



Study Brief No. 3

Climate vulnerability and capacity assessment

I. Introduction

East and West Belesa woredas are disaster-prone areas that experience frequent drought; and categorized among food insecure woredas by the regional government since 1999. To alleviate this problem, the government along with its development partners has been implementing food security programs but with no success mainly due to climate variability and change.

The recurring drought and natural disaster in 2016, put 10 and 17 percent of the communities in West and East Belesa respectively

under the support of Productive Safety Net Program (PSNP). In addition to this, communities in Belesa - (West 20.4%) and (East 34%) are supported by the emergency food aid while 9% communities in East Belesa are under water ration for 8 months in a year.

To contribute to the efforts of ensuring food security in these woredas, CARE designed the Water for Food Security, Women Empowerment and Environment Protection Project (SWEEP) with a financial support of Austrian Development Cooperation. The project is being implemented in 20 kebeles in East and West Belesa demonstrating women's empowerment, water access for productive and domestic uses and environmental protection.

The climate vulnerability and capacity assessment aims to assess and analyze vulnerability to climate changes and adaptive capacity of the target community. It's to also inform the SWEEP project design by way of recommendation and make it more climate resilient.

II. Background

Historical data on climate change in Ethiopia shows that rainfall is marked with increasing seasonal deficits along the lines of long term past averages; drought and heavy rainfall appear frequently

with changes in rainfall patterns. Analysis of long term metrological data also shows significant reduction in rainfall and increase in temperature over time in many areas in Ethiopia - moving from experiencing one drought every decade to one drought every 2-3 years. This constant recurring experience of drought lowered the resilience capacity of households to cope with negative shocks and contributed to high vulnerability to food insecurity. According to the 2011-2012 socio-economic study of Ethiopia, 28.5% of households (1,111 households in the sample) do not have enough food to feed families in their households. The problem is sever in East and West Beslea woreda as the community's livelihood depends on agriculture which in turn relies on the natural environment.

Due to frequency of the drought, communities living in East and West Belesa are challenged to access water. As a result communities, especially women and girls travel long distance in search of water for domestic use as well as productive use. In addition to this, agricultural productivity has become a decreasing trend, due to sever land degradation.

It's to respond to this challenge that CARE in collaboration with the government and in line with SWEEP project conducted this climate vulnerability and capacity assessment. This study brief highlights the findings of the assessment along with its methodology and recommendation.

III. Methodology

The assessment used the climate vulnerability and capacity assessment (CVCA) tools of CARE international. All CVCA tools namely; resources map, seasonal calendar, historical timeline and vulnerability matrix were applied in the process. CVCA is a participatory tool that helps to facilitate community level analysis about climate change hazards and communities coping strategies.

Survey was conducted from May 26 to April 4, 2018. Before the assessment, a four-days training was provided to a total of 20 woreda government experts (from water, agriculture, women and children affairs office) from April 26-29th, 2018. Data collection was done jointly by

the woreda experts and CARE Ethiopia staff. Qualitative data was collected through focus group discussions. A total of 240 community members (of which 150 were women) participated in 16 groups. The focus group discussions were formed based on the marital status of the participants (women from female-headed households; men from male-headed, and women from male-headed households) and their age.



Focus group discussion with women in female headed household

IV. Key findings

Resources mapping

According to the resources mapping exercise done by each group focusing on their specific kebeles, Forest, livestock, water, grazing and agricultural lands were mapped among the most common resources available and used for livelihoods. In all the kebeles, agricultural land covers larger portion and forest land covers smaller portion due to deforestation linked to fire wood and house construction needs. Infrastructures mapped in each kebele include roads, health post, schools, churches, water supply schemes and traditional irrigation schemes. However, the quantity and quality of infrastructures available varies from kebele to kebele. Ways of the resources utilization is the same as previous decades showing no improvement in resources utilization. In addition to agriculture, other income generation activities by the community includes production and sale of local alcohol, metal works, and carpentry. With regard to access on the resources on

livelihoods, FGD members say youth, men and women have equal access to farmland, livestock, river, irrigation and grazing /forest land. However, all of the FGDs reported that the level of control over those resources by men is higher than women in the men headed household but women have control over those resources in women headed households.

Change of quality and quantity of natural resources for the last 2 to 3 decades.

The assessment showed increased trend of deforestation, depletion of water sources (springs and rivers), extinction of wild animals and edible plants and a fall on agricultural productivity in the last 2 to 3 decades. In addition, frequent outbreak of animal diseases and crop pests increased community's challenges that forces them to travel long distance to fetch water for domestic uses and productivity (animal).

Due to this change to the quality and quantity of natural resources, the community's livelihood slowly changed from relying on agriculture and livestock to becoming dependent on food aid; and being daily laborers in the nearby towns.

Hazard identification and resources affected by the hazards

To understand the effects of climate change in the community, focus groups were asked to describe the weather and climate conditions of the last three decades. The participants stated that there had been significant changes in temperatures and rainfall patterns. Some of the indicators showed that the rain now begins around July when previously it already started late May or early June. As a result, the crop production period keeps being pushed forward by a significant number of months and the planting and harvesting times keep changing as well. Irregularity in rainfall caused damages on matured crops during harvesting time (especially during the month of November) and also contributed to shortage of animal fodder and outbreak of livestock diseases. Apart from the consequences on agricultural production, the rainfall irregularity and inadequacy resulted in a significant decrease of the volume of water available in springs and rivers.

Especially after 2005 the annual rainfall amount significantly decreased from the long-term annual rainfall (Figure 1). However, regarding to temperature there is not any statistically significant trend of temperature (Figure 2).

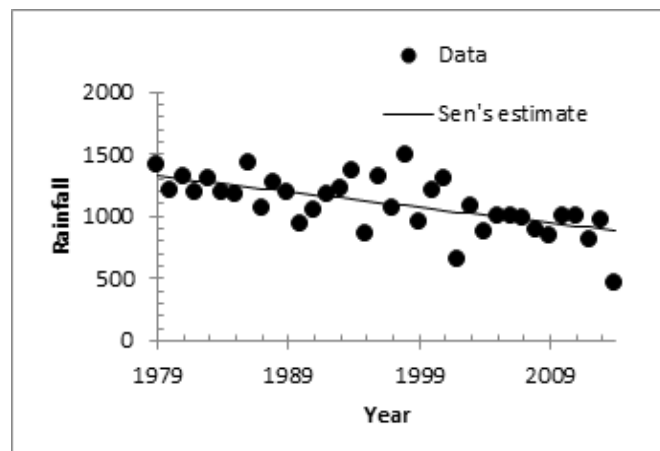


Figure 1: Statistical trend test of Sen's estimate of Rainfall in Belesa area

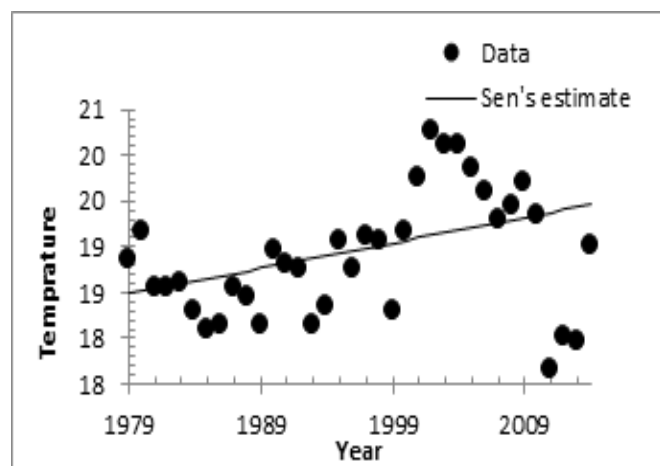


Figure 2: Statistical trend test of Sen's estimate of Temperature in Belesa area

Vulnerability Matrix

By using the climate vulnerability matrix, the community ranked drought, erratic/shortage of rainfall, crop pest and livestock diseases as the top five hazards which pose major challenge to their livelihood. Factors contributing to the above listed hazards include irregularity (shortage and erratic) of rainfall and increasing temperatures. The occurrence of hazards affected all the community members. However, with respect to degree vulnerability, women, persons with disabilities and children are more vulnerable.

Effectiveness of strategies

Over time, the community developed and used different strategies to adapt to the recurring changes such as: temporal displacement to other areas; planting drought-resistant and quick-maturing crops; improving the water holding capacity of the soil; implement local level integrated crop pest management (the community jointly kills the pests/worms manually, using different materials and repellents) and livestock diseases management (such as use of traditional medicines and getting vaccines from veterinary centers). However, most of the time these strategies and resources failed to help household cope with the situation on the long term. For example, information on where to access drought-resistant and quick maturing crops and finance to purchase the seeds are lacking. The CVCA also found out that the communities adopt adaptation mechanisms that are detrimental to their well-being and health: families drop meals, sell-out assets and send their children to serve other households in exchange of food; household members migrate and engage in any kind of labor works. During droughts, farmers sell their animals and purchase food. Some of them have no choice but to take up loans to purchase food as well.

V. Recommendations

Based on the assessment findings, the study team recommended the following to enrich planned activities under SWEEP.

- Improve the water holding capacity of the soil and sustainable management of natural resources by working with all stakeholders. To this effect, trainings and awareness raising sessions to the community should focus on improvement of natural resources management including institutional set ups in all selected model watersheds.
- Construct water harvesting structures to increase communities coping mechanism options during critical times.
- Support communities to engage in off-farm activities so that they can adopt to the climate change by their own.
- Lobby the woreda food security and disaster risk reduction to support communities by continuously providing weather information and early warnings.

For more information:

CARE Ethiopia
Adugnaw Tadesse: Adugnaw.Tadesse@Care.org
Abebaw Kebede: Abebaw.Kebede@Care.org

Study Team:

Alemitu Golad, Gardachew Tiruneh and
Adugnaw Tadesse

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