

TACTIC REPORT

Actions For Resilience: iDE's flexible, holistic framework for concrete steps before, during, and after climate shocks and stresses.

Our indicators show our program improves farmers' coping mechanisms in the face of a shock.



iDE's "Actions For Resilience" demonstrates it is possible to increase the stability and resilience of agriculture based rural livelihoods to cope with climatic variability. Our holistic approach coordinates practical activities at all three levels: household level, natural environment level, and system level.

This document describes how we operationalized this approach in Ziway, Ethiopia, the results from our evaluation, and our lessons learned.

Context

The inhabitants of the Central Rift Valley of Ethiopia, with low incomes and a high dependency on traditional agricultural systems, are particularly vulnerable to climate-related events. In the face of challenges and risks posed by extreme weather events, natural hazards, and climate change, the Government of Ethiopia initiated several efforts to reduce the impact of disasters through a more proactive approach to disaster risk reduction and management (DRRM). However, these efforts have not yet been adequately integrated into agricultural strategies and plans. At present, DRRM-related activities within the agricultural sector still follow an emergency response and recovery approach. In contrast, our solution contributes to climate-resilient agricultural development initiatives, and integrates with local-level agricultural development planning.



Program Background

In 2015, iDE launched the Big Lottery UK-funded Livelihoods for Transformation (LIFT) project in the central rift valley with the aim to improve food security and livelihood status, reduce economic poverty, and build resilience for over 3,600 smallholder farmers and their families.

In 2015, Ethiopia experienced one of the worst droughts in decades with 10.2 million people in need of food aid. The Ziway region, an arid subtropical zone, was seriously affected by the variability and unreliability of rainfall during the main rainy season, attributable to El Niño. Nearly 70% of farmers in iDE project areas lost their entire crop and were forced to liquidate assets to repay their loans.

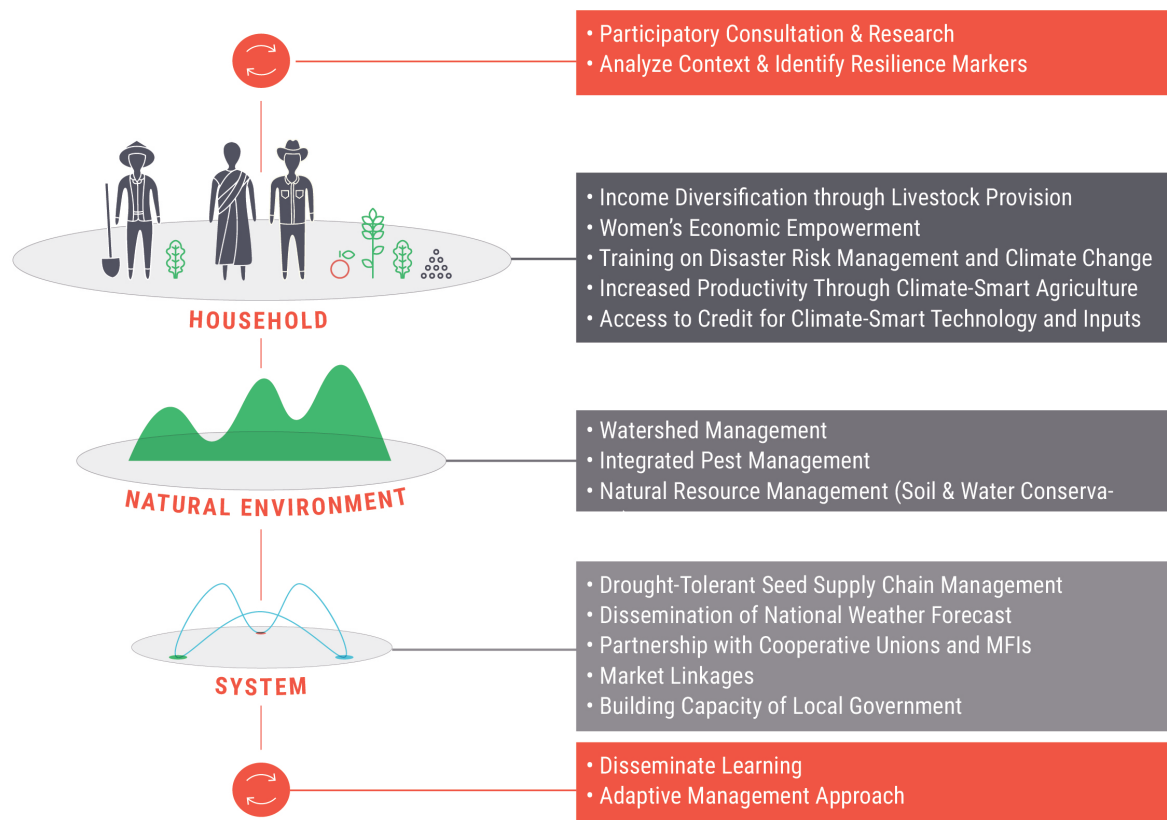
The distressed selling of productive assets is an immediate absorptive response to the drought. While it does help households smooth consumption in the short-run, this coping mechanism has long term costs where the household will likely be less productive in the following season given fewer productive assets. A more resilient farmer or household would ideally be able to access a less costly absorptive measure such as savings.

iDE Ethiopia spent the following year developing “Actions For Resilience.” This plan aims to incorporate resilience measures as a pillar of local agricultural development initiatives, ensuring synergies with related climate change adaptation and sustainable natural resources management initiatives, as well as key coordination bodies and stakeholders for its implementation.

We began implementing it in 2016 on top of the project activities that had been planned in advance and were already underway. This change was necessary to see any benefit from the work we had already invested in.

Actions For Resilience

In accordance with existing patterns of hazard risk and exposure, “Actions For Resilience” applies an integrated, multi-hazard approach combining measures for institutional and technical capacity development and planning with concrete actions at all levels: household, natural environment, and system.



During community consultations, participants suggested short-term and medium-term strategies to mitigate the effects of El Niño on household income and asset base. Accordingly, iDE Ethiopia used this feedback to develop an approach that relieves short-term cash and debt burdens, and builds a base for sustainable assets and income in the medium to long term.



The household level of “Actions For Resilience” places special emphasis on measures that promote communities’ and farmers’ capacities to prevent and/or counteract the impacts of hazards that regularly affect their livelihood.

Income Diversification

Farmers diversify risk by diversifying their source of income. Diversification is not just planting a variety of vegetables, but adding/including animal rearing and vegetable production alongside cash crop production. Short-term mitigation strategies in “Actions For Resilience” include the provision of sheep and goats, along with training on animal husbandry, to build asset bases quickly. Households, particularly those facing debt from crop loss after the El Niño drought, receive sheep and goats for fattening which they can sell for revenue to pay back loans within 3-4 months. Small ruminant provision will also help to build households’ asset base and sustained income through sale of animal products and/or reinvestment in more/larger livestock.

Climate Smart Agriculture (CSA)

Medium to long-term strategies center on increasing farm productivity through climate-smart agriculture. Farmer-led on-farm construction of micro-ponds enable water collection during the rainy season for storage and use during the dry season as supplementary irrigation. Households are selected based on suitability of watersheds for collection of water and are expected to contribute to community construction and maintenance of the ponds.



Bobaso experienced water erosion of soil, low productivity, and poor soil fertility. These are common problems in the area. The self help group he joined reached 50 members in its second year.

Training on Community-Managed Disaster Risk Reduction (DRR)

iDE tailors training for lead farmers and community elders on DRR. These concepts need to be accompanied by the skills to apply it on the ground through hands-on exercises. Training helps participants identify local risks, conduct risk analysis using participatory tools, identify appropriate

measures to take, and prepare community action plans that lead to participatory implementation and thus community owned resilience building.

Climate Change Adaptation Measures

iDE conducts community awareness-raising on climate adaptation measures. These sessions empower the community participants to carry out trend analyses over multiple time periods on the changes they observe in natural resource availability, trends in productivity of livestock and crops, rainfall patterns, prevalence of local disaster risks, and the socio-economic dynamics of the locality and associated quality of life.

Community awareness raising leverages the participation of innovative community members so that the rest will follow the footsteps of the innovators and copy the best practices. iDE supports these innovators with the required technical inputs as well as other resources such as access to irrigable land.

Training on adaptation measures includes the following:

- Drought-tolerant varieties of food, cash crops, and fodder crop species
- Efficient utilization of water resources
- Soil and water conservation practices
- Production of crops under micro irrigation
- Contingency planning practice
- Livelihood diversification



Konti Bedaso (left) is part of a group of female-headed households who have received training from iDE on natural resource management, and collaboratively steward the natural resources in their watershed.

Access to Credit for Climate-Smart Technology and Inputs

Poverty and food insecurity are largely caused by low agricultural productivity, which is partly due to limited access to agricultural inputs and lack of credit to buy them when they are available. Shortage of cash and lack of access to credit facilities for poor farmers restrict their capacity to buy improved seeds and fertilisers. iDE Ethiopia's "Actions For Resilience" connects farmers to MFIs, who provide loans for climate-smart inputs, micro-irrigation, and other farm equipment.

Greater access to financial services specific to small-scale agricultural activities enables poor households to sustainably invest in their livelihoods and continue to improve their incomes.

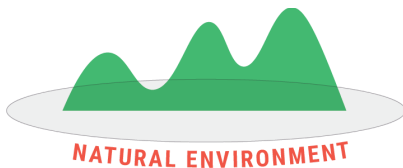
Women's Economic & Social Empowerment

Women are often found to be disproportionately vulnerable to climate shocks and stresses, which creates negative impacts on their household. Thus, empowering women economically and socially will not only result in their increased resilience, but it will also increase the resilience of the household, children, and youths.

Savings and lending are mobilized through Women's Economic Groups (WEGs) which consist of about 20 members per group with governance positions (Chair, Secretary, Treasurer) elected by the group. They create their own by-laws. Group members create a culture of saving and support to one another with internal lending mechanisms in order to help members meet immediate cash needs. This also enables the women to participate in petty trades to generate more income for their households

It has been found that WEGs provide a valuable forum for women to share and discuss issues they have in common and to support each other, and also contribute to increasing their status and voice in their households and communities. Through WEGs, women lower dependency on their husbands' incomes or government programs, improve their decision-making abilities, and promote gender equality.

We've discovered that encouraging change at the household level, and spurring the community's collective action through self help groups, can make an impact on people's lives immediately, without waiting for top-down systems to slowly emerge.



The Natural Environment Level activities are designed to increase agricultural productivity without compromising sustainable natural resource management.

The natural environment in the Central Rift Valley is fragile because of the degradation of the natural ecosystem and over-utilization of the existing natural resources. Intensive human intervention due to the expansion of commercial agriculture by medium to big commercial farms as well as population pressure in the region has had significant negative impacts on the environment.

The lakes and streams that serve 1.5 million people with fresh water are connected to one another through a common water table. There is a need to reverse current trends in land degradation in order to protect Lake Ziway, the largest freshwater source in the area. If Lake Ziway becomes saline, people living downstream will have no access to fresh surface water for domestic use.



"I rent this land from the farmers who own it. I use my diesel pump to irrigate this quarter hectare of land. 10 years ago, we collected water from this area where we are standing, but now we use a ditch to bring water from down there. The water is decreasing. If this lake is dry, the probability of people living here is very low because scarcity of rainfall in the area is a big problem."

Commercial Farmer near Lake Ziway

Watershed Management

On-farm water management and development is an in-situ water harvesting technology to minimize the excess runoff and thereby enhance the soil moisture regime for crop production. Through this practice, access to water can be developed and managed if a watershed is seen as a shared resource that requires planning and maintenance.

People's participation is critical to create a self-supporting system essential for sustainability. This includes forming self-help groups, educating them about the issues, and providing the training they need to deal with the problems. Groups have between 10-20 members and are organized and supported with tools and trainings. Farmers share their labor to collaborate on different soil and water conservation activities.

Soil bunds are one of the key techniques self help groups employ that prevent rainwater from eroding soil. They are structures that channel water to keep it in place. They are lined with plants specifically chosen to stabilize these structures. Plants used for stabilizing soil bunds can also be used as fodder for animal feed, used as human food, and used to create income for farmers from the sale of the seeds.

Participatory watershed development is also intended to generate greater cohesion within the society and enable the poorest members to benefit from the various assets created and eventually to overcome their food insecurity.



Kela Hirpo stands next to pigeon pea that is planted on a soil bund. In addition to minimizing damage from floods, this plant serves multiple purposes: their roots stabilise soil; they are nitrogen-fixing plants (increase fertility of soil); the leaves can be fed to animals; and the peas provide nutrition for families.

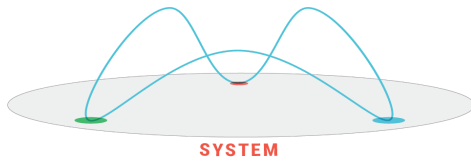
Natural Resource Management

Land degradation is reversed by reducing erosion and increasing soil moisture through upland and on-farm conservation measures; limiting and reversing deforestation by supporting tree nurseries, agro-forestry and forage development; and improving soil quality through soil fertility enhancing techniques and organic composting.

- Low-cost soil fertility enhancing technologies such as composting, agroforestry, and mulching improve soil quality so it can support continued agricultural production.
- Measures that will protect against flooding, increase groundwater recharge, and enhance soil moisture content include: drainages, trenches, terracing, land levelling, deep pits, tree planting and water storage ponds.
- Training on agro-forestry and forage development to increase the soil's organic content and water retention capacity is particularly beneficial in times of water scarcity.

Integrated Pest Management (IPM)

Training in IPM enables farmers to tackle crop-degrading pests, reduce chemicals entering the environment, and decrease expenditure on unnecessary inputs. Training also promotes an increased awareness for farmers to apply best crop agronomy practices from production to post-harvest handling, the use of resistant varieties to drought and diseases, and chemical-free crop storage technologies like metal silos and PICS bags.



The System Level is about working with government and private sector bodies, such as woreda offices of agriculture, cooperative unions and MFIs. iDE capitalizes upon existing networks, relationships and expertise in the target areas, providing efficiencies and increasing sustainability.

Building Capacity of Local Government

iDE enhances the capacity of local sector government offices to conduct early warning (EW) disaster response. Our needs assessment indicated that government capacity to operate early warning response was weak in terms of data management, coordination and dissemination of information.

“Action For Resilience” includes several interventions such as strengthening of EW committees, provision of capacity building training for community and local government staff on EW and data management; promotion of traditional EWS and harmonizing with the government, community awareness-raising and local government training on the integration of Disaster Risk Reduction (DRR), Climate Change Adaptation (CCA), and Ecosystem Management and Restoration (EMR); supporting the community to undertake local risk assessment and to plan and implement community-owned development interventions as well as practice contingency planning and its applications.



“What makes iDE unique is that they start by consulting with every member of the households living in the watershed area.”

Tamene Lemma, Gubata Arjo Kebele,
Development Agent of Arsi Negelle Woreda

Dissemination of National Weather Forecast

The National Meteorological Agency shares climate predictions every one to two months. The information flows through the government offices at the district level (Agriculture and Natural Resource Management Office to the Disaster Risk Management Office) then on to the Community level office of Disaster Risk Management Committee. iDE’s role is to facilitate the flow of this

information emanating from the national level down to the farmer at the last mile. iDE uses this climate information to help farmers make successful planting choices that are suited to the weather.

Information flows down with iDE facilitating between the kebele and last mile farmer levels:



All of these activities are executed in ways to strengthen the Government of Ethiopia's capacity to mainstream Disaster Risk Reduction and early warning systems.

Impact

LIFT's multifaceted intervention aimed to improve resilience by increasing the absorptive and adaptive capacities of households (i.e. increase income, savings, and diversification) and reduce the reliance on the more costly coping mechanism of distressed sale of productive assets. Liquidating assets is a common coping method whenever disaster strikes, but for smallholders, it leads to entrenched poverty.

Our final evaluation showed that our treatment clients experienced mitigated impact from the drought as measured by lower levels of distress selling of assets:

- Control farmers sold 270% more than two years prior due to the drought, whereas intervention clients sold only 50% more than two years prior.
- The intervention mitigated the distress selling of assets by \$50 USD PPP. This is a significant sum considering the average annual income of smallholder farmers in the Ziway area is \$672 USD PPP.

Research Methodology: The final evaluation used the quasi-experimental approach of difference-in-differences analysis to compare the total value of distress sale of assets between control and treatment farmers in the LIFT program area from the height of the drought to three years later. The primary source of data was self-reported by farmers regarding both climate shocks experienced and value of distress sale of assets. The shocks experienced data was then triangulated with secondary climate data to ensure there was no bias in self-reporting.

Lessons Learned

- **COMMUNITY-OWNED:** Community participation is necessary when planning watershed development. Local farmers who live on the land must be involved from the very beginning. This need goes beyond mere consultation, to include local decision-making, labor, and maintenance.
- **START WITH PEOPLE:** It is critical for practical, realistic action plans that the knowledge and skill acquired from training is applied on the ground through hands-on activities. Concepts alone are not adequate to bring about the changes necessary.
- **ADAPTIVE MANAGEMENT:** This work resulted from iDE's response to a climate event. The ability to adapt within an existing project already underway protected the investment of that project and led to a flexible framework that can be adapted for other contexts.
- **ACCESS TO FINANCE:** At 90%, the loan repayment rate has broken the assumption that poor farmers are much higher risk compared to better off farmers. We work with an MFI that has a deep understanding of the requirements of smallholder farmers, and have designed their products accordingly. 70% of their portfolio is in rural areas, with 73-90% female customers.
- **GENDER:** Resilience varies within the community and household, with women often being more vulnerable (due to e.g. lack of skills, information, decision power, control over financial resources, etc.). Gender equity impacts resilience at the individual, household, and community level. At the same time, women can also be powerful agents of resilience, e.g. promoting long-term household and community resilience, adoption of new practices, increase education and healthcare at household level.
- **ENVIRONMENTAL SUSTAINABILITY:** In developed nations, agriculture modernization has come at the high cost of polluting natural resources including rivers and soil. We are learning that it is possible to increase productivity in ways that do not compromise natural resources.
- **EARLY WARNING SYSTEMS:** Indigenous knowledge of hazard specific indicators and signals need to be harmonized with formal, modern methods used by the government.

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