Sub-Dejel Watershed Rehabilitation Project, Ethiopia

Canadian Coalition on Climate Change & Development

Mennonite Central Committee

The hilly, arid region of Amhara, Ethiopia, north of Addis Ababa, has faced recurrent droughts, floods, heavy rains and strong winds, which have led to chronic food insecurity, land degradation, soil erosion and loss of biodiversity. Climate change is increasing the frequency, intensity and unpredictability of these climate-related hazards in the Amhara region.

In 2012, Migibare Senay Children and Family Support Organization (MSCFSO) completed a four-year project to rehabilitate the Dejel watershed in the East Gojjam zone of the Amhara region. The project, supported by Mennonite Central Committee (MCC), was designed to increase soil and water conservation, restore biodiversity and increase food security in the watershed. In exchange for working to improve the land, the area's poorest residents received payment in cash and in-kind assets, such as farm animals. As a result, these farmers are less vulnerable to climate-related shocks and stresses and have improved food security.

Photo: MCC Canada

Tiruneh Mitiku is one of the farmers who are benefiting from a soil and water conservation project of Migibare Senay Children and Family Support Organization (MSCFSO).

Country Context

Ethiopia is highly vulnerable to drought, floods, heavy rainfall, winds, frost, and heat waves. Climate change is expected to increase temperatures and rainfall in Ethiopia's highlands.[1] At the same time, droughts are considered to be the most important climate hazards affecting the country from time to time. The impacts of climate change, combined with other factors such as low agricultural productivity, environmental degradation, deforestation and increased desertification, create significant challenges in important development sectors in Ethiopia, notably agriculture, water and human health.[2]

Small-scale farmers in Ethiopia are the worst affected by climate variability and change as they rely on rain-fed agriculture for their livelihoods. With increasing uncertainty in rainfall and more frequent extreme events, these farmers face decreases in crop yields and, in some cases, complete failure of their harvest, leading to more food insecurity.

1 Climate Change National Adaptation Programme of Action (NAPA) of Ethiopia (2007), p. 23

2 Ibid, p. 29

The Problem

Ethiopia's heavy dependency on rain-fed and subsistence agriculture increases its vulnerability to the impacts of climate change. In general, the level of vulnerability to climate change is determined by both socio-economic and environmental factors. In the project area, the most vulnerable are low-income rural households who lack access to productive land, have limited livelihood options, and are excluded from institutional support such as assistance from agricultural extension services. Cultural and social dynamics also play a role in determining vulnerability, meaning that women, children, the elderly and sick people within communities may be particularly at risk of increasing food insecurity.

Floods, heavy rains, strong winds and poor soil and water conservation practices have contributed to chronic food insecurity, land degradation, soil erosion and loss of biodiversity in the Dejel watershed of the Amhara region.

Traditionally the main crops grown in this region included barley, wheat, teff, field pea, and horse bean. However, due to the land degradation and unsustainable farming practices, the communities have started to grow less desirable crops that are better adapted to acidic and less fertile land. However, their yields are low, they aren't desired for consumption, and they have low marketability, so these shifts have done little to improve food security. With a heavy dependence on farming for livelihoods and a lack of re-investable assets, the communities in the watershed had limited options for diversifying their livelihoods and boosting their incomes. With growing climate variability, they were in an increasingly precarious situation.

The rampant cutting of trees by poor households to generate income for food purchases has aggravated deforestation. This exposed the watershed to land degradation and erosion and worsened the threat of climate hazards such as floods.

Photo: MCC Canada

Lingerew Ayele and his family with their sheep.

The Project

In 2012, Migibare Senay Children and Family Support Organization (MSCFSO), a local partner of MCC, completed a four-year project to rehabilitate the Dejel watershed in the East Gojjam zone of the Amhara region. The project rehabilitated 1220 ha of land for 3044 families.

The Sub-Dejel Watershed Rehabilitation Project focused on natural resource rehabilitation, improving ground water storage through terracing, reducing land degradation, reforestation, and increasing agricultural productivity. The project also helped beneficiary families build household safety nets through on-farm income generating activities. Through in-kind payments, the targeted communities worked on private and communal land to increase soil and water conservation, restore biodiversity and increase food security.

Protection and creation of assets was also central to this project, rather than just focusing on increasing food consumption. The project helped the communities rebuild community and productive assets.

In 2012, MSCFSO received a "Green Award" from the Ethiopian president for its outstanding work in restoring degraded land for agricultural use, by and for impoverished individuals and families. The Dejel Sub Watershed is now being used as a demonstration site for those who want to do similar work in the Amhara region.

On the Ground

The watershed rehabilitation project began with the community and other key stakeholders, including development agents and partner staff, identifying the various food security challenges they were facing as a result of poor soil fertility and land degradation induced by floods, heavy rains and strong winds and the various adaptation strategies that could be implemented. The communities then prioritized the various strategies, which the project incorporated.

The project targeted food insecure people with at least 0.25 ha of farmland who were willing to work on their degraded farmland and communal land for in-kind payment. Those who were not able to work received a cash payment. Some 3044 families participated. In addition, 420 unemployed youth living in the watershed area also participated and were given skills and assets to start their own income generation projects.

The project engaged in a range of training and supportive activities to build the capacity of participating households to undertake actions to rehabilitate the watershed and to launch new income generating activities that maintain the environmental integrity of the watershed. This included physical soil conservation activities such as cut-off drains and check dams to reduce erosion and further expansion of gullies. Tree planting was an important action, with almost 120,000 fast-growing trees planted in churchyards and school compounds and over 1 million trees and shrubs planted to stabilize soil bunds. These trees and shrubs also provide fuel wood and fodder for livestock, while contributing to soil moisture and fertility improvement.

To enable poor households to build up their asset base, in-kind payments were made to the project participants—mainly heifers, poultry, sheep, beehives and fruit trees. The quantity of the in-kind payments was determined by the number of days and hours worked, as well as the type and size of environmental rehabilitation activities worked on. By the end of the project, over 90 per cent of the target households had received in-kind payments in the form of re-investable incentives. The remaining households, mainly landless women and youth, received cash for work.

Photo Credit: MCC Canada

The project allowed Mitiku, a leader active in mobilizing other farmers in the project, to grow higher-value crops such as maize, barley and teff, a native grain.

PROJECT PARTNERS

Migibare Senay Children and Family Support Organization (MSCFSO) is a local partner of Mennonite Central Committee in Ethiopia.

Mennonite Central Committee (www.mcccanada.ca) is a relief and development service agency, supported by 15 Mennonite and Brethren in Christ groups, focusing on disaster relief, sustainable community development and justice and peace-building.

Project Results

As a result of project activities, soil erosion has decreased, thereby improving soil fertility and increasing the productive land available for farming. Crop yields have steadily increased and targeted communities have restarted growing highly nutritious, palatable and high market value crops such as barley, wheat, teff, field pea, and horse bean. The increase in crop diversification has also improved their diet diversity and number of food groups consumed. Growing a greater variety of crops also helps decrease vulnerability to climate change by spreading the risk.

Among those households who got re-investable incentives, over 70% per cent were earning income from multiplying and selling of the assets or their products by the end of the project. As a result, these households had more income and more savings, providing them with a buffer in times of hardship.

"Thanks to the people who supported us. I am very happy that I received sheep as in kind payment for working in the tree nursery. Through reinvesting, I am now able to feed my family properly and can buy agriculture inputs for farming"

– Lingerew Ayele and his family

The project functioned as a safety net for poor communities during food insecure periods and represents a transition between emergency relief and an achievement of long-term development objectives. By providing seasonal employment to chronically food insecure households, the project prevented the households from adopting negative coping strategies such as selling household assets, removing their children from school or reducing food consumption. The individual household and community actions addressed deficits in food supply, while at the same time improving local infrastructure and creating self-sustaining livelihoods. Consequently, project activities strengthened the capacity of the community to cope with floods, heavy rains and strong winds or other climate-related shocks in the future.

Female project participants stated that the nature of the work-for-assets approach has changed their relationship with men. During the work-for-assets activities, women and men worked alongside each other, blurring gender roles and responsibilities. Women demonstrated that they could and should be able to work outside the home. The in-kind payments they received for their work also allowed women to increasingly be seen as economic actors in the community. They are now able to work and acquire their own assets such as chicken and goats and to make more income through income generating activities. The involvement of women in these economic activities also enhanced their participation in decision making. The project has increased gender equity in the community.

Overall, the project has been successful in building the human, natural, physical, social and financial capital in the targeted communities. Early results suggest that this has strengthened their resilience to hazards and their capacity to adapt to climate change over the longer term.

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LESSONS LEARNED

- Sustainable adaptation needs to focus on building the adaptive capacity of communities, starting with providing support to them in coping with current climate variability. This is a long-term process that requires long-term institutional support.
- Support for strengthening adaptive capacity should focus on sharing and strengthening existing knowledge about climate variability, its impacts, and local adaptation strategies. In addition, knowledge sharing links need to be established between local adaptation needs and actions and policies at the national and international level, and fed with scientific information about future impacts as well as seasonal projections.
- Adaptation tends to be location specific; therefore it is difficult to draw general conclusions from what worked and what did not work in one locality.
- Adaptation activities focusing on environmental rehabilitation should be accompanied by changes in institutional relationships that allow local communities to gain more control over their environmental resources.
- In building adaptive capacity of vulnerable communities, peer learning is a powerful tool for capacity building. Farmer field schools and farmer-to-farmer learning opportunities proved to be very effective in helping other farmers learn about climate change and adaptation options.