombolcha Technical & Vocational Training College, Kombolcha Pests Surveillance and Research Center and the federal EIAR. These institutions contributed to technical support for the project. Sharing research and study results data, which was archived from university and research centers, has helped the project to include new thinking and techniques. The assistance of these bodies was essential for acquiring the improved seeds and agricultural technologies.

### **3.2.5 Management by the UNDP Country Office**

UNDP demonstrated some adaptive management interventions, most notably by making relevant changes in the project logframe and scope of outcomes in 2010, and by intervening to ensure UNDP/GEF procedures were being met in procurement and reporting.

The UNDP role has generally met expectations as defined in the Project Document. The UNDP CO has provided a significant international profile for the project and sharing of experiences. The main issue has been delays in recruitment and procurement, the complexity of working through the government systems to deliver the project activities, and the ad hoc collection of monitoring data which emphasized activities. GEF project designs tend to incorrectly assume that governments have the resources and processes to provide for timely implementation of a project, making greater demands for UNDP oversight and assistance, and this appears to be the case in the CwDCC project.

The principal constraint for UNDP management has been in the weak and intermittent monitoring program for the project due to difficulties in start-up, operationalizing the monitoring indicators, lack of sufficient capacity at the woreda level to assist the project manager, and the dependence on external consultants to do special studies to supplement the monitoring information.

## **3.3 Project Results**

### **3.3.1 Project objective**

The project objective was “to develop and pilot a range of effective coping mechanisms for reducing the vulnerability of farmers particularly women and children in Kulu Woreda/district to drought”. This was to be measured by % change in vulnerability to climate change of men, women and children living in pilot sites.

The amended results framework on project baseline stated that a “recent survey of the pilot sites shows 86% of the HH are vulnerable. So it is expected that Vulnerability will be reduced by

20%.” This target of 20% reduction in vulnerability was set in August 2010 when the project results framework was revised.

The number of targeted beneficiaries was 41,431 – the entire population of the project kebeles, while the final number of beneficiaries was estimated at 35,227, or 85% of the population.<sup>17</sup> This was later downsized in the 2012 PIR that stated that “57% of households have improved their livelihoods and reduced their vulnerability to climate induced hazards.” (see also the 60% estimate by project manager in Annex 5) The basis for these estimates has not been clearly documented. They imply an estimated of 56% of households still remain in vulnerable status down from the original baseline 86% estimate.

The recent Vulnerability Assessment also stated that “While the planned project beneficiaries of the project were to be 41,000, the actual beneficiaries are found to be about 100,000 beyond the 20% target.”<sup>18</sup> In addition, it was concluded that adaptive capacity was built in 2822 households (11,044 people) or 27% of the population, well above the 20% target.<sup>19</sup> It was not possible within the scope of the evaluation mission to properly assess the basis upon which these estimates were produced or their consistency; this would require an update of the 2009 household survey and clear definition of a ‘beneficiary’.

Data on PSNP graduates was also presented. It was determined that “out of the 2822 that received support through PSNP and improved their adaptive capacity, 16% (474 households with a total population of 1804) have fully graduated from PSNP support since they have established their asset base and fulfilled the requirement of getting 4200.00 ETB per person per year.”<sup>20</sup> These household data may be more indicative of measurably reduced vulnerability.

### **3.3.2 Achievement of Outcome 1: Livelihood strategies that enhance the resilience of vulnerable farmers**

The project livelihood achievements have been summarized by the project staff in **Annex 5**. A Description of Field Visits in each project area kebele is also provided in **Annex 6**.

The various technologies promoted in Outcome 1 were financed and distributed through the kebele cooperatives. The central approach was to assist a shift to drought-adapted, mixed farming systems and toward irrigated farming (vegetables and fruit) to supplement traditional rainfed grain crops, and upgrading of livestock assets/incomes per farmer aspiration from goats to sheep to dairy cows. The livelihoods development component was also intended to

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<sup>17</sup> Belay Simane Vulnerability Assessment of Ethiopia adaptation project: Coping with Drought and Climate Change, February 13, 2013, Table 1, p.13.

<sup>18</sup> Belay Simane, Ibid., 2013, p. 32

<sup>19</sup> Belay Simane, Ibid., 2013, p. 3; note, report estimates 30.38% but calculation 11,044/41,431 is 27%.

<sup>20</sup> Belay Simane, Ibid., 2013, p. 36

complement the Household Asset Building Program <sup>21</sup> (HAB) and the Community Complementary Irrigation Program<sup>22</sup> (CCI).

Dramatic increases in crop yields and diversity were reported in the Vulnerability Assessment:<sup>23</sup>

- average productivity of cereal crops (sorghum, teff maize) increased more than 46% from the baseline productivity figures, especially maize which increased 63% on average, as a result of 1421 farmers being supplied with improved seeds;
- average productivity of pulse crops (haricot beans, chick peas) increased by 31.3% as a result of 836 farmers supplied with improved seeds;
- The project supported 2540 farmers to produce vegetables in their homesteads and farms, which has improved the food supply of beneficiaries and helped in coping with drought;
- 288Kg vegetable seeds (onion, tomato, lettuce, cabbage and carrot) were distributed to 936 farmers resulting in 24,930 quintals of different vegetables and income of about 6,232,500 ETB (340,00 USD);
- introduction of rice (NERICA variety) in the Chefa valley with improved varieties has boosted the skill and capacity of 72 farmers.

The indicative data on the use of irrigation farming, shown on Table 4, includes the number of 'model farmers' that were directly assisted by the project (140; original estimates were for 30 model farmer for each of the six kebeles), the number of 'followers' who were also assisted in some form, based on the influence of the model farmers (est. 280-300) and the number of 'laggards' who received exposure and in some cases partially adopted the methods (perhaps 300). The observations during the short field mission suggest that the model farmers, particularly in kebeles 04 (Adami) and 032 (Woraba), made very productive use of small scale rainwater harvesting and irrigation to enhance crop production and incomes, and the results from 'followers' and 'laggards' were less evident. No large scale uptake of farm ponds and irrigation systems was readily apparent during the site visits, although many were aware of the positive results of the model farmers.

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<sup>21</sup> This is aimed at PSNP graduates, providing livelihood credit of 6000 ETB/3-5 yrs, often used for livestock investments. Payback rate apparently depends upon weather conditions.

<sup>22</sup> This is aimed at enhancing the livelihood capacity and broadening the agricultural crops available to graduates from PSNP.

<sup>23</sup> Belay Simane, Ibid., 2013, p. 17-20

#### **(a) Performance and potential for small-scale irrigation**

The introduction and promotion of small-scale irrigated farming has demonstrated the importance of this technology for growth and diversification of crops and income. **Table 4** summarizes the available data on number of model farmers (early adopters) – 73 who bought subsidized pumps and other equipment/materials to undertake irrigation following training by the project; the number of ‘late-comer’ adopters – 300+ who bought subsidized equipment/materials and have been undertaking some form of irrigated farming, and the remaining farmers – several hundred who received awareness-building or training but have not yet taken up irrigated farming.

**Annex 6** and Table 6-1 provides evidence of the significant income effects of shifting from rainfed to irrigated farming. The best of the model farmers reported that they were able to make 60,000 ETB/yr from vegetable and fruit farming, in the seasons before and after rainfed cropping. An average farmer made in the range of 10,000-20,000 ETB from vegetable and fruit production through farm ponds and irrigation systems. Some of the previously itinerant farmers from Afar region had no significant prior income and depended on the PSNP food/income assistance and the project has transformed their lives. The traditional rainfed cereal crops (data from a few sorghum farmers) provide a wide range of productivity and income depending upon the level of inputs, including IPM, ranging from 4,000 – 10,000 ETB/ha per year.

The project redeveloped five irrigation canals including three gully crossings. Three canals that were previously damaged by flood in pilot kebeles 016, 017 and 018 have been repaired by the project with the assistance of the local communities. Project reports noted that experts were encouraged to create better design of the irrigation canals to ensure their sustainability. It was also reported that the project was at more than 85% performance, although the basis for this rating was not presented.<sup>24</sup>

The rainwater harvesting irrigation ponds (with geo-textile liners) on individual farms may have been a more effective investment for the project than the Felana River distribution irrigation scheme in Wereba kebele which involved major investment to repair a concrete weir and intake (within a river that has dynamic channel and sediment transport characteristics), evaporation and leakage losses associated with transfer of irrigation water over a large distance (1.5 km), and the uncertainties in ongoing repair and maintenance of the facilities by government.

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<sup>24</sup> The Best Practices of the Coping With Drought and Climate Change Project, Kallu District of South Wollo Zone, Amhara Region Ethiopia, January 2013, p. 13.

**Table 4: Distribution of Irrigation Technologies**

| Kebele           | Model Farmers - no. of equipment distributed<br>(no. of beneficiaries) |                   |   | 'Followers' – no. of trained<br>late-comer adopters |  | 'Laggards' – no. of trained and<br>interested farmers |   | Total    |
|------------------|--|-------------------|---|---|--|---|---|----------|
|                  | <i>Drip Irrigation,<br/>Roto Tanks</i>                                 | <i>Wing Pumps</i> | <i>No. of 'model'<br/>beneficiaries</i> | <i>No. of follower<br/>beneficiaries</i>            | <i>Equipment<br/>acquired</i>  | <i>No. of laggard<br/>beneficiaries</i>               | <i>Benefits<br/>acquired</i>  |          |
| 04 Adami         | 17 (8)   | 16 (17)           | 30                                      | 53  | Geomembranes<br>and treadle<br>pumps and drip<br>systems bought<br>at 50% cost with<br>project support |   | Other farmer<br>training in small<br>scale irrigation<br>and may<br>practice some<br>minor irrigation |          |
| 031 Birko Debele | 8 (8)  | 5 (8)             |   |   |  |   |   |          |
| 032 Woraba       | 7 (7)  | 5 (7)             | 30                                      | 62  |  |   |   |          |
| 016 Ressa        | 17 (12)  | 5 (12)            | 30 (11 with<br>geomembrane<br>ponds)    | 71  |  | 71  |   | 172      |
| 017 Girar Amba   | 5 (5)  | 5 (5)             | 30                                      | No data   |  |   |   |          |
| 018 Aba Hilme    | 32 (24)  | 24 (24)           | 30                                      | 68 or 50?   |  |   |   |          |
| <b>Total</b>     | <b>86 (64)</b>   | <b>60 (73)</b>    | <b>140?</b>                             | <b>286?</b>   |  | <b>No data</b>  | <b>No data</b>  | <b>-</b> |

Source: project management unit; no systematic survey has been completed.

**Table 5: Distribution of Bee Hives and Colonies**

| Kebele           | No. Hives  | Beneficiaries |           | Bee Colonies<br>Transferred |
|------------------|------------|---------------|-----------|-----------------------------|
|                  |            | M             | F         |                             |
| 04 Adami         | 50         | 18            | 2         | 26                          |
| 031 Birko Debele | 50         | 16            | 1         | 0                           |
| 031 Woraba       | 50         | 17            | 4         | 17                          |
| 016 Ressa        | 50         | 14            | 1         | 15                          |
| 017 Girar Amba   | 51         | 36            | 3         | 51                          |
| 018 Aba Hilme    | 49         | 18            | 2         | 19                          |
| <b>Total</b>     | <b>360</b> | <b>119</b>    | <b>13</b> | <b>190</b>                  |

Source: data provided by Project Implementation Unit



There may be sustainability concerns associated with potential flood conditions/damages around the intake and managing 63 water users on the repaired Fedana system. In addition, some of the participating farmers in the Felana irrigation scheme are using basic flood irrigation to grow vegetables, an inefficient and high evaporation practice. It is not certain whether the design standards for the river training wall are sufficient to maintain effectiveness of the system over time, given the heavy alluvial material that is carried by this river.

The potential for access to groundwater sources could also have been considered in the selection of cost-effective alternatives for improving access to water for small scale irrigation. For example, in the Felana River valley in Wareba kebele, shallow groundwater may provide a household alternative to large irrigation schemes.

**(b) Use of improved crop seeds and integrated pest management**

The project supplied drought resistance, high yielding and short season crops, along with small scale irrigation and soil fertility enhancing measures. Provision of improved seeds was made to the first level beneficiaries based on a revolving system. The first level beneficiaries are expected to return what they have taken to second level beneficiaries after the first harvest, most likely after a year of support. This is found very innovative and has helped the project to reach more beneficiaries and to develop farmers' ownership of the activities.<sup>25</sup>

The improved seeds provided by the project allowed farmers to generate estimated average farm incomes of 879 ETB for cereal crops, 836 ETB for pulse crops and 6659 ETB for vegetable crops.<sup>26</sup> Crop yields increased by one-third to one-half and thus incomes may have increased by a similar amount. One farmer stated that he was able to harvest 2-3 times more than before the project using the improved high yielding, drought resistant and early maturing crop varieties. Benefits from high value crops (Haricot bean, Sesame) were particularly mentioned. The data reported in the 2011 Annual Report for the project included even higher estimates: from an average 10 Qt to 20-30 Qt for Teff, from 15 Qt to 25-30 Qt for sorghum, and from 15 Qt to 25 Qt for chick peas.

The indigenous IPM method that has been assisted through local farmer groups (Annex 6) has, according to discussions with two of the kebele groups and another farmer elsewhere, resulted in double the cereal crop yields. The effectiveness of the method against the stock borer pest suggests that it could become a financially viable and sustainable approach if sufficient organisational and microfinance support were provided.

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<sup>25</sup> Belay Simane, *Ibid.*, 2013, p. 17.

<sup>26</sup> Based on: Cereal crops 1,274,400 ETB income /1421 farmers; Pulse crops 386,500 ETB income/ 836 farmers; and Vegetables 6,232,500 ETB income / 936 farmers; see Belay Simane, *Ibid.*, 2013, p. 18-20.

### **(b) Livestock distribution and transfer to additional beneficiaries**

Another prominent activity was the livestock distribution and replication, originally involving 265 1<sup>st</sup> round beneficiaries but is now totally 295 beneficiaries, 24% of whom are women (31% of the total animals were distributed to women). The original purchase of 1330 animals led to another 930 offspring animals being distributed to other needy community members (total 2260 to date). Each beneficiary of 5 female sheep or goats was required to in turn distribute 5 offspring female animals to another designated beneficiary. The 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> round beneficiaries were selected at the outset and were known to each other. The beneficiaries were required to sign a document assuring transfer of the 5 female offspring. During random interviews, livestock beneficiaries were able to name the subsequent beneficiary in the community. This distribution and sharing of livestock assets is greatly appreciated by the beneficiaries, providing an immediate source of sustainable livelihood wealth for the poorest of the community members (see **Annex 6**).

However, there are some important features of the livestock component. **Table 6-3 in Annex 6** presents the project data showing the recorded transfers of animals to 2<sup>nd</sup> and 3<sup>rd</sup> round beneficiaries. The beneficiary transfer rate (% of new livestock beneficiaries created) is high for goats – 90% for men and 140% for women, and low for sheep – 22% for men and 29% for women. The low 2<sup>nd</sup> and 3<sup>rd</sup> round transfer of offspring (200 offspring sheep from 570 original animals) could be due to either *biological factors* (low reproduction, low number of females, low forage to support productive sheep, etc.) or *human factors* (failure of the beneficiaries to follow through with the obligation to transfer offspring to other designated beneficiaries). Given the close community monitoring of livestock offspring-sharing, the distinct differences in transfer rate between goats and sheep, and the forage availability in many of the highland areas of the beneficiaries, it is concluded that the poor suitability of sheep (grazers) and the good suitability of goats (browsers) to the landscape and vegetation (and rainfall) was the most likely reason for the differences in the success of the livestock distribution and replication. The distribution of animals in such livestock asset developments needs to take account of climate and availability of suitable vegetation in the beneficiary area.

### **(c) Bee-keeping and Honey Production**

Table 5 shows the bee-keeping and honey production equipment and bee colonies distributed. Some of the model farmers reported high returns on this livelihood activity, as much as 15,000 – 20,000 ETB/yr (**Annex 8**), although a more typical income for average farmers was in the range of 4,000 – 5,000 ETB.

### **(d) Watershed rehabilitation and area closure**

The project rehabilitated an estimated 3049 ha of land area on 6 watersheds through various physical soil conservation measures (trench, eyebrow, terrace, check dam) and biological measures – area closure to livestock, and planting of trees, shrubs and grasses. Six nurseries

were established to assist the plantation, and about 892,000 different trees and grasses planted. Watershed rehabilitation measures enhance the productivity of the land and ground water recharging.

The project also developed six water source springs, providing 3959 beneficiaries with access to water (516 children, 1686 women, 1757 men), and reducing the time spent fetching water. This had reported positive effect on school attendance and nutrition.

### **3.3.3 Achievement of Outcome 2: Enhanced use of early warning systems**

**Figure 3** outlines the local rainfall data collection, analysis and use in Kula woreda. The project has provided rain gauges and other equipment and training to woreda staff and placed 20 gauges at farm sites to establish a new system of weather forecasting that uses local information and knowledge. The spatial and temporal variability in rainfall in Ethiopia underlies the need for such a system.

The key points in this system are that:

- (a) DAs and farmers can observe the rainfall and determine an appropriate timing for land preparation and planting based on certain thresholds (20 mm/day for 4 days).
- (b) Woreda Meteorological office has additional information to supplement the national weather forecasting and to customize the advice and weather notices (10 day, monthly, seasonal) that are issued by the Early Warning Dept. of the woreda.
- (c) The influence and added benefit that local rainfall data has on farmer decision making will vary depending upon many factors, including the precision and reliability of the advice over time from DAs and woreda staff;

This component of the project was piloted for the first time in Ethiopia. Further development of the interpretation stage of the locally collected rainfall data is warranted through enhanced decision support systems with DAs and extension experts in order to validate the approach and to ensure that the various links are effectively executed.<sup>27</sup>

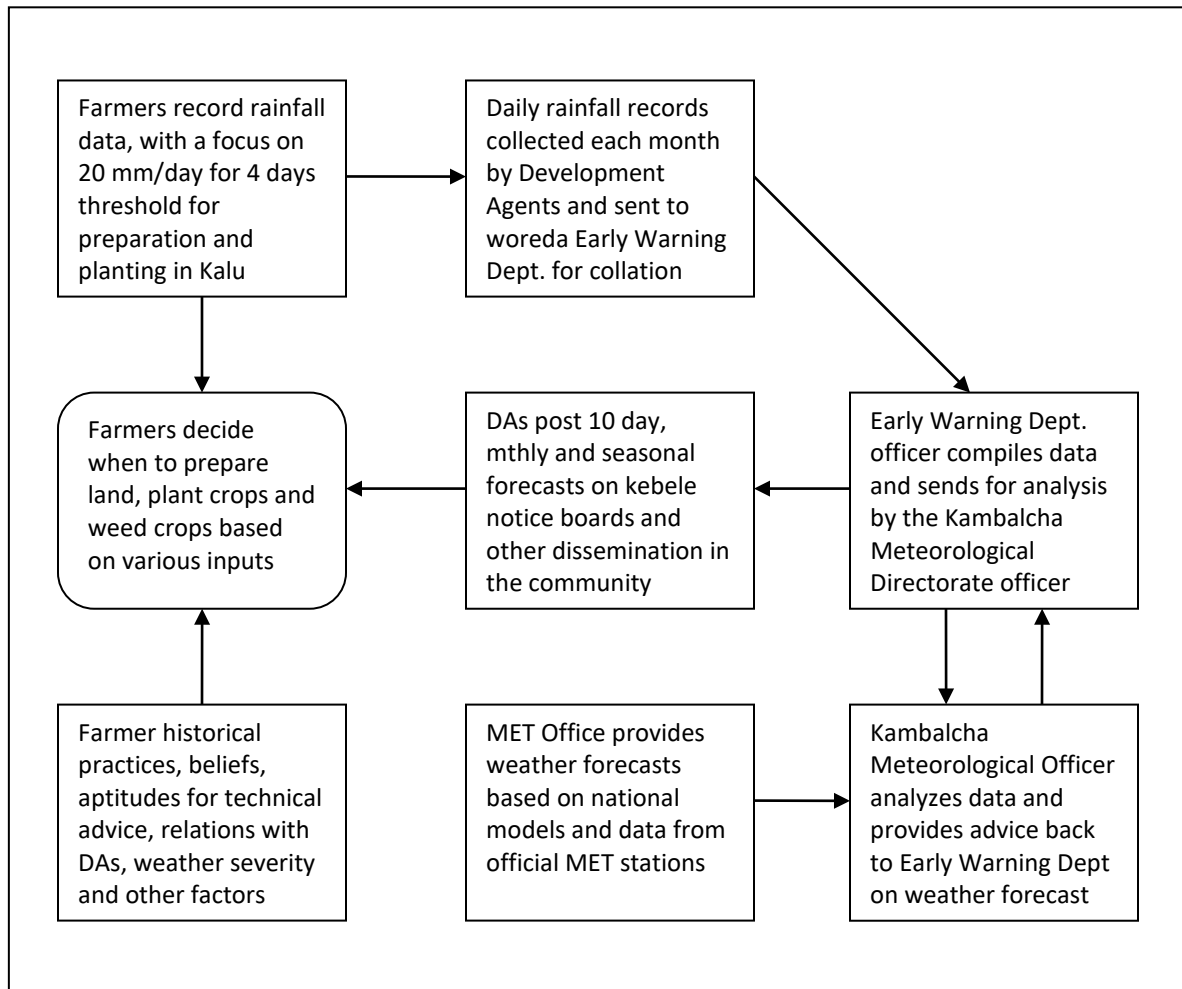
The meteorological data base system of Kombolcha meteorology Station 6 was strengthened. “With this support the substation is expected to develop and disseminate monthly up to date weather information to EW section of the agriculture office so that the latter interpreting of the

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<sup>27</sup> See for example, the proposed further development of this method based on the experience from a companion CwDCC project: Desmond Manatsa, Leonard Unganai, Christopher Gadzirai & Swadhin K. Behera, *An innovative tailored seasonal rainfall forecasting production in Zimbabwe*, Natural Hazards, July 2012.

information based on the actual data collected include its recommendation and produce a bulletin and disseminate this to farmers.”

**Figure 3: Local Rainfall Data Collection, Analysis and Use in Kalu Woreda**



Five experts from the Kombalcha woreda station and the project manager participated in a five-day study tour at the Awassa Meteorology Station, focusing on the use of plastic rain gauge, data interpretation and forecasting. A training workshop was also held for woreda leaders and experts, kombalcha meteorology station, South Wollo Zone food security and agriculture department, development agents, agricultural supervisors, health extension, kebele leaders (male 52 and female 11 total 63). Contents of the training include concepts of climatic information and risk, climatic indicators and variables, decisions based on climate observation, types of risk and risk managements.

Progress reports state that regular monthly discussion forums are run between partners including DA's and farmers. The roles and responsibilities of each of these partners is to generated data and provide this to Early Warning section of the woreda agriculture office so

that the office can compile and interpreted and prepare monthly bulletin that will be posted in pilot kebele sites. Farmers stated that they appreciated the 'urgent warning' notices that are issued about drought forecasts and heavy rainfall forecasts.

Despite this significant progress, there remains some uncertainty about whether the system is operating as planned at all of the kebeles and whether it will be fully sustained within the woreda following withdrawal of the project given the extensive data collection effort that is required. Some of the rainfall gauge sites do not provide regular measurement data. However, there is value in advancing this pilot project in Ethiopia if the sustainability aspects can be addressed and the methodology is given due consideration at the national level.

#### **3.3.4 Achievement of Outcome 3: Farmers/agro-pastoralists outside the pilot sites replicate successful approaches and practice of the pilot kebeles**

Outcome 3 was intended to increase the use of the technologies and practices that have been demonstrated by the project. While no targets were established, the outputs were to be measured by (i) number of farmers/ agro-pastoralists from outside of the target kebeles participating on experience exchange visit to pilot kebeles, (ii) production of a comprehensive professional standard Best Practice document and (iii) extent of sharing of documented best practices with adjacent communities/woredas and development actors.

The recent project staff report in Annex 6 states:

*Thus far more than 15% farmers outside of the project site have adopted best practices of the project area. Experience sharing practices will continue and the percentage of farmers that could replicate best practices will grow. In the last 6 month 600 farmers, 22 DA's and 30 experts are exposed to the projects best practices (homestead vegetable and fruit production and water management), drip irrigation as well as improved high yielding, drought resistant and early maturing crop varieties. Furthermore, 74 community members have exposed to Integrated Pest Management practices. Overall, above 720 community members have shared lessons from the project to replicate the successful approaches.*

Replication is a longer term process than possible within a project of effectively less than three years. Most of the Outcome 3 activities have occurred very recently and therefore it will take some time to determine the uptake of project technologies and practices by the estimated 750 community members who were provided exposure to the project experiences. The environmental education activities in schools will have contributed to awareness of water conservation issues.

#### **3.3.5 Sustainability of project results**

The project has firmly demonstrated and established the advantages, particularly of improved seeds, small-scale irrigation, IPM and other livelihoods diversification as a basis for enhanced agricultural productivity and climate change resilience, even though the wider replication is still

evolving. This proof of viability and acceptability to many farmers serves to facilitate sustainability of the project results.

There remains some level of uncertainty about the sustainability of the irrigation infrastructure due to the fact that many of the systems suffered earlier flood damage, and the ongoing maintenance and repair will require government support along with effective water users participation. As noted earlier, sustainability of the extensive rainfall collection and localised weather forecasting are also concerns.

### **3.3.6 Country ownership and gender equity**

The project was implemented through woreda and kebele government structures and community-based organisations, farmer-to-farmer exchanges, and working within the government systems (e.g., weather forecasting) to enhance climate change resilience. This ensured a high level of country ownership.

Gender equity considerations were addressed in the selection of beneficiaries and targeting on support such as livestock and water sources that provide direct benefits to women and children.

### **3.3.7 Mainstreaming**

The project implementation involved multi-agency participation from the woreda administration and line agencies. The activities were coordinated with priorities in the kebele community development plans through community organisations. Although government workplans and schedules were not fully integrated with the project, the activities were essentially delivered through government staff.

### **3.3.8 Catalytic effect**

The project aimed for replication of the project technologies and has no doubt contributed to greater awareness and application of these technologies. IPM groups have been activated and new demand for improved seeds, rainwater harvesting, and irrigation facilities has been created. The primary mechanisms for replication are proven agricultural returns, micro-finance availability and technical support from DAs and woreda staff.

The general observation from field visits was that a) the project has achieved farmer-led innovations and significant improvements in livelihoods, b) more needs to be done to strengthen the application of climate forecast information to farming strategies which would promote resilience to drought, c) a multi-pronged approach to improving agricultural production can improve the resilience of livelihoods; and d) micro-financing and savings vehicles can help communities implement business ideas in climate resilient enterprises.<sup>28</sup>

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<sup>28</sup> UNDP, Project Implementation Report 2012, DO Rating.

### 3.3.9 Institutional capacity development

The institutional effects mostly related to woreda experience gained from direct project management, strengthening of community organisations involved in adaptation measures (IPM groups, etc.), and the awareness-building within the agriculture department regarding best practices for drought mitigation and climate change adaptation.

## 4. Rating of Project Performance

### 4.1 Overall Project Results

In accordance with UNDP/GEF evaluation requirements, the project results, implementation, sustainability and M&E systems will be rated in terms of:

*Highly satisfactory (HS).* The project had no shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.

*Satisfactory (S).* The project had minor shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.

*Moderately satisfactory (MS).* The project had moderate shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.

*Moderately unsatisfactory (MU).* The project had significant shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.

*Unsatisfactory (U).* The project had major shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.

*Highly unsatisfactory (HU).* The project had severe shortcomings in the achievement of its objectives in terms of relevance, effectiveness, or efficiency.

### 4.2 IA and EA Project Execution

**Rating Criteria:** *Assess and rate the effectiveness and efficiency of the project implementation and management by the Implementing Agency and the Executing Agency.*

**Rating:** Satisfactory

**Reasons for Rating:** Project execution has been generally pro-active and engaged farmers in participatory manner, important attributes for success. The project received greater attention after the start-up problems were resolved. Adjustments were made to project design in 2010. The project placed a high focus on distribution of subsidized agricultural inputs/assets which aimed to create demonstrations that would leverage broader replication. Some efficiency could have been gained

through a more concentrated set of measures in specific demonstration micro-watersheds, and better anticipation of procurement issues.

#### **4.3 Monitoring and Evaluation**

**Rating Criteria:** *Assess and rate the quality and thoroughness of the project monitoring and evaluation systems.*

**Rating:** **Moderately Unsatisfactory**

**Reasons for Rating:** The project staff provided regular, mostly qualitative reporting on progress and there were many field visits and project outreach events. However, due to the lack of an effective monitoring plan and indicators the monitoring focused on activity reporting sometimes with insufficient justification of some of the reported results and a lack of empirical monitoring data. There was no consistent tracking of the results generated by the lead farmers and too much reporting focused on a handful of model performers in two kebeles and anecdotal reports of livelihoods success. Quality assurance on monitoring methodology and reliability was not readily apparent.

#### **4.4 Outcomes Achievement**

**Rating Criteria:** *Assess and rate the extent to which have the project objective and expected outcomes been achieved.*

**Rating:** **Satisfactory**

**Reasons for Rating:** The model farmers generally performed well with project subsidies and support. The crop production and income effects are significant especially due to improved seeds and the shift from dependence on rainfed agriculture to irrigated farming. The enhanced household food security and income from diversified adaptation measures should serve to drive sustainability and replication over time. The multi-partner, early warning systems warrant further consideration to ensure their effectiveness and sustainability.

#### **4.5 Sustainability of Outcomes**

**Rating Criteria:** *Assess and rate the overall risks to sustainability; sustainability is considered to be the likelihood of continued benefits after the GEF project ends.*

**Rating:** **Satisfactory**

**Reasons for Rating:** The improved agricultural productivity and diversity provides the basis for sustainability potential although future loss of project subsidies may dampen replication demand.



The other elements that depend upon government resources and services may be more constrained without the project particularly in the requirement for continued maintenance and repair of irrigation infrastructure. It is hoped that the significant benefits of the technologies will provide the means to effectively overcome such sustainability risks.

#### **4.6 Impact of the Project**

**Rating Criteria:** *Assess and rate the extent to which the project has contributed to, or enabled progress toward reduced climate change vulnerability and increased adaptation.*

**Rating:** Satisfactory

**Reasons for Rating:** The project has had a positive impact by demonstrating the potential for the adaptation to climate change and disseminating the learning and opportunities to other farmers. The significant achievements of model farmers provide important reference points for future agricultural extension programs. Evidence of substantive replication of the technologies and a fully established, demand-driven early warning forecasting system will take more time to determine the scale of effect on reducing vulnerability to climate change in Kalu woreda.

#### **4.7 Overall Project Results**

**Rating Criteria:** *Assess and rate the general results of the project including the catalytic replication and scaling-up effects.*

**Rating:** Satisfactory

**Reasons for Rating:** The overall project results are rated as satisfactory based on the effective delivery of a diverse range of outputs within a short period, but with some remaining sustainability and replication concerns. The livelihood achievements of model farmers are a mark of overall success in demonstrating the viability of many of the project technologies and practices. The overall results also depend upon how well the technologies and practices influence government programs in expanding the range of adaptation measures and farmers' willingness to change traditional farming practices.

As per the requirements of UNDP's terminal evaluation guide, **Table 6** summarizes the rating of performance for various dimensions.

| Table 6: Rating CwDCC Project Performance           |                             |   |
|---|-----------------------------|---|
|   |                             |   |
| <b>IA &amp; EA Execution</b>                        |                             | <b>Comments</b>   |
| Overall Quality of Project Implementation/Execution | <input type="checkbox"/> S  | Relatively effective project implementation. Diligent effort to accelerate progress after a very late start.  |
| <i>Implementing Agency Execution</i>                | <input type="checkbox"/> S  | Effective delivery of the management functions under difficult conditions and a broad range of project activities/locations. Responded to progress delays and assisted field activities in a timely manner.   |
| <i>Executing Agency Execution</i>                   | <input type="checkbox"/> S  | Demonstrated occasional adaptive management and pro-active oversight, although procurement delays and administrative issues created inefficiency. Active coordination of woreda and kebele stakeholders.  |
|   |                             |   |
| <b>Monitoring and Evaluation</b>                    |                             |   |
| Overall quality of M&E                              | <input type="checkbox"/> MU | Despite regular reports in the final two years of the project, insufficient evidence-based monitoring data were available, reports mostly focused on activities, and with limited justification and documentation of reported achievements across project sites. Low transparency in reporting success.                 |
| <i>M&amp;E design at project start up</i>           | <input type="checkbox"/> MU | Indicators produced at inception could have been more representative and should have been tested; monitoring plan not well developed. Monitoring design did not present a clear process for measuring change in terms of technologies dissemination nor effective indicators or representative data collection process. |
| <i>M&amp;E Plan Implementation</i>                  | <input type="checkbox"/> MU | Gaps in monitoring reports due to staff changes and some reports with inconsistent data on results. No substantive M&E Plan was apparent.   |
|   |                             |   |
| <b>Outcomes</b>                                     |                             |   |
| Overall Quality of Project Outcomes                 | <input type="checkbox"/> S  | Generally satisfactory due to positive livelihood results with some concerns about maintaining local rainfall data collection and irrigation distribution infrastructure.   |
| <i>Relevance</i>                                    | <input type="checkbox"/> HS | The outcomes were highly relevant given the pressing issues of drought and food security stress associated with it.   |
| <i>Effectiveness</i>                                | <input type="checkbox"/> S  | Most of the project activities have been very effective for the direct beneficiaries; more time needed to determine replication uptake and sustainability without subsidies.  |
| <i>Efficiency</i>                                   | <input type="checkbox"/> S  | Cost-effectiveness of some of the interventions was high; the diversity of activities and compressed time frame and government procedures created some inefficiency in delivery.  |

| <b>Catalytic Role</b>                          |                            |  |
|--|----------------------------|--|
| <i>Production of a public good</i>             | Yes                        | Relevant technologies and community benefits have been demonstrated.   |
| <i>Demonstration</i>                           | Yes                        | The pilot demonstration of a wide range of measures created additional interest and demand from within and outside of the project.   |
| <i>Replication</i>                             | Yes                        | Replication was reported; some measures have high economic viability but scale of uptake is uncertain.   |
| <i>Scaling up</i>                              | Yes                        | The proven, 'high return' accessible measures have good scale-up potential.  |
|  |                            |  |
| <b>Sustainability</b>                          |                            |  |
| Overall likelihood of risks to Sustainability: | S <input type="checkbox"/> | The agricultural productivity and income benefits of the main interventions will override most other sustainability risks.   |
| <i>Financial resources</i>                     | S                          | Financial viability of the measures will sustain and expand farmer interest, but the potential for ongoing government support for some measures may be uncertain.                          |
| <i>Socio-economic</i>                          | S <input type="checkbox"/> | The local involvement and positive results for food security and incomes will drive sustainability, although there are some concerns about management of the community irrigation systems. |
| <i>Institutional framework and governance</i>  | S <input type="checkbox"/> | The direct involvement of woreda/kebeles provided high local ownership which may assist IPM groups and others.   |
| <i>Environmental</i>                           | <input type="checkbox"/> S | The measures are generally designed to support environmental sustainability, although irrigation systems will need to be carefully managed.  |

## 5. Lessons Learned

### 5.1 Project implementation needs to be fully enabled within government systems

The project had the support of woreda administration and staff but it was also somewhat distinct from the regular programs and budgets of the government. Implementation constraints occurred related to procurement procedures performed by DRMFSS, mobilization of expertise and logistical matters. The project manager therefore had to depend upon the woreda focal point to affect all planned activities. The special status of international projects delivered through woredas needs to be anticipated in advance, and specific modalities and incentives for expeditious implementation of tasks established in accordance with the project agreements, AWP and woreda work plans and budgets. International projects often carry more intensive scheduling, management and monitoring than regular government programs. More precision in the working agreements with woreda administration may be in order. The required modalities

and incentives will vary with the type of project implementation demands imposed on government staff, woreda administration and site circumstances.

## **5.2 The woreda management model should have more formal regional technical and management support**

The approach of placing most of the management decision making in the hands of a woreda steering committee is a management model that warrants consideration in future projects. But there also needs to be a defined role for regional experts in providing technical and management support to the woreda project team. This is particularly the case for significant infrastructure investments where quality assurance is important.

## **5.3 Project inception phase should focus on developing a comprehensive implementation strategy (including relevant business cases) and monitoring plan**

The basic design and implementation strategy of the project lacked both sufficient clarity on the technologies dissemination approach as well as sufficient resources to guide implementation and reporting (this should have been resolved at the inception stage). The end results (outcomes) needed to be better defined in terms of measurable reduction in vulnerability to climate change, and the particular ‘theory of change’ that underlies the proposed implementation tasks. The critical assumptions and key mechanisms for generating uptake of the new technologies and practices in the project areas remain vague. There was a heavy dependence on subsidies and not enough focus on the business case for farmer micro-financed investment in the proven, financially viable technologies/practices. Much of the inception planning involved setting priorities for distribution of benefits and the project document was subsequently forgotten until it was discovered that the logic framework needed to be revisited. Monitoring reports mostly described activities and tracking of outcome progress depended on qualitative judgments in the annual PIRs, rather than field data on performance of the lead farmers. The best practice and vulnerability studies contained too many unsubstantiated conclusions due to the lack of effective project performance measures and no systematic monitoring plans within the original project design.

## **5.4 Extension and training plans require greater attention and technical guidance**

The project adopted an informal approach to promoting the model technologies and practices of lead farmers. More formal needs assessment and follow-up participant assessments are often undertaken to enhance the extension process, especially if the focus is on technology dissemination. A ‘farmer training school’ approach through the Farmer Training Centres (FTCs) could have been given larger role in the project implementation. But this also requires the capacity and resources to assist woreda staff and DAs in applying a more rigorous approach to design and monitoring of the extension and training strategy.

### **5.5 Development Agents play a critical role but staff turnover and technical capacity are constraints**

The DAs provide the critical 'last mile' of agricultural advisory services to farmers. Not only do they have to walk this last mile and more (transportation constraints) but they are often in the position for short tenures and in most cases, have limited capacity and irregular guidance to lead the project implementation at the field level. No matter how well designed the interventions, their effectiveness depends critically upon the DAs ability, capacity and commitment to engage with famers and other stakeholders.

### **5.6 Project management of procurement is time-consuming and detracts from the focus on project results**

The project procurement and distribution of agricultural inputs, equipment and livestock through government procedures and coordination with UNDP requirements was a source of inefficiency and delays. Anticipating and streamlining these procedures, where possible, would assist future project. It should also be recognized that project management is not a one-person job and sufficient administrative and logistical support are required.

## **6. Conclusions and Recommendations**

### **6.1 Conclusions**

1. Overall, the project has effectively achieved most of the expected results to a satisfactory level. It has particularly shown the viability of drought-tolerant crop varieties, small scale irrigation for vegetable and fruit production, livestock development, composting, fodder and honey production and watershed rehabilitation as a multi-dimensional approach to addressing drought and climate change in Kalu district. It has also introduced local rainfall monitoring to assist weather forecasts and improved advice to farmers on the timing of land preparation and planting.
2. The rainwater harvesting and irrigation systems, along with improved seeds, have demonstrated significant income and food security effects of vegetable and fruit production as a supplement to rainfed agriculture. Two types of irrigation systems were supported: individual farm ponds and drip irrigation, and area canal irrigation schemes serving groups of small farms. Both depend upon water availability but the latter appears to generate fewer intensive farming benefits and higher management risks to maintain the distribution systems.
3. Development effects of small scale irrigated farming were substantial for the 'model farmers'. Incomes of these leaders doubled and tripled, diversity and nutrition of food sources increased and longer term assets fruit trees were created. It was estimated 16% of

the Productive Safety Net Program households (having 8 mth food gap) in the project areas graduated from PSNP with the support of the project.

4. Development effects of distributing improved high yielding, drought resistant and early maturing crop seeds were also significant, including much higher crop yields (30-50% or more) and increased household incomes. Other interventions with positive results included urea treatment for improved fodder and composting for enhanced soil fertility.
5. The livestock development component, involving distribution of sheep and goats to carefully selected beneficiaries and transfer of livestock offspring to subsequent rounds of beneficiaries was greatly appreciated by the communities involved. The experience in the project kebeles showed transfer rates (% of new livestock created through direct beneficiary-to-beneficiary transfers) of 26% for sheep and 49% for goats (Table 6-3). The original distribution of 570 sheep and 760 goats led to another 200 sheep and 730 goats being given the two subsequent rounds of beneficiaries. The low transfer rate for sheep suggests that the landscape and limited fodder were unsuitable for these animals.
6. Several types of bee-keeping hives and colonies were distributed on a subsidized basis (50% cost) to farmers. Honey production proved to be a profitable enterprise for many of these farmers, generating an average 4,000-5,000 birr and much more for the leader farmers. The project distributed 360 hives to 132 beneficiaries but detailed data on results were not available. Technical skills and the availability of bee pollination vegetation (rainfall dependent) may be a constraint despite the training provided.
7. One of the most promising interventions is IPM because of the prevalence of 'stock borer' affecting staple food crops (sorghum, maize) and the effectiveness of this indigenous method of crop pest control treatment which farmers state significantly reduces their losses reportedly allowing double the yield they would normally obtain and saving the cost of chemical pesticides. The costs of promoting this method are minor, the benefits are multiple and the replication potential is high. It was estimated by IPM groups that ten percent of farmers were using the IPM method.
8. The project also provided support for various micro-watershed rehabilitation activities in conjunction with the annual community-based mass mobilization campaigns for watershed improvement. One of the most impressive aspects is the natural regeneration of hillside vegetation through area closure. The impressive ability of communities to enforce restrictions on open livestock grazing in these designated areas and to promote 'cut and carry' fodder collection is a strategic advantage for climate change adaptation in Ethiopia. Targeted measures for watershed management could further leverage this strength but this will require more careful design and oversight of watershed plans that combine a series of

adaptation measures. Based on limited site visits, the quality of tree and shrub planting and vegetative barriers to runoff is sometimes lacking although the soil and water conservation structures are generally well constructed.

9. The local rainfall monitoring and early warning enhancements provided by the project are an improvement over conventional weather forecasting and advisory services. The 20 plastic rainfall gauges established at selected farm sites, and the six metal rain gauges at Farmer Training Centers (FTCs) allowed DAs and farmers to use local information and “rules of thumb” (20 mm/day for four consecutive days as a cue for land preparation) that supplement the NMA 10-day, monthly and seasonal forecasts. Whether this multi-partner rainfall data collection and analysis is fully effective and sustainable remains to be seen. The further development of this system will require national leadership and integration of the appropriate procedures piloted in the CwDCC project into the routine early warning systems of MoA and NMA.
10. The general approach of farmer-based replication between lead ‘model farmers’, ‘followers’ and ‘laggards’ was lacked defined mechanisms for adoption beyond orientation and exposure to the demonstrated technologies remain vague. Given the wide array of technologies being promoted in a short 3-yr project, the barriers to uptake and replication beyond the project sites was undoubtedly constrained. There is insufficient systematic survey data or isolated site visit reports to verify widespread adoption of the project technologies and large scale reduction in vulnerabilities to drought and climate change. Good results from model farmers and awareness-raising of the technologies in a small pilot project may not be enough to offset the lack of rainfall and the entrenched barriers to new agricultural methods and practices in Kalu woreda. Farmer training schools, greater attention to micro-finance barriers (more difficult in muslim communities) and more integrated focus on key demonstration areas/sites may have been warranted to show the effect of combined measures. Nevertheless, the project has tested an important set of multi-dimensional agronomic, livestock and watershed measures that serve as a framework for advancing drought management in conjunction with other government programs (PSNP, HAB, CCI, MERET) in Kalu woreda.
11. The project has provided an interesting model of direct woreda management with monthly steering committee meetings and rapid decision making. This could have benefited from more formal operational agreement with the woreda, and some level of regional and zonal inputs and support. It is an approach that is worthy of consideration in future projects. However, the long delays at the start of the project, the government procurement systems, the high staff turnover (four project managers and several national project directors) and the generally weak monitoring system were noticeable detriments to management effectiveness and efficiency.

## 6.2 Recommendations

### *Recommendations for CwDCC Project:*

1. Integrated Pest Management (IPM) groups should be firmly established as sustainable programs within the project kebele organisations with dedicated support as needed from the woreda and regional level. Their role in reducing losses in essential drought-tolerant crops such as sorghum and the cost-effectiveness of IPM methods makes this a strategic priority. IPM service to other farmers may have small enterprise opportunities for the IPM groups.
2. The localized Early Warning System that has been piloted by the CwDCC project should be reviewed, refined and validated by NMA with the aim of improving the quality of local forecasts and advice by DAs. This quality assurance task should be organized jointly by MoA and NMA at the federal level.
3. The status and sustainability of the canal irrigation schemes should be reviewed by Ministry of Agriculture regional and woreda experts to ensure operational effectiveness and financial means for maintaining the facilities, with appropriate budgets for repair and maintenance.
4. A concise Field Guide on Rainwater Harvesting and Moisture Conservation should be prepared as a basic checklist and guidance on best practices for DAs and farmers. This should also serve in training activities and criteria for monitoring performance of the drought mitigation/adaptation measures.
5. A separate CwDCC account for repayment of project loans (where such were used) should be maintained at kebele cooperatives to be used as an ongoing micro-finance source for continued expansion of the project technologies and best practices.
6. Technical support to DAs on anticipated fruit tree management problems should be provided in advance by Ministry of Agriculture experts to minimize potential losses from fruit tree pests and diseases.



*Recommendations for future climate change adaptation projects:*

7. Watershed rehabilitation programs should be further developed and strategically designed to demonstrate a full set of intensive micro-watershed management measures including customized plantation and fodder production that measurably improve groundwater recharge and streamflows around targeted communities. Enhanced technical inputs, customized multi-faceted measures and monitoring of results can produce high returns on investment in drought-affected areas.
8. Moisture conservation should be given a higher priority in water harvesting and dryland crop production, including measures to reduce evaporation rates from farm ponds and irrigation systems and promotion of tilling and mulching methods for improved conservation agriculture.
9. Low-barrier/high return measures such as improved seeds, area closure around community water sources, IPM methods, household fodder production, and minor rainwater harvesting for kitchen gardens should be given a greater emphasis in drought and climate change adaptation programs in order to improve community awareness of basic technologies and engage a wider set of participants.
10. Rainwater harvesting and small scale irrigation packages need to maximize the dissemination potential, minimize the subsidies, and create greater awareness of the financial viability of these systems for small farmers, drawing upon the lessons learned to date from the CwDCC project and the related Community Complementary Irrigation program (CCI). This includes review of the risks over over-pumping and repair and maintenance of small community irrigation systems.
11. Livestock distribution and beneficiary transfer programs should (a) explicitly recognize the landscape suitability for grazing/browsing requirements of the animals distributed, and (b) promote household-based fodder production as much as possible.
12. Higher level of engagement and administrative agreement with woreda, regional and zonal authorities would assist similar decentralized management of projects through more formal working agreements with woredas on project implementation modalities and schedules, and direct participation of regional/zonal representatives on steering committees with relevant duties for project advice, backstopping and oversight. This involvement needs to be explicitly addressed in the organisational structures, along with detailed administrative agreements.

13. Project inception processes need to be strengthened to ensure effective project designs that (a) provide clarity, simplicity, and stakeholder understanding of the project logic model, (b) outputs and activities that are meet the test of being 'necessary and sufficient' to achieve realistic, measurable outcomes, and (c) monitoring plans that include adequate data collection processes.
14. Business models need to guide agricultural technologies promotion because the generally high level of subsidies and grants, except for initial model farmers, can act as a detriment to subsequent post-project dissemination which to a large extent depends upon the financial viability of the technology; microfinance and clearer strategies for dissemination, replication and scaling up should have a prominent role in future climate change projects.
15. Sufficient local project management support needs to be provided in the form of an assistant project manager to oversee monitoring and reporting, and an administrative assistant/bookkeeper to reduce the operational burdens on the project manager.
16. Project monitoring and reporting systems need to be carefully designed and tested, and integrated with routine inspection and monitoring of activities, making greater use of DAs local presence to assess and report on the monitoring indicators in a regular manner. Field checklists should be used by DAs to track the performance of model farmers and the uptake by followers. Evidence-based indicators of climate resilience can support the business case for investment in the types of adaptation measures that have been tested in the CwDCC project.

## **Annex 1: TERMS OF REFERENCE**

The UNDP/GEF evaluation guidelines specify that the Terminal Evaluation is to address the following aspects of project design, delivery, results and lessons:

### **Project Formulation**

- Analysis of LFA (Project logic /strategy; Indicators)
- Assumptions and Risks
- Lessons from other relevant projects (e.g., same focal area) incorporated into project implementation
- Stakeholder participation (\*)
- Replication approach
- Cost-effectiveness
- UNDP comparative advantage
- Linkages between project and other interventions within the sector, including management arrangements

### **Project Implementation**

- The logical framework used during implementation as a management and M&E tool
- Effective partnerships arrangements established for implementation of the project with relevant stakeholders involved in the country/region
- Feedback from M&E activities used for adaptive management
  - Financial Planning
  - Monitoring and evaluation (\*)
  - Execution and implementation modalities
  - Management by the UNDP country office
  - Coordination and operational issues

### **Project Results**

- Attainment of objectives (\*)
- Country ownership
- Mainstreaming
- Sustainability (\*)
- Catalytic Role
- Impact

### **Conclusions, recommendations & lessons**

- Corrective actions for the design, implementation, monitoring and evaluation of the project
- Actions to follow up or reinforce initial benefits from the project
- Proposals for future directions underlining main objectives
- Best and worst practices in addressing issues relating to relevance, performance and success

(\*) These evaluation criteria are to be rated

The GEF and UNDP terminal evaluation guidelines specify five evaluative criteria:

- 4. Relevance.** Were the project's outcomes consistent with the focal areas/operational program strategies and country priorities?

- The extent to which the activity is suited to local and national development priorities and organizational policies, including changes over time.
  - The extent to which the project is in line with the GEF Operational Programs or the strategic priorities under which the project was funded.
- 5. Effectiveness.** Are the actual project outcomes commensurate with the original or modified project objectives? If the original or modified expected results are merely outputs/inputs, the evaluators should assess if there were any real outcomes of the project and, if there were, determine whether these are commensurate with realistic expectations from such projects.
- The extent to which the expected outcomes and objectives have been achieved or how likely they will be achieved.
- 6. Efficiency.** Was the project cost effective? Was the project the least cost option? Was project implementation delayed, and, if it was, did that affect cost effectiveness? Wherever possible, the evaluator should also compare the costs incurred and the time taken to achieve outcomes with that for similar projects.
- The extent to which results have been delivered with the least costly resources possible; also called cost effectiveness or efficacy.
- 4. Sustainability.** Can the beneficial project results be sustained?
- The likely ability of an intervention to continue to deliver benefits for an extended period of time after completion.
  - Projects need to be environmentally, as well as financially and socially sustainable.
- 5. Impact.** What are the positive and negative, foreseen and unforeseen changes to and effects produced by a development intervention?
- In GEF terms, results include direct project outputs, short to medium-term outcomes, and longer term impact, replication effects and other local effects.

The Terms of Reference provide for the following questions to be covered by the evaluation:

**Project formulation:**

- Were the project's objectives and components clear, practicable and feasible within its time frame?
- Were the capacities of the executing institution(s) and its counterparts properly considered when the project was designed?
- Were lessons from other relevant projects properly incorporated in the project design?
- Were the partnership arrangements properly identified and roles and responsibilities negotiated prior to project approval?
- Were counterpart resources (funding, staff, and facilities), enabling legislation, and adequate project management arrangements in place at project entry?
- Were the project assumptions and risks well articulated in the PIF and project document?

**Assumptions and risks:**

- An assessment of the stated assumptions and risks, whether they are logical and robust, and have helped to determine activities and planned outputs;

- Externalities (i.e. effects of climate change, global economic crisis, etc.) which are relevant to the findings.

#### **Project implementation:**

- The logical framework used during implementation as a management and M&E tool;
- Effective partnerships arrangements established for implementation of the project with relevant stakeholders involved in the country/region;
- Lessons from other relevant projects (e.g., same focal area) incorporated into project implementation Feedback from M&E activities used for adaptive management.

#### **Finance/co-finance:**

- Project cost and funding data should be presented, including annual expenditures. Variances between planned and actual expenditures should be assessed and explained. Observations from financial audits as available should be considered. The evaluation should include a table that shows planned and actual co-financing commitments.
- Briefly describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project's ultimate objective.
- Determine the reasons for differences in the level of expected and actual co-financing, and the extent to which project components supported by external funders was well integrated into the overall project. The evaluation should consider the effect on project outcomes and/or sustainability from the extent of materialization of co-financing.

#### **IA and EA execution:**

- Assess and rate (R) the quality of Implementing Agency execution. The assessment should be established through consideration of the following issues:
  - Whether there was an appropriate focus on results by the implementing and executing agencies;
  - The adequacy of IA & EA supervision;
  - The quality of risk management;
  - Responsiveness of the managing parties to significant implementation problems (if any);
  - Quality and timeliness of technical support to the project team;
  - Candor and realism in supervision reporting;
  - Suitability of chosen executing agency for project execution;
  - Any salient issues regarding project duration, for instance to note project delays, and how they may have affected project outcomes and sustainability.

#### **Monitoring and evaluation:**

Assess and rate (R) the quality of monitoring. The evaluation team should be expected to deliver an M&E assessment that provides:

- An analysis of the M&E plan at project start up, considering whether baseline conditions, methodology and roles and responsibilities are well articulated. Is the M&E plan well conceived? Is it articulated sufficient to monitor results and track progress toward achieving objectives?
- The quality of M&E plan implementation: Was the M&E plan sufficiently budgeted and funded during project preparation and implementation?

- The effectiveness of monitoring indicators from the project document for measuring progress and performance;
- Compliance with the progress and financial reporting requirements/ schedule, including quality and timeliness of reports;
- The value and effectiveness of the monitoring and evaluation reports and evidence that these were discussed with stakeholders and project staff;
- The extent to which follow-up actions, and/or adaptive management, were taken in response to monitoring reports (PIRs);

#### **Stakeholder involvement:**

The evaluation should include findings on the role and involvement of key project stakeholders. Two aspects can be considered:

- A review of the quality and thoroughness of the stakeholder plan presented in the PIF and project document which should be reviewed for its logic and completeness.
- The level of stakeholder participation during project implementation.

Questions regarding stakeholder participation include:

- Did the project involve the relevant stakeholders through information sharing and consultation and by seeking their participation in project design, implementation, and M&E? For example, did the project implement appropriate outreach and public awareness campaigns?
- Did the project consult with and make use of the skills, experience, and knowledge of the appropriate government entities, nongovernmental organizations, community groups, private sector entities, local governments, and academic institutions in the design, implementation, and evaluation of project activities?
- Were the perspectives of those who would be affected by project decisions, those who could affect the outcomes, and those who could contribute information or other resources to the process taken into account while taking decisions? Were the relevant vulnerable groups and powerful supporters and opponents of the processes properly involved?

#### **Adaptive management:**

The evaluation team should take note whether there were changes in the project framework during implementation, why these changes were made and what was the approval process. In addition to determining the reasons for change, the evaluator should also determine how the changes were instigated and how these changes then affected project results. A few key questions to consider:

- Did the project undergo significant changes as a result of recommendations from the mid-term evaluation? Or as a result of other review procedures? Explain the process and implications.
- If the changes were extensive, did they materially change the expected project outcomes?
- Were the project changes articulated in writing and then considered and approved by the project steering committee?

#### **Project results:**

Results as measured by broader aspects such as: country ownership, mainstreaming, sustainability, catalytic role and impact.

*Country ownership:*

- Was the project concept in line with development priorities and plans of the country (or countries)?
- Were the relevant country representatives from government and civil society involved in project implementation, including as part of the project steering committee?
- Was an intergovernmental committee given responsibility to liaise with the project team, recognizing that more than one ministry should be involved?
- Has the government(s), enacted legislation, and/or developed policies and regulations in line with the project's objectives?

*Mainstreaming:*

UNDP projects financed by the GEF are key components in UNDP country programming. As such, the objectives and outcomes of the project should conform to UNDP country programme strategies. The section on mainstreaming should assess:

- Whether it is possible to identify and define positive or negative effects of the project on local populations (e.g. income generation/job creation, improved natural resource management arrangements with local groups, improvement in policy frameworks for resource allocation and distribution, regeneration of natural resources for long term sustainability);
- If the project objectives conform to agreed priorities in the UNDP country programme document (CPD) and country programme action plan (CPAP);
- Whether there is evidence that the project outcomes have contributed to better preparations to cope with natural disasters;
- Whether gender issues had been taken into account in project design and implementation, (i.e. project team composition, gender-related aspects of pollution impacts, stakeholder outreach to women's groups, etc). If so, indicate how.

*Sustainability:*

Assess and rate (R) the overall risks to sustainability. Sustainability is considered to be the likelihood of continued benefits after the GEF project ends. Consequently the assessment of sustainability considers the risks that are likely to affect the continuation of project outcomes. The GEF Guidelines establish four areas for considering risks to sustainability: Financial risks;, socio-economic risk; institutional framework and governance risks; and environmental risks. Each should be separately evaluated and then rated on the likelihood and extent that risks will impede sustainability.

Relevant factors to improve the sustainability of project outcomes include:

- Development and implementation of a sustainability strategy;
- Establishment of the financial and economic instruments and mechanisms to ensure the ongoing flow of benefits once the GEF assistance ends (from the public and private sectors, income generating activities, and market transformations to promote the project's objectives);
- Development of suitable organizational arrangements by public and/or private sector;
- Development of policy and regulatory frameworks that further the project objectives;
- Incorporation of environmental and ecological factors affecting future flow of benefits;
- Development of appropriate institutional capacity (systems, structures, staff, expertise, etc.);
- Identification and involvement of champions (i.e. individuals in government and civil society who can promote sustainability of project outcomes);
- Achieving social sustainability, for example, by mainstreaming project activities into the economy or community production activities;

- Achieving stakeholders' consensus regarding courses of action on project activities.

*Catalytic effect:*

Complete the ratings table (R) on whether or not the project has had a catalytic effect. The reviewer should consider the extent to which the project has demonstrated: a) production of a public good, b) demonstration, c) replication, and d) scaling up. Replication can have two aspects, replication proper (lessons and experiences are replicated in different geographic area) or scaling up (lessons and experiences are replicated within the same geographic area but funded by other sources). Examples of replication approaches include:

- Knowledge transfer (i.e., dissemination of lessons through project result documents, training workshops, information exchange, a national and regional forum, etc.);
- Expansion of demonstration projects.
- Capacity building and training of individuals, and institutions to expand the project's achievements in the country or other regions.
- Use of project-trained individuals, institutions or companies to replicate the project's outcomes in other regions.

*Impact:*

Discuss the extent to which projects are achieving impacts or are progressing toward the achievement of impacts among the project beneficiaries. Impacts in the context of adaptation projects refer to the extent to which vulnerability to climate change has decreased, as measured by the indicators included in the Results Framework, and other quantitative and qualitative information. Process indicators, such as regulatory and policy changes, can also be used to measure impact.

*Conclusions, Recommendations and Lessons:*

Conclusions should be comprehensive and balanced, and highlight the strengths, weaknesses and outcomes of the project. They should be well substantiated by the evidence and logically connected to the evaluation findings. They should respond to key evaluation questions and provide insights into the identification of and/or solutions to important problems or issues pertinent to project beneficiaries, UNDP and GEF.

The evaluation report should provide practical, feasible recommendations directed to the intended users of the evaluation about what actions to take and decisions to make. The recommendations should be specifically supported by the evidence and linked to the findings and conclusions around key questions addressed by the evaluation.

The evaluation report should include, if available, lessons that can be taken from the evaluation, including best (and worst) practices that can provide knowledge gained from the particular circumstance (programmatic and evaluation methods used, partnerships, financial leveraging, etc.) that are applicable to other GEF and UNDP interventions.



## **Annex 2: INTERVIEW GUIDE**

This is a general guide only to be used in context with the evaluation issues and criteria above. It is not a questionnaire. It serves as an informal aid in prompting discussion during the interviews.

### **Part I – Field Level (woreda staff/farmers)**

#### **Project Formulation**

1. Does the project address the priorities of your district/area with regard to drought and climate change? How significant is the drought problem compared to before the project?
2. To what extent do you think the project has been addressing the key factors affecting your ability to cope with the drought problem? Were any aspects of coping mechanism missed?
3. If we were to undertake the project again, is there anything you would change?

#### **Project Implementation**

4. What has been your experience with the effectiveness of the project implementation? Have there been any technical or administrative issues that may offer lessons for future projects?
5. What specific factors or conditions have particularly helped or hindered progress in project implementation?
6. How effective have the project partnerships been? Can you give an example of collaboration between the partners?
7. Are there any links between this project and other projects in your area?
8. How would you rate the quality of the technical and extension support at the field level? How could it have been improved?
9. How well were your views taken into account by the project staff and managers?

#### **Project Results**

##### *Livelihoods (1)*

10. Can you explain the factors that have contributed toward the achievements shown in the project reports and surveys?
11. Which of the project supported livelihood activities are most successful and which are the least successful? Why?
12. Have similar livelihood interventions been used in other projects or other areas with similar or different results?

##### *Warning Systems (2)*

13. Can you give an example of where the new weather information service has affected your farming practices – e.g., led to modification of timing of land preparation or sowing?

14. How did you make farming decisions before and how is it different now, if at all?

15. Do you think this service will be continued and if so what changes would you make?

*Replication (3)*

16. What is the most important learning, skill or tool, if any, have acquired from the project?  
Where?

17. Are there examples of farms outside of the project which have adapted these methods?  
Which ones and where? To what extent have the methods been adopted?

**Project Sustainability**

18. Are you and others likely to maintain the use of the project methods after the project?  
Which ones will you keep and which ones will be discarded or not used regularly?

**Part II – reference questions: project staff and partners**

**Project Formulation**

1. Were there any particular aspects of the project design that were either not relevant or not realistic?
2. If the project was to be implemented again, are there any changes in project design and results framework that you would suggest?
3. Were there any project risks that were not identified or adequately considered, and how could they have been better anticipated and managed?
4. How relevant or useful has the project been to advancing the national development and climate change adaptation priorities of the government – influence on policy?
5. How effective and efficient was the project structure and organization in facilitating implementation? Would you have changed anything in hindsight?

**Project Implementation**

6. What have been the major challenges or issues in implementing the project? What are the main reasons for delays? What are the lessons for future projects?
7. Has annual work planning and budgeting been effective, and have disbursements been in line with annual budgets?
8. How did the changes in project results framework happen? Do you think they made a difference for project implementation?
9. Has the project modality for delivery of activities through government (vs NGO involvement) been effective and efficient? What are the key factors that affected project delivery?
10. How effective has project coordination and communication been within the project and with relevant stakeholders?

11. Have the project monitoring indicators been effective and feasible for reporting on progress?

#### **Project Results**

12. Overall, what are the most important or significant achievements of the project?
13. What expected results have not been completely achieved or are not fully satisfactory?
14. Has any follow-up assessment of training program results been undertaken? What gaps remain in staff capacity development?
15. Are there changes in institutional capacity that could be attributed to the project?
16. Has the project had any unanticipated positive or negative results?
17. What are the key lessons for future projects that have been learned during the implementation of the project?

#### **Sustainability**

18. How likely is it that the main outcome level results – technologies adoption, etc., can be sustained? What will be the effects of project closure? What preparations are being made for closure?
19. How financially viable are the adaptation measures to facilitate sustainability?
20. What project exit strategies, if any, have been or could be considered to enhance sustainability?

#### **Impact**

21. Has long term vulnerability to climate change been measurably reduced in the project area in a substantive way, or realistically has vulnerability reduction been modest or minor given the challenge of climate change?
22. How resilient are the introduced farming practices and livelihoods to increased climate variability and extreme drought conditions?

### Annex 3: LIST OF CONTACTS/INTERVIEWS

| Location                      | Name              | Position Affiliation   |
|-------------------------------|-------------------|--|
| <b>Addis Ababa</b>            | Wubua Mekonnen    | GEF coordinator, UNDP Ethiopia   |
|                               | Beffina Woll      | Deputy Country Director, UNDP Ethiopia                                     |
|                               | Shimelis Fekadu   | Climate change & environment specialist, UNDP                              |
|                               | Sinikenesh Beyene | Team Leader, Climate Change Vulnerability Unit, UNDP Ethiopia              |
|                               | Tadesse Bekele    | Acting Deputy Director, Early Warning and Response Directorate, DRFSS, MoA |
|                               |                   |  |
| <b>Kombalcha, Kalu Woreda</b> |                   |  |
|                               | Kassahun Bedada   | Project Manager CwDCC Project  |
|                               | Mesfin Reda       | Woreda Focal Pt for CwDCC Project  |
|                               | Embute Wubshet    | Meteorology  |
|                               | Girma Tessema     | Communications, Adami woreda   |
|                               | Yimeer Indris     | Cooperative  |
|                               | Fatuma Yimam      | Environmental Protection   |
|                               | Serkaleum         | Fruit & Vegetables   |
|                               | Lesanework Arage  | Food Security  |
|                               | Eshetu Egigu      | Health   |
|                               | Hussein Said      | Kalu Woreda Administrator  |
|                               |                   |  |
| <b>Kebele 04 Adami</b>        | Seid Mohamed      | Supervisor of Development Agents, Adami                                    |
|                               | Jamal Said        | Development agent – agronomy, Adami  |
|                               | Abdullah Mahamed  | Development agent – livestock, Adami                                       |
|                               | Seid Ahmed        | Farmer   |
|                               | Hussain Mohadamto | Farmer   |
|                               |                   |  |
| <b>Kebele 032 Weraba</b>      | Gashaw Worku      | Development agent – livestock, Weraba                                      |
|                               | Jenmane Shseit    | Development agent – natural resources, Weraba                              |
|                               | Ahmed Kebede      | Development agent – agronomy, Weraba                                       |
|                               | Ato Abera         | Supervisor of Development Agents   |
| <b>Kebele 018 Aba Hilme</b>   | Fentaw Mohammed   | Development agent – natural resources, Aba Hilme                           |
|                               | Mohammed Tushane  | Development agent – agronomy, Aba Hilme                                    |
|                               |                   |  |
| <b>Kebele 016 Ressa</b>       | Mohammed Hussein  | Development agent – agronomy, Ressa  |
|                               | Said Mohammed     | Model farmer, Ressa  |
|                               | Mohammed Endris   | Model farmer, Ressa  |
|                               |                   |  |
|                               |                   |  |

Note: interviews with farmer and livestock groups not listed.

#### Annex 4: LIST OF DOCUMENTS

|   |   |
|---|---|
| Belay Simane  | Vulnerability Assessment of Ethiopia adaptation project: Coping with Drought and Climate Change, February 13, 2013  |
| Dereje Dejene, Wubua Mekonnen                           | Back to Office Field Monitoring Visit Report, UNDP, July 2010   |
| Shemelis Fekadu, Wubua Mekonnen                         | Back to Office Field Monitoring Visit Report March 25-30, 2011  |
| Alessandra Tisot Wubua Mekonnen                         | Back to Office Field Monitoring Visit Report October 2-5, 2012  |
| Wubua Mekonnen  | Regional Exchange Visit report, UNDP, 4 June to 12 June 2012  |
| Wubua Mekonnen, Eva Hinds                               | Back to Office Zimbabwe Regional Visit Report October 14-19, 2012   |
| Jessica Troni   | Back to Office Report, UNDP, 18 June 2012   |
| Kuhl, Laura   | Technology Transfer in the Coping with Drought Project in Ethiopia (Draft), Oct. 2012   |
| Mathewos Hunde  | Coping with Drought and Climate Change Project Kalu district, Ethiopia, Presentation to COP, Doha, 2012   |
| Ministry of Agriculture and Rural Development, and UNDP | Stakeholders Workshop on Coping with Drought and Climate Change, Results and Agreements of the Inception Workshop, September 29-October 1, 2009, Kombolcha  |
| MoARD and UNDP/GEF                                      | Coping with Drought and Climate Change Project, 1 <sup>st</sup> Quarter Report; 2 <sup>nd</sup> Quarter report – 2010, July 31, 2010; 3 <sup>rd</sup> Quarter Report, Oct. 8 2012; 3 <sup>rd</sup> Quarter Report – Sept. 30, 2010; |
| UNDP  | Annual Report 2010; Annual Report 2012, Dec 28, 2012;   |
| UNDP  | Coping with Drought and Climate Change Project - Ethiopia/ Kalu Woreda- Logical Framework Analysis, Aug. 6, 2010  |
| UNDP  | Project Implementation Reports, Aug 31, 2010; Sept. 2011; 2012  |
| UNDP Ethiopia   | ALM Case Study, Ethiopia, March 2012  |
| UNDP  | Annual Work Plan, 2012  |
| UNDP Ethiopia   | The Best Practices of the Coping With Drought and Climate Change Project, Kallu District of South Wollo Zone, Amhara Region Ethiopia, January 2013  |
| UNDP Ethiopia   | Coping with Drought and Climate Change, Inception workshop Report, Kolbacha, October 2009   |
| UNDP Ethiopia   | Success stories - Coping with Drought UNDP Ethiopia Office Addis Ababa, Ethiopia, January 2013  |
| World Food Programme                                    | Amhara Livelihood Zone Reports, Kalu Woreda, 2007   |

## Annex 5: STATUS OF ACHIEVEMENTS

| Objective and Results   | Indicators   |           |        |      |      | Project team comment and assessment of key factors that affected achievement (Evaluator comment)   |
|---|--|-----------|--------|------|------|--|
|   | Statement of Indicator   | Base line | Target |      |      |  |
|   |  |           | Y'10   | Y'11 | Y'12 |  |
| <b>Objective:</b><br>To develop and pilot a range of effective coping mechanisms for reducing the vulnerability of farmers particularly women and children in Kulu Woreda/district to drought | % change in vulnerability to climate change of men, women and children living in pilot sites.                                    | 84%*      |        |      | 20%  | Target achieved: Among the 41,421 population in pilot kabeles 60% of families have improved their living and increased their capacity to withstand the effects of drought and climate change at least for 6 months without relief support by the government. Due to the increase in food production and increased family income food is available in the HH and the nutrition condition of children is much improving. The reduces vulnerability to climate change is attributed due to income diversification, through the introduction of irrigation, sheep and goat rearing, honey production and the introduction of dryland farming. (Achieved) |
| <b>Out come 1</b><br>Livelihood strategies that enhance the resilience of vulnerable farmers to cope with drought and climate change adopted and sustained.                                   | % of households (disaggregated by gender) adopted alternative livelihood strategies introduced by the project.                   | none      |        | 10%  | 25%  | For the last monitoring year the project provided 86 households drip irrigation where 15 beneficiaries (20%) are women. This helped to produce vegetable and fruit crops (mainly papaya) to increase the income of the farmers. 135 beneficiaries (around 20% of beneficiaries are women) also benefited from 1st round transfer of sheep and goat. 18 women have just received 120 sheep and goat from the second transfer. And also 60 beneficiaries (20% of whom are women) were provided with modern bee hives, bee colony and accessories. (Likely achieved)  |
|   | % of area of the target villages covered by dryland farming and sustainable land management practices introduced by the project. | none      |        | 10%  | 25%  | Dry land farming increased to 3% of land area. Crop varieties recommended for the pilot kebeles were distributed for 516 farmers (where 10%-20% are women in piloted sites). The improved varieties of cereal, pulses and oil crops ensure good harvest and help to withstand erratic rainfall. (Achieved based on qualitative assessment)   |

|   |  |           |                      |                      |                      |  |
|---|--|-----------|----------------------|----------------------|----------------------|--|
| Out put 1.1<br>Market oriented<br>alternative livelihood<br>strategies that enhance<br>resilience and income<br>introduced and promoted                   | ...No .of alternative<br>livelihood strategies<br>introduced and<br>appreciated by<br>community.   | none      | 5                    | 5                    | 5                    | 1. Water harvesting;<br>2. Sheep and goat rearing<br>3. Bee keeping<br>4. Vegetable and fruit production<br>5. Introduction of improved crop varieties |
|   | - No. of community<br>members exposed to new<br>knowledge of alternative<br>livelihood strategies<br>among which 50% are<br>women                      | none      | 4283<br>50%<br>Women | 3985<br>50%<br>Women | 462<br>50%<br>Women  | 8730 beneficiaries   |
| Out put 1.2<br>Production oriented<br>sustainable land<br>management/dry land<br>management/dry land<br>farming practices<br>introduced and promoted      | Number of sustainable<br>land management/dry<br>land management<br>practices introduced and<br>appreciated by the<br>community of the pilot<br>kebeles | none      | 6                    | 6                    | 6                    |  |
|   | Number of community<br>members introduced to<br>sustainable land<br>management/ dry land<br>farming practices among<br>which 50% are women             | none      | 6226<br>50%<br>Women | 5618<br>50%<br>Women | 1796<br>50%<br>Women | 13,6464 beneficiaries  |
| <b>Out come 2.0</b><br><b>Enhanced use of early</b><br><b>warning information in</b><br><b>agricultural systems at the</b><br><b>selected pilot sites</b> | % of pilot sites that have<br>posted the weather/<br>drought info on kebele<br>notice board or<br>disseminate it on public<br>gatherings.              | Not exist |                      | 50%                  | 90%                  | Achieved (sustainability?)   |
|   | % of households<br>(disaggregated by<br>gender) get and use<br>information on weather/<br>drought situation from                                       | Not exist |                      |                      | 50%                  |  |

|   |   |                  |           |            |            |  |
|---|---|------------------|-----------|------------|------------|--|
|   | DAs or kebele administration.   |                  |           |            |            |  |
| Output 2.1 Integrated drought information communication system established                                | Existence of central data base at Woreda level  | <b>Not exist</b> | <b>2</b>  | <b>2</b>   | <b>2</b>   |  |
|   | Existence of modalities for regular and systematic drought information dissemination approved by woreda council.      | <b>Not exist</b> | <b>1</b>  | <b>1</b>   | <b>1</b>   |  |
|   | Production and dissemination of weekly weather/drought info by local meteorology and/or Worede office of agriculture. | <b>Not exist</b> | <b>10</b> | <b>26</b>  | <b>52</b>  |  |
| Out put 2.2 Capacity of community level institutions for climate information and risk management enhanced | Availability of Risk and vulnerability analysis and map of the impact site  | <b>No</b>        | <b>1</b>  |            |            |  |
|   | Existence of community based drought preparedness strategic plan approved by kebele cabinet.                          | <b>No</b>        |           | <b>1</b>   |            |  |
|   | Number of community institution leadership that become knowledgeable on climate information and risk management       | <b>None</b>      | <b>60</b> | <b>100</b> | <b>160</b> |  |



|   |   |                               |          |            |            |  |
|---|---|-------------------------------|----------|------------|------------|--|
| Out put 2.3<br>Capacity of local meteorological institutions developed  | Existence comprehensive meteorological (Rainfall, Temp, etc) data base at Kombolcha meteorology station.  | <b>Poor data base</b>         | <b>1</b> | <b>1</b>   | <b>1</b>   |  |
|   | No. Staff of Kombolcha meteorology office who become more knowledgeable in metrological data collection and analysis  | <b>Low level of knowledge</b> | <b>6</b> | <b>6</b>   | <b>6</b>   |  |
| <b>Out come 3.0</b><br><b>Farmers/ agro-pastoralists outside the pilot sites replicated successful approaches to cope with drought and climate change</b> | % of farmers/agropastoralists (disaggregated by gender) outside the target area that adopted/replicated best practices among those visited the pilot site and or participated farmers day | <b>NA</b>                     |          |            | <b>20%</b> | Thus far more than 15% farmers outside of the project site have adopted best practices of the project area. Experience sharing practices will continue and the percentage of farmers that could replicate best practices will grow. In the last 6 month 600 farmers, 22 DA's and 30 experts are exposed to the projects best practices (homestead vegetable and fruit production and water management), drip irrigation as well as improved high yielding, drought resistant and early maturing crop varieties. Furthermore, 74 community members have exposed to Integrated Pest Management practices. Overall, above 720 community members have shared lessons from the project to replicate the successful approaches. ( <b>mostly achieved although level of adoption may be uncertain</b> ) |
| Out put 3.1<br>Farmers/agro-pastoralist outside the pilot kebeles are exposed to successful approaches and practices of the pilot kebeles.                | Number of farmers/ agro-pastoralists form outside of the target kebeles participated on experience exchange visit to pilot kebeles  | <b>No</b>                     |          | <b>100</b> | <b>200</b> | Whenever large experience sharing training is exercised, or when ever neighbour pilot kebele is demonstrating its achievements kebele members outside the pilot kebele is invited to share knowledge and experience.<br><br>300 farmers oriented   |
|   | Number of farmers/ agro-pastoralists form outside of the target kebeles   | <b>No</b>                     |          | <b>120</b> | <b>240</b> |  |

|   |  |           |  |          |          |   |
|---|--|-----------|--|----------|----------|---|
|   | participated on experience exchange visit to pilot kebeles   |           |  |          |          |   |
| Out put 3.2<br>Acquired knowledge and lesson learnt shared with development actors and communities outside side the pilot kebeles | No of Comprehensive professional standard Best Practice document produced and shared                   | <b>No</b> |  | <b>1</b> | <b>2</b> | Although the lessons learned information is kept these professional standard best practice documents are not prepared |
|   | No of adjacent communities/ woredas and development actors with which documented best practices shared | <b>No</b> |  | <b>8</b> | <b>8</b> |   |

\* NB. \* The recent survey of the pilot sites shows 86% of the HH are vulnerable. So it is expected that Vulnerability will be reduced by 20% (August 2010 revision of LFA)

## Annex 6: INFORMATION FROM FIELD VISITS

### Adami kebele (04)

In Adami, there are several star model farmers who received early generous support from the project in the form of subsidized geomembrane (85% subsidy) and roto tank/drip systems and honey bee equipment (50% subsidy), along with training and technical support. They reported major increases in income in the order of 60,000 birr/yr from vegetable and fruit production and 15,000-20,000 from honey production. One of the farmers has three farm ponds and another two adjacent ones that belong to his brother. Other, 'average' small irrigation farmers are reportedly making about 20,000 birr/yr from vegetables/fruit and 4,000-5,000 birr from bee-keeping. Systematic data on the degree of uptake of irrigation and beekeeping by lead farmers, followers and laggards are not available.

The livelihoods development is primarily based on use of improved seeds, small scale irrigation, livestock development and bee-keeping (honey production). The main irrigated crops were onion, potato, tomato, peppers, mung bean, etc. Increased incomes from milk and butter sales were also mentioned. One small watershed closure/treatment project was observed (see photo). Natural regeneration was good on the upper slopes, but in an area of lower slopes the tree planting had completely failed, despite good pits and eyebrow structures.

The livestock distribution and replication is a high profile project activity in Adami kebele, originally involving 245 1<sup>st</sup> round beneficiaries but is now totally 410 beneficiaries from added 2<sup>nd</sup> and 3<sup>rd</sup> round transfers. Table 8-3 shows that the *transfer rate* (% of new livestock created through beneficiary transfers) is slightly higher for goats – 42% than for sheep – 38%.

Farmers listed their primary concerns as (i) drought and lack of livestock forage, (ii) crop diseases affecting sorghum and the long 9mth period between planting and harvest, and (iii) livestock diseases. DAs stated that crop yields were down 44% from last year.

### Woreba kebele (032)

In Woreba, the livelihoods development is primarily based on use of improved seeds, small scale irrigation, livestock development and bee-keeping (honey production). Six micro-watershed rehabilitation projects were also assisted by the project (tools and other technical/logistical support) in conjunction with the annual mass mobilization (free labour).

There are 62 farmers involved in the command area irrigation scheme that was developed by the project, drawing water from weir at Hussneno on the Falana River. An irrigation canal has been constructed by farmers, channeling water some 1.5 km to a serve 27 ha of irrigated farmland primarily used for vegetable production. A key feature of the irrigation scheme is the ability of farmers to produce crops at a time when the market price is high prior to the rainfed production arriving at market (e.g., onion prices can range from 6 birr/kg to 20 birr/kg over the year). The average income of the participating farmers is 15,000 – 20,000 birr. The total cost of the scheme is over 300,000 birr (it is unfinished in that concrete and materials have been bought to line the distribution canal, which was expected to reduce water losses and expand the area of irrigated farmland).

Farmer interview data on crop production/income are presented on Table 8-1. On subsidized costs of 2000-3000 birr, farmers generated about 20,000 birr from irrigated farming. Most of these farmers also engage in rainfed farming of Tef and sorghum alongside the vegetable and fruit farming that has been promoted through small-scale irrigation. The project provided significant subsidies (50% cost) for onion seed which cost 800 birr for 1 kg seed onions. These were extensively planted in Woreba.

Another prominent activity was the livestock distribution and replication, originally involving 75 1<sup>st</sup> round beneficiaries but is now totally 96 beneficiaries. Table 8-3 shows that the beneficiary transfer rate (% of new livestock created through beneficiary transfers) is high for goats – 64% and low for sheep – 36%.

#### **Aba Hilme kebele (018)**

In Aba Hilme, livestock distribution was discussed with a large group of beneficiaries, informally gathered on the roadside. See notes in table summarizing their responses. The first and second round beneficiaries were able to name the person who received or was to receive the transfer of 5 F offspring from their livestock.

A long discussion was also held with 8 members of the IPM group (membership = 25). Combating 'stock borer' attack on sorghum and maize is the main target. They use a local organic pesticide made from several indigenous plants: "Azcharge, Azoharge, Kophass, Karche, Jatrofa" {sp?} mixed with livestock urine collected by the farmers and diluted with water. The ingredients are mixed in large containers and protective clothing and sprayers provided by the project area used. Costs are insignificant (equipment/facilities). Seems to be good leadership in the group. Each member of the group pays 3 birr/mth to support equipment and supplies. They reported double the sorghum yields using this IPM system as well as savings from avoiding chemical pesticides. If infestation is high, they intensify the spraying. One backpack sprayer unit is usually used by three farmers. Equipment is also occasionally rented out to other farmers.

One farmer reported 20,000 birr from irrigated vegetables using geomembrane and wing pump. The livestock distribution and replication, originally involving 41 1<sup>st</sup> round beneficiaries but is now totally 88 beneficiaries. Table 8-3 shows that the beneficiary transfer rate (% of new livestock created through beneficiary transfers) is high for goats – 57% and non-existent for sheep – 0%.

A small terraced watershed treatment was visited. They were growing peppers on the bottom terrace, and sorghum stubs seen on the highest terrace. The middle terraces includes very poorly planted eucalyptus trees – no spacing, no tree pits, etc. casual, informal planting. DAs thought it was ok.

#### **Ressa kebele (016)**

In Ressa, Abarhi watersheds #1 and #2 are the boundaries of the project area. About 100 farms are reported to be involved. Project is being implemented in 3 irrigation areas: Gwneti River (2 sites) and Golena River (irrigation canal) involving 71 farmers.

Only two farms were visited – both extremely productive, although several farm ponds were observed from afar. The large tomato field with ripe tomatoes of the first farmer provided 5000-6000 birr per harvest for three harvests; he harvested once last year and twice this year (see photos). His input costs are about 1000 birr plus loan repayment to cooperative on diesel pump and hoses and improved seeds, all subsidized by the project. He was able to specify crop yield benefits from IPM but is not a member of the group and still uses pesticides. The second farm was even more impressive but the farmer was non onsite for an interview. No other similar farms identified near here. Drawing of limited irrigation water by diesel pumps from the almost dry stream may be a concern.

The livestock distribution and replication, originally involving 27 1<sup>st</sup> round beneficiaries but is now totally 45 beneficiaries. Table 8-3 shows that the beneficiary transfer rate (% of new livestock created through beneficiary transfers) is moderate for goats – 42% and nonexistent for sheep – 0%.

**Table 6-1: Field Notes from Farmer Interviews – Irrigated Farming and Honey Production**

| Kebele/project area   | Farmer #             | RWH/Small scale irrigation   |  |  | Honey production  |  | Comments  |
|---|----------------------|--|--|--|---|--|---|
|   |                      | Financing  | Crops  | Fruit trees  | Financing   | Prod./income   |   |
| <b>04 – Adami</b><br><br><b>Moloxi watershed project area</b>       | #1 (SA) model farmer | Pond liner cost: 4458 birr/pond, 15% from farmer loan (3 ponds)<br>Wing pump cost: 3000 birr x 50% farmer loan<br>Tank/drip equip. cost: 2588 birr set | 14,000 – 18,000 birr/yr from onion, potato, tomato, pepper, burberry from 400 sq m plot x 3 harvests | 10,000-15,000 birr/yr from papaya;<br>Also planted 31 apple trees (prod. after 3yrs) | 3000 birr (later 3765 with vat) <sup>29</sup> /bee colony + 397 birr for ‘modern’ hive/1374 for ‘improved kenya’ hive = birr<br>Financed at 50% cost thru 4 yr loan | 15 kg/yr (harvest) at 130 birr/kg = birr from 3 colonies/hives (2 ‘modern and 1 improved Kenya)        | Improved seeds (high yield, early maturing & drought tolerant) are distributed 10 kg to each farmer with the requirement that 10kg would be returned to the cooperative seed bank<br><br>He graduated out of the PSNP |
| Costs/benefits summary  |                      | (4458 x 15%) x 3 + 2588 = 4594 birr  | Approx. 45,000 birr/yr   | 10-15,000 birr/yr  | 1120 + (397 + 397 + 1374) x 50% = 2204 birr   | 19,500 birr/yr   |   |
|   | #2 (HD) model farmer | See above costs x 2 operational ponds (1 new)  | 45,000 birr/yr from irrigated (3 harvests x 15,000) HH income from agriculture: 175,000 birr         | Crop + fruit income = 60,000 birr/yr   | See above costs: 3000 birr/colony + 8x 397 + 2x1374 hives = 5924 birr<br><br>Financed at 50% cost thru 4 yr loan  | From 10 hives (8 modern & 2 improved Kenya) = 15,000 birr/yr + 800 birr from sale of ‘queen splitting’ | There are about 70 irrigation farmers in the project, about 30 are successful and the remaining 40 are ‘on the way’<br><br>He graduated out of the PSNP.  |
| Costs/benefits summary  |                      | (4458 x 15%) x 3 + 2588 pump/drip set = 4594 birr  | Approx. 45,000 birr/yr   | Approx. 15,000 birr/yr   | Approx. cost:   | Approx income: 15,800 birr   |   |
| <b>032 – Weraba</b><br><br><b>Feyeb Ambo watershed project area</b> | #3                   | Pond but no irrigation equipment purchased <sup>30</sup> ; Onion seed  | Approx. 20,000 birr /yr from crop production onion, cabbage, mung bean, haricot                      | none   | No data   | No data  | Farmers required to return equal amount of seeds to cooperative (except onion)<br>Mass mobilization of free labour has been used to   |

<sup>29</sup> Each farmer was provided one colony which was then used (‘Queen splitting’) to produce further colonies, used for production or sold at about 800 birr/colony, or in some cases, farmers reported that they were required to give a colony to another designated beneficiary. Two types of hives have been used: ‘Modern’ Zender or Langstrove model and ‘improved Kenya’ model (noticeable by peaked roof on larger box).

<sup>30</sup> Only 7 of the 63 participating farmers in this kebele purchased small Roto irrigation tanks and pumps.

|   |    |   |  |   |  |                  |  |
|---|----|---|--|---|--|------------------|--|
|   |    | provided at 50% cost: 400 birr/kg subsidized  | bean, tomato, etc  |   |  |                  | regenerate micro-catchment areas   |
| Costs/benefits summary  |    | Approx 400 birr seed + 1000 birr chemical pesticide + 1500 birr fertilizer = 2400 b   | 20,000 birr/yr   | none  | No data  | No data          |  |
|   | #4 | Same as above; did not discuss chemical inputs  | 10,000 birr (1yr farm) from vegetables   | none  | None   | None             |  |
|   | #5 | Same as above; did not discuss chemical inputs  | 20,000 – 30,000 during good rains; 10,000-20,000 birr during poor rains  | Extensive mature fruit orchard                                | None   | None             | Farmer has Qat plantation; common in the area and the income is up to 10,000 birr per ha |
|   | #6 | Small irrigated area  | 2 Qt/chick peas produced 2400 birr income  | None  | None   | None             |  |
| <b>O18 – Aba Hilme</b><br><br><b>Denso watershed project area</b> | #7 | Wing pumps and Geo-membrane financed at 50% subsidy and 4 yr loan: 3000 + 4458 x 50% = 3729 birr<br><br>Made 1 <sup>st</sup> payment of 400 birr for pump | About 20,000 birr/yr from vegetables previous year<br><br>Note: no recent crop production due to the poor rainfall (much worse than other kebeles) | No record of fruit production due to recent planting of trees | No data acquired<br><br>Honey production has been limited by availability of bee pollination sources (rainfall and vegetation) | No data acquired | Many new structures in place that have yet to collect rainfall                           |
|   | #8 | Soil and water conservation – project provided tools  | Sorghum yield before watershed improvement: 3-4 Qt/ha; after: 7-8 QT/ha  | Grain crops only  | Not discussed  | Not discussed    |  |
|   | #9 | Woman farmer acquired irrigation equipment  | Not mentioned  | Planted papaya, coffee and mango trees; no                    |  |                  |  |

|   |             |  |  |                                   |      |      |   |
|---|-------------|--|--|-----------------------------------|------|------|---|
|   |             |  |  | production yet                    |      |      |   |
| <b>016 – Ressa</b><br><b>Abarahi #1 &amp; 2</b><br><b>watershed</b><br><b>project areas</b> | #10<br>(SM) | Diesel pump<br>bought 4200 birr<br>(50% subsidized)<br>Furrow irrigation.<br>Fertilizer (2.5 kg<br>NPK) = 400 birr/yr<br>Pesticide= 500<br>birr (buys from<br>cooperative) | One harvest<br>tomatoes, maize,<br>etc = 5-6000 birr<br>(15 – 18,000<br>birr/yr)       | none                              | none | none | Uses improved seeds provided<br>by the project. IPM ‘follower’<br><br>He pumps irrigation water from<br>a stream downhill of the farm;<br>stream with very small flow<br>also used for bathing<br><br>He requested support for a<br>geomembrane (pond). |
|   | #11<br>(ME) | Large integrated<br>farming based on<br>geomembrane<br>pond; roto tank<br>and drip system  | Farmer not<br>present; but very<br>large vegetable<br>crop; cabbage,<br>tomato, onion, | Fruit tree nursery<br>established |      |      | Pond was large and deep, set in<br>the hill above the crop land;<br>low water level March 15  |

**Table 6-2 : Field Notes from Farmer Interviews – Livestock Distribution, Production and Income**

| Kebele/project<br>area | Farmer<br># | Livestock Distribution  | Livestock Income   | Farmer Comments  |
|------------------------|-------------|---|--|--|
| <b>04 – Adami</b>      | # 1<br>(HM) | Received 5 sheep, and transferred 5 F<br>offspring to another farmer  | 3000 birr from sale of 10 F sheep  | Farmers stated that they have a written<br>document that requires them to provide the<br>first born female offspring (5) to another<br>farmer. When asked, two farmers were able to<br>name the designated 2 <sup>nd</sup> round beneficiary |
|                        | group       | 103 farmer beneficiaries from livestock<br>distribution; 80 were 1 <sup>st</sup> round<br>beneficiaries; 23 are currently 2 <sup>nd</sup> round<br>beneficiaries. | One farmer reported selling 5 F sheep<br>at 8 mths maturity 800 birr each (M<br>sheep generate 1000-2000 birr) | Farmers stated that there are bylaws which<br>control the area that they can graze within, and<br>excludes ‘communal land’ on hillsides. Each<br>farmer has their own small grazing land.  |
|                        |             | One farmer started with 5 goats and after<br>transfer of 1 <sup>st</sup> 5F, now has 18 goats   |  |  |
| <b>032 – Weraba</b>    | # 2         | She started with 5 goats and gave 5<br>offspring to Ato Hussain   | None sold  |  |
|                        | # 3         | He received 5 offspring and now fattening<br>males for sale; 1 mature goat can get 3,000  | sold 1 Male animal for 450 birr  |  |

|                        |     |  |  |  |
|------------------------|-----|--|--|--|
|                        |     | – 4,000 birr (after 8 mths) depending on rainfall/fodder situation   |  |  |
|                        | # 4 | ‘Famous’ GEF celebrity sisters, ‘Taytu’ and ‘Yeshi’; she started with 5 sheep; gave 5 offspring to sister and now has 16 sheep | None sold, but proposes to sell 6 sheep for about 7000 birr and to buy a dairy cow           |  |
| <b>O18 – Aba Hilme</b> | # 5 | Received 5 goats; transferred 5 to 2 <sup>nd</sup> beneficiary (named)<br>Had 11 goats (1 died), now has 8                     | Sold 2 goats for 500 birr each; plans to fatten M goats, stated that 1 M was worth 3000 birr |  |
|                        | #6  | Received 5 goats; transferred 5 F (named person); now has 10 goats, all F  |  |  |

**Table 6-3: Sheep and Goat Distribution and Beneficiaries in Project Kebeles**

| No            | Name of the kebeles | Distributed animals |                 |                 |       |                 |                 |                 |       | Number of Beneficiaries |                 |                 |                 |                 |                 |              |             |                 |                 |                 |                 |                 |                 |            |           |
|---------------|---------------------|---------------------|-----------------|-----------------|-------|-----------------|-----------------|-----------------|-------|-------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|--------------|-------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------|-----------|
|               |                     | Sheep               |                 |                 |       | Goat            |                 |                 |       | Sheep/ Men              |                 |                 | Sheep/ Women    |                 |                 |              | Goat/ Men   |                 |                 | Goat/Women      |                 |                 |                 |            |           |
|               |                     | 1 <sup>st</sup>     | 2 <sup>nd</sup> | 3 <sup>RD</sup> | Total | 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>RD</sup> | Total | 1 <sup>st</sup>         | 2 <sup>nd</sup> | 3 <sup>RD</sup> | 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>RD</sup> | Total        |             | 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>RD</sup> | 1 <sup>st</sup> | 2 <sup>nd</sup> | 3 <sup>RD</sup> | Total      |           |
|               |                     |                     |                 |                 |       |                 |                 |                 |       |                         |                 |                 |                 |                 |                 | M            | W           |                 |                 |                 |                 |                 |                 | M          | W         |
| 1             | 04                  | 120                 | 40              | 35              | 195   | 125             | 30              | 60              | 215   | 18                      | 6               | 4               | 4               | 4               | 3               | 26           | 13          | 19              | 6               | 10              | 6               | -               | 2               | 35         | 8         |
| 2             | 031                 | 125                 | 25              | 45              | 195   | 80              | 30              | 110             | 220   | 19                      | 4               | 5               | 6               | 1               | 4               | 28           | 11          | 11              | 4               | 17              | 5               | 2               | 5               | 32         | 12        |
| 3             | 032                 | 300                 | 20              | 20              | 340   | 75              | 30              | 35              | 140   | 40                      | 4               | 3               | 20              | -               | 1               | 47           | 21          | 14              | 4               | 5               | 1               | 2               | 2               | 23         | 5         |
| 4             | 016                 | 25                  | -               | -               | 25    | 125             | 25              | 65              | 215   | 5                       | -               | -               | -               | -               | -               | 5            | -           | 21              | 3               | 9               | 1               | 2               | 4               | 33         | 7         |
| 5             | 017                 | -                   | -               | -               |       | 175             | 75              | 35              | 285   | -                       | -               | -               | -               | -               | -               | -            | -           | 28              | 12              | 5               | 7               | 3               | 2               | 45         | 12        |
| 6             | 018                 | -                   | 15              | -               | 15    | 180             | 110             | 125             | 415   | 5                       | -               | -               | -               | -               | -               | 5            | -           | 30              | 19              | 20              | 6               | 3               | 5               | 69         | 14        |
|               | Total               | 570                 | 100             | 100             | 770   | 760             | 300             | 430             | 1490  | 83                      | 14              | 12              | 33              | 5               | 4               | 113<br>(62%) | 43<br>(38%) | 123             | 48              | 66              | 26              | 12              | 20              | 237<br>76% | 58<br>24% |
| Transfer rate |                     | 200/770 = 26%       |                 |                 |       | 730/1490 = 49%  |                 |                 |       | 26/109 = 24%            |                 |                 | 9/42 = 21%      |                 |                 |              |             | 114/237 = 48%   |                 |                 | 32/58 = 55%     |                 |                 |            |           |



**Table 6-4: Field Notes from Farmer Interviews – Integrated Pest Management (IPM) Activities<sup>31</sup>**

| Kebele/project area    | Farmer #                 | Financing of Equipment  | Crop & Fruit production and income benefits   | Farmer Comments   |
|------------------------|--------------------------|---|---|---|
| <b>04 – Adami</b>      | # 1 (SM) & group mbrs    | 24 members in the IPM group. The costs include: sprayer 600 birr each + plastic storage bin and accessories.<br><br>They estimate that about 10% of farmers are using the IPM method. | They reported w/o IPM they are able to produce 5 Quintal (Qt)/ha and 10-12 Qt/ha with IPM; 100% increase compared to yield for crops/fruit trees with not using the spray.<br>The chemical pesticide alternative is 'kerate' which costs 650 birr/liter | There are about 180 "followers" (secondary beneficiaries) who have received information about IPM methods<br><br>Farmers also noted that the chemical pesticide has an adverse effect on bees and honey production  |
| <b>O18 – Aba Hilme</b> | # 2 chair & 8 group mbrs | 25 members; have been established for 3 yrs. Main focus is on combating 'stock borers' in sorghum and maize crops   | Reported that w/o IPM that are able to produce 3-4 Qt/ha and 7-8 with IPM. The chemical pesticide alternative is 'keratine', 'Indosulphin', 'Sevin', cost 500 birr for 2 ha treatment   | They plan to continue after the project and to expand. Stated that last year, 200 farmers used IPM method ('followers') Each member of group pays 3 birr/mth for fund to maintain equipment and operations. One farmer rented out the sprayer equipment for 30 birr |
| <b>016 – Ressa</b>     | #3                       | Farmer uses chemical pesticide (keratine) on sorghum except when rains are good; considering IPM  | He claimed that with IPM, farmers report 6-7 Qt/ha versus 3 Qt without  | He is a 'follower' of the IPM group but has not yet adopted   |

**Farmer data on Sorghum Production**

| Crop Production with different improvements and inputs    | Quintal sorghum per hectare   |            |
|---|-------------------------------|------------|
|   | Kebele 018                    | Kebele 016 |
| Without catchment soil & water conservation               | 3-4 Qt/ha                     |            |
| With catchment soil & water conservation by project       | 7-8 Qt/ha                     |            |
| Without fertilizer (50 kg NPK & 50 kg DAP)                | 7-8 Qt/ha                     |            |
| With fertilizer (50 kg NPK & 50 kg DAP) (cost: 1720 birr) | 22-23 Qt/ha under normal rain |            |
| Without Integrated Pest Management (before project)       | 3-4 Qt/ha                     | 3 Qt/ha    |
| With Integrated Pest Management by project                | 7-8 Qt/ha                     | 6-7 Qt/ha  |

Note: most of the production is used for household consumption; the market value is 900 birr/Qt

<sup>31</sup> The IPM method involves collection and grinding of specific local plants, mixing with cattle urine collected by farmers and spraying crops and fruit trees with this organic pesticide.