

**RESET Plus
Innovation Fund**

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Innovations for Resilience

A collection of
key lessons



13 Projects

Highlighting key
lessons from 13
innovation projects in
five regions of Ethiopia.



Interviews

“... To be engaged in
a national issue like
Prosopis management
is a great opportunity
for us.”

Innovations for Resilience

A collection of
key lessons

**Innovations for Resilience:
a collection of key lessons**

November 2023

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Cover Page Image: Hydroponic fodder production, HEKS EPER, Borana

Layout Design: Gizaw Legesse

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Introduction



Dear reader,

In this innovation magazine, we share key lessons that emerged from the 13 projects implemented within the RESET Plus Innovation Fund. Their goal was to build resilience in communities throughout Ethiopia - communities that are disproportionately affected by global challenges like climate change. Drought, flooding and other natural phenomena occur frequently and are further exacerbated by socio-economic challenges. The implementing partners piloted innovative solutions that transform livelihood systems and build resilient communities.

The 13 projects have introduced innovations in their target areas. Considering the innovative nature of the pilot projects, a key outcome of the activities is the knowledge created in the process of testing and trying out new ways to do things. We are therefore happy to present this innovation magazine, which brings together the lessons learnt over the past few years. In the magazine you will find an outline of each project, and a few key highlighted lessons formulated in collaboration with the implementing partners. We also included interviews with a private sector stakeholder and a university. The interviewees each collaborated on one of the 13 projects and give insight into their collaboration, as well as their roles, responsibilities, motivation and aspirations for future collaboration.

It must be underlined that the magazine does not assess the impact of the projects, or captures every lesson. Instead, it gives some insight into the learning process of implementing partners resulting from their piloted innovations, and highlights some relevant elements relating to sustainability and systems change. These highlights may be used for inspiration and reflection, or as lessons for those implementing or scaling up similar projects.

We hope the magazine inspires a culture of sharing and knowledge exchange as well as future collaboration. We hereby thank all the implementing partners as well as Cordaid and the European Union Delegation to Ethiopia on their dedicated effort, always finding ways to continue and innovate throughout the many challenges they faced. A special thanks goes out to the implementing partners for sharing their experiences with us.

With warm regards,

Fair and Sustainable Ethiopia

Simone Reinders, Gizaw Legesse and Blen Mezgebu

Programme Implementers



Cordaid Ethiopia began operating in 2006 and has initially concentrated on disaster risk reduction. Through these programmes, we gave local communities the tools they needed to become prepared for unforeseen natural and man-made disasters. In 2015, we broadened the scope of our work to include the health care sector. In vulnerable communities and fragile areas, we fortify the healthcare system. In order to provide comprehensive and high-

quality healthcare for their communities, this includes enhancing the ability of healthcare service providers.

Currently, Cordaid Ethiopia works closely with regional partners to carry out projects in the areas of Humanitarian aid, Healthcare, Education, Private Sector Development, and Food and Income. We concentrate on improving the health care system, the education system, ensuring food security and livelihoods, creating jobs, empowering women, promoting peace and security, building resilience, reducing disaster risk, and providing humanitarian aid within these sectors.

Cordaid is the lead implementer of the RESET Plus Innovation Fund programme and its major activities in this programme include fund management, lobby and advocacy for adoption of key innovations in government policies and overseeing the general objectives of the programme.



Fair & Sustainable Consulting is an international consultancy company and social enterprise. We envision a world with decent incomes and sustainable livelihoods for all. We advise our clients on how to create sustainable economic opportunities through our core themes of Responsible Business, Value Chain Development, and Program Management. Our clients are based throughout Africa, Asia, and South America.

F&S currently has offices in The Netherlands, Ethiopia, and Kenya. We have successfully engaged with over 50 international and local clients and completed more than 600 assignments. We strongly believe in the value of partnerships and collaboration, embracing knowledge sharing, learning, and shared expertise in our approach. Through our regional presence, our diverse teams of local and international consultants and our extensive network of associate consultants, we ensure that our advice and services are always embedded in the local context.

F&S Ethiopia is the subsidiary of Fair & Sustainable Consulting. Registered in Ethiopia in 2009, F&S comprises a team of competent national and international consultants, experts in value chains and market systems development, cooperative development, access to finance, gender in value chains, youth empowerment and entrepreneurship, knowledge management as well as facilitating learning for innovative programming. F&S participates in the RESET Plus Innovation Fund program as an affiliate partner with a role in knowledge management as well as in facilitating linking and learning activities pertaining to the innovation projects.

Message from Cordaid Country Director



I am honoured to be part of the EU RESET programme and the RESET Plus Innovation Fund for Resilience programme. These programmes have been instrumental in promoting innovative solutions in five regions of Ethiopia, with a collaborative mission to build resilience and promote sustainable development.

The implementation of these programmes has not been without challenges, particularly in the face of the COVID-19 pandemic, violence in northern Ethiopia and other regions, and severe drought in various areas of the country. These difficulties have resulted

in implementation delays and discontinuations, particularly in conflict-affected areas. However, despite these challenges, we have been able to make significant progress thanks to the active implementation of the 13 partners in collaboration with Cordaid and the Fair & Sustainable Ethiopia teams, as well as an extension by the European Union since October 2022 for one year, which allowed us to continue the project with 13 great ideas to support developing sustainable solutions for resilience building.

For the past three years, we have been able to resume implementations, harvesting results and learning from the implementation phase with the goal of addressing some of the most persistent problems around vulnerability faced by many, in the rural parts of Ethiopia. Thanks to the European Union and the supportive attitudes and strong momentum developed by the innovation team and implementing partners on the ground, we have been able to implement the project until now. These factors, along with the learning workshops and routine monitoring created by all implementing partners on the ground, allowed us to successfully implement the project.

As Cordaid, we are inspired by the resilience and determination of the communities we serve. Despite the challenges they face, they continue to work towards a better future for themselves and their families. The EU RESET programme and the RESET Plus Innovation Fund for Resilience programme have been instrumental in providing them with the necessary support to build resilience and promote sustainable development.

Overall, the EU RESET programme and the RESET Plus Innovation Fund for Resilience programme are excellent examples of how humanitarian and development cooperation can work together to improve the lives of the most vulnerable people in Ethiopia. Cordaid is proud to be part of these programmes, and we look forward to continuing to work towards a better future for the communities we serve.

Zarir Merat

Country Director

Cordaid Ethiopia

Optimizing the livelihoods of small-scale farmers: Terracing, agroforestry and market linkages

Project Title: Terracing, agroforestry and market linkages: Optimizing the livelihoods of small scale farmers and decreasing erosion

Location: Lebokemkem and Ebinat woredas, South Gondar zone, Amhara

Implementation Period: November 2020 to July 2023

Farmers in South Gondar are dependent on agricultural produce, but struggle to optimize their productivity due to lack of (continuous) access to water and agricultural inputs, while environmental degradation (e.g. erosion) challenges the sustainability of their livelihoods. This project intended to address challenges related to environmental degradation and improve uninterrupted access to high quality agricultural inputs.

The project worked in Lebokemkem and Edinat woredas, where they combined the implementation of a new type of terracing called Fanya Juu, introduced improved agroforestry practices and improved access to finance and market linkages. First developed and practiced in Kenya, Fanya Juu terracing is a structural method of soil conservation suitable for small and labour-intensive farms. It is especially appropriate for sloping lands vulnerable to erosion. The project further used a social marketing approach that focused on training and equipping farmers, introducing Farm Innovation Agents (FIAs), building the capacity of multi-purpose cooperatives, and linking these actors with agri-input vendors. FIAs serve as private extension service providers that bridge the gap between farmers and input suppliers. They advise and guide farmers and promote quality seed varieties and agricultural inputs, for which they receive commission. Finally, to further enhance the linkage and to sustain the system, farmers received loans based on an arrangement of guarantee funds with multipurpose cooperatives.

The project was originally intended to take place in Wag Hemra zone (Amhara region), but unfortunately the conflict in Northern Ethiopia forced the implementers to change the targeted locations. This led the project to reach more beneficiaries than originally intended, but also caused delays. One of the consequences was that a digital solution that integrates farm modelling software, called FarmDesign, was not implemented: When the development of the mobile app was completed, the project period had already ended and there was no time to pilot it. The app was intended to identify optimal land use models specific to an individual farm depending on workforce, land size, livestock assets, household aspirations, and investment capacity.

Despite the significant delays, implementers were able to introduce the new techniques and support the targeted communities with improved sustainable farming practices, terracing, finance and market linkages through FIAs.



Key Lessons

Integrating access to finance with paid agricultural extension services can enhance the effectivity and sustainability of the impact. Involving private sector actors in providing paid extension services in agri-input supply improves market functioning and is likely to enhance sustainable impact after the project ends. However, when the community is poor and vulnerable with low-yield farmland, it could be difficult to sustain. Hence, integrating loan services and a revolving fund can enhance the approach.

Low-tech innovations are easily adopted into a livelihood system through knowledge transfer. The project introduced Fanya Juu terracing, a low-tech innovation which farmers can build themselves after some practical training, and it can be implemented with direct, tangible results. It has made adoption of the innovation quick and easy and the direct knowledge transfer to communities contributes to assuring sustainability and replication.

A participatory project design can help to increase the level of trust on project activities and innovations. The project engaged farmers during input selection processes and quality inspections. As a result, it has reportedly increased the level of trust on project activities and engagements with FIAs.

Digital agricultural solutions should continue to be tested and integrated. Though the design of the farm modelling and optimization mobile app was completed, the project did not get the opportunity to pilot it to identify optimal whole-farm design solutions for individual farmers. It could have been a value addition for the paid extension service by the FIAs.

Without a sufficient experiential period, it is difficult to connect results to the innovation. Farmers who adopted Fanya Juu terracing and benefited from the agri-input supply linkages have a better yield than before. However, due to the short period of implementation and practice, it is difficult to conclude which changes can be attributed to the innovation at this point in time. Such changes require a long-term monitoring and evaluation option.



Lead Implementer:
Action Against Hunger
Co-implementer:
Bahir Dar University



Gaming, interactive learning and market linkages for community-based water management

Project Title: Social Innovation to heighten innovative resilience building opportunity - SHIRO
Location: Meda Wollabu, Bale zone, Oromia
Implementation Period: February 2020 to January 2023

The effectivity and sustainability of water management schemes is a key challenge for communities in Bale zone, resulting in a lack of access to (quality) water. This is addressed through the community-based management of water systems. Challenges to these systems include comprehensive plans of action, ownership and joint decision-making over water use and maintenance, financial and organizational capacity, as well as a lack of skilled professionals and spare parts.

To improve sustainable access to water, CACH introduced different solutions, including the Integrity Management (IM) Toolbox. This participatory tool supports Water Sanitation and Hygiene Committees (WASHCo's) in the systematic identification, assessment and prioritization of challenges. This results in clear action plans for the sustainable management and provision of water to the community. WASHCo's further received support for capacity building (including literacy, savings accounts, offices and other infrastructure) and technical support for the implementation of their action plans. Water tariffs were introduced to cover the cost of water scheme management.

In parallel, CACH offered business development services to youth groups. The project developed an educational game for youth to improve their business skill and mindset. Youth also participated in training on WASH and solar technology installation, repair and maintenance, and supported to open businesses. The youth were further supported with exposure visits, and their new businesses made known in the communities by different media (e.g. posters). WASH businesses were directly linked to the WASHCos supported by the project.

The project engaged different actors from government and knowledge institutes to support the activities. Training was done through a TVET college, while government was strongly involved during all phases of the project (e.g. in selection of beneficiaries).

The activities supported WASHCo's capacity for financial management (e.g. savings accounts), make joint decisions, form comprehensive action plans and execute them. The educational game teaches topics like entrepreneurship challenges and planning, and improve their understanding on how end-user requirements, supply, demand and regulatory frameworks are interlinked and need to be considered for business decision making. Finally, several businesses for solar technology and WASH maintenance and repair were established.



Key Lessons

Community-based decision making requires a flexible project design. When communities have ownership over their own development plans, this results in significantly different operational plans for each WASHCo. In this project design, it was therefore crucial to be flexible and support a wide variety of solutions and timelines, as fit for the user's needs. At the same time, as the decisions are made and owned by the communities, this can increase the likelihood that the system is adopted and sustained after the project ends.

Project design needs to be attentive of the roles and responsibilities of stakeholders over their project intervention areas. A close relationship with the government was key to the project activities. One of the reasons for that is that the project activities addressed a service gap for WASH repair and maintenance that was usually managed by local government offices. This can lead to a conflict of interest for local government. The active involvement of government stakeholders since the inception of the project, as well as continuous dialogue, created a good relationship.

Assessment of institutional capacity is key before engaging stakeholders.

In this case, the infrastructure of the TVET College was poor. Upon this discovery, the project first worked with local government to build institutional capacity, so that the TVET could start supporting the youth groups with their new businesses.

Business models need to be diversified.

The newly established businesses sell products that are generally used for a long time (solar systems). It is therefore difficult to generate income year-round. For this reason, it is important for the businesses to diversify their business model.



"Every time we play the game it unlocks new ideas and hopes for success. It helps us understand market dynamics and government regulations like tax as well as the importance of business expansion. It encourages us to start new businesses, invest, take risks and loans. I became aware of the market in our area and looked for businesses that are not in our area yet. We have the courage to move from employees to businessmen. The game has helped my group and me to understand the market dynamics in the real world."

Fuad Abdurahman, Manager, PV technology business group, Bidire

Lead Implementer:

Caritas Switzerland

Co-implementers: Ethiopian Catholic Church Social Development Commission of Robe (ECC-SDCOR), Desert Rose Consulting PLC (DRC), and Ayaana Publishing PLC (Ayaana)

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Livestock insurance for pastoralist resilience building

Project Title: Livestock insurance for pastoralist resilience building in Moyale, Miyo and Dire districts of Borana zone

Location: Miyo, Moyale and Dire woredas, Borana zone, Oromia

Implementation Period: December 2020 to May 2023

For Borana pastoralists, the meaning of livestock goes far beyond economic benefits. Similar to any pastoralist community, livestock is intertwined with their culture and cannot easily be defined in terms of monetary value. For example, it also determines community status. Unfortunately, communities are increasingly vulnerable to loss of livestock due to recurrent and prolonged droughts in the area. Their way of life has been repeatedly tested.

This project introduced Index-Based Livestock Insurance (IBLI) in three woredas of Borena zone. IBLI has proven to be a viable intervention to help pastoralists maintain their resilience and prevent loss of livestock in times of drought. Continuous promotion and sensitization by involving community leaders on public events, as well as by establishing pastoralist information centres to inform the community using loudspeakers and recorded messages, helped to create awareness and motivation to buy IBLI premiums.



The project also made use of Village Insurance Promoters (VIPs). Significant pay-outs during the project running time were used to animal feed, pay school fees, buy new animals (re-stocking), and to cover day-to-day livelihood costs.

Information dissemination is not limited to promoting IBLI and creating awareness. The project integrated digital technology to obtain satellite-based data and disseminate information relating to location where water and pasture is available. In addition, by developing a mobile App called Haburu, the pastoralist information centres are enabled to access up to date information. Unfortunately, in the time given, the project was not able to set up an information delivery system that allowed the app to be functional in this respect. The app was used to inform on insurance pay-outs to communities and was useful in that respect.

Finally, the activities included organization and training for a youth group to engage in fodder production businesses, as well as providing a bailing machine and creating market linkages. Though lack of rainfall during early months of the project period was a challenge for the youth group, they later managed to plant and to engage in fodder production. They sold hay and grass to individual community members as well as to a pastoralist cooperative.



— Key Lessons

Previous experience, proven track record, and complimentary roles in a consortium is key to effective implementation. Consortium members in this project has a wider experience and proven track record in the area and in livestock sector development. On top of that, the complementary role consortium members played, starting from conducting studies and designing the IBLI product, to implementing community mobilization activities and market linkages, as well as to integrating digital technology, has contributed to better facilitation.

Localized approaches can lead to fast adoption of innovations. Involving respected community leaders and VIPs to promote IBLI and integrating local community organizations to run pastoralist information centres have helped to encourage people in buying premiums. Considering the context has limited internet availability, the use of loudspeaker promotion and a diverse range of information dissemination methods was useful in reaching the right people.

Designing and implementing an information system application requires time, energy, budget and accountability. During the project time, the partners successfully designed an app with many benefits, including the availability of local languages, the use of pictures for illiterate users, and a wide variety of information included in one place. However, the app has a limited functionality because there is no accountable party with a budget to provide a continuous flow of information. The intervention thus has potential, but requires a long-term engagement and a clear, accountable party to take up the responsibility and cost of information flow after the project ends.

Linking development and humanitarian interventions may lead to better results in building resilience to communities.

Government emergency funds for drought affected communities can be considered to subsidize and further expand IBLI in such a way that linked and properly balanced development and humanitarian interventions.

The animal feed market system is underdeveloped and requires additional investment. With little to no rainfall, a productive animal feed business requires infrastructure and technology (e.g. irrigation). The project created market linkage for the fodder production with a cooperative and also conducted animal feed value chain study but its further development could be a key focus area in the future.

Government buy-in and policy integration smoothens adoption. The government has incorporated IBLI in its policy directives and the collaboration and involvement of zone and woreda level offices in both IBLI promotion and fodder production has smoothed the adoption among the community. Local government offices also contributed in providing technical support as well as creating market linkages.



Lead Implementer: CIFA
Co-implementers: Ayuda en Accion, CESVI, and ILRI



Irrigation technology for economic and social transformation

Project Title: Enhancing farmers' livelihoods via piloting a model that integrates technology transfer, climate smart agriculture and social transformation

Location: Dollo Addo Woreda, Liben Zone, Somali

Implementation Period: December 2020 to April 2023



The use of diesel-powered irrigation pumps is a common tool to support irrigation farming. However, the use of diesel does not support livelihoods in a sustainable way due to its environmental impact and high cost. In Somali region, these factors are aggravated further by the large travelling distance to reach diesel selling points. The same goes for farm inputs and markets, for which inhabitants of Liben zone in the Somali region of Ethiopia are often dependent on cross-border trade, leading to volatile prices.

The project activities focused on the Fiqo and Boryale kebeles of Liben zone to increase resilience to droughts and floods by improving the irrigation system with solar-powered water pumps and a maintenance system, creating stable access to inputs, and supporting climate-smart agricultural practices and early warning systems. The Flowius App was used as a tool to support the management of the irrigation system, where trained individuals are able to record any issues and signal to a nearby mechanic. The app also records inventory of spare parts that are locally available.

Capacity building was done through literacy classes and climate-smart activities. These involved, for example, cropping calendars and creating diversion canals, as well as identifying which farming areas were most vulnerable to floods using P-GIS (participatory geographical information system). Following this, protective measures were taken, such as the planting of fruit trees and structures. Finally, increased access to inputs was facilitated through the establishment of demand-driven farmer input supply centres, who act as middlemen between large input supply unions and the villages.

The project installed functional solar-powered water pump facilities and integrated its usage and maintenance through the Flowius App. Meanwhile, input supply centres improved access to inputs and capacity and the benefits of working in such groups was demonstrated, resulting in changes in knowledge and attitude.

Throughout the project, the local government office had high interest in the activities and played an important role, including in the maintenance of water pumps and using the Flowius app. The technical management of the system was handed over to the woreda office and Liben TVET after the project end. The continuation of the use and management of the technology is encouraged as the project site will be used as a demonstration site by the local government. The project activities were strongly supported by the extensive experience of COOPI in the region, and in the installation of solar technology specifically.



Key Lessons

The solar-powered water pumps are a very effective, high-tech and high-cost solution. The piloted Solar Pump Irrigation System has proven to be a viable and competitive option with an attractive return on investment, reducing the high production costs of diesel-powered small-scale irrigation. The success can be attributed to the strong experience of COOPI in installing solar equipment in different localities as well as their experience in this specific region. When undertaking such activities, it is important to consider sourcing (quality equipment), and placement (e.g. elevated placement to avoid interference by humans, water and animals). However, the high initial investment cost for the solar equipment, installation costs and required technical capacity makes the replication of the technology, as well as its sustainable application, difficult for local governments and individual farmers.

Local government can support sustainable impact by assigning demonstration sites. It can be difficult to ensure to continuous management of a high-tech solution after project end. In this case, the high level of involvement from local government led them to assign the project location as a demonstration site for solar water pumps. The impact of this is to be seen, but this offers clear perspectives in terms of sustainability by attracting attention and increasing motivation for maintenance and use.

Government buy-in is supported by different motivations. In this project, two elements were key in gaining government support. First, the local government was a key actor in irrigation management and the project now offers them a new role in the technical management of the system and, through the Flowius App, generates some income by applying small water tariffs. Second, the demonstrated economic benefits for communities to move away from the use of diesel were an important motivator.



Lead Implementer: COOPI
Co-implementers: Wa-PYDO and 3BL



Interview with private sector partner

MR. Tefera Lechisa Tuji
Siinqee Bank S.C

Manager, Stakeholder Engagement
in Program and Partnership Relations
Management Directorate at head office



Siinqee Bank has been engaging in one of the resilience innovation projects (page 16) as a partner with HEKS EPER. In this short interview, Tefera explains the experience of private sector engagement in development projects and the need for effective partnerships.

What is your experience working with NGOs?

Siinqee bank has been operational under different names and legal entities since 1996. Since 2021, we are known as Siinqee Bank S.C. We are a banking business, and work on microfinance. Since its establishment, the bank has accumulated substantial experience working with NGOs as a financial service provider, implementing numerous projects and programs across various sectors, including Agriculture, Micro Businesses, Services, Health, Education, Income-generating activities, value chains, and Environmental protection.

The bank has signed agreements or Memoranda of Understanding (MoUs) with many active partners in the development sector. The bank has extensive experience managing various funds, including revolving funds, credit guarantee funds, matching funds, loans, cash transfers, and capacity building.

What are some key factors that influence your decision to engage with an NGO project?

The bank's mission is dedicated to providing integrated, inclusive, and innovative banking and microfinance services. The bank's vision is to become the leading bank in financial inclusion and transformation, with its core values encapsulated in "SIINQEE," representing Social Responsibility, Integrity, Innovation, Nurturing, Quality Service, Efficiency, and Empowerment. Consequently, the bank's mission alignment and its range of products and services make it suitable for engaging in different NGO projects, as it provides both microfinance and banking services. The bank works to provide these services to grassroots communities by using group-based loan products and it contributed to social and economic development mainly in the agricultural sector.

Could you describe your cooperation with HEKS EPER on this project?

On October 11, 2021, we signed an agreement with HEKS EPER to provide financial services for pastoral, agro-pastoral, and pastoral dropout clients supported by the Viable Innovation for Resilience and Livelihoods (VIRAL) project. The project aimed to introduce locally adaptable and innovative feed solutions and enhance the existing milk market system in Moyale and Miyo woreda of Borena Zone in Oromia. In this collaboration, the bank provided loans amounting to Birr 931,000 to 56 Self-Help groups engaged in feed production and dairy businesses, while HEKS EPER contributed a 20% loan guarantee fund amounting to Birr 186,200 to mitigate potential loan defaults.

What were the key challenges you encountered during the project, and how did you cooperate to address these challenges?

The key challenges we faced during the project implementation included extreme drought and an outbreak of desert locusts. Additionally, there were challenges related to screening beneficiaries to prevent double loan provision. We addressed these challenges by engaging in discussions with HEKS EPER project staff, jointly screening the target beneficiaries, and suspending project implementation for a period to manage the effects of the drought. Subsequently, we resumed project implementation.

What do you believe the project contributed to communities, and to you as an organization?

Group-based loans support groups consisting of three to ten members, who voluntarily come together to borrow from Siingee Bank. The members in a group are from similar socio-economic backgrounds and usually from the same village. The benefits include group liability as collateral, as well as the social value of the product. The product served the society to engage in feed production and dairy businesses. For us, it led to the inclusion of 56 new clients in our provision of loan and savings services. Furthermore, the bank obtained a 20% loan guarantee fund, enhancing our financial capabilities.

What kind of partnerships do you believe are most supportive of systemic change in the future?

Understanding the different types of partnerships and how they work is an essential part of building effective partnerships. In my view, the most supportive type of partnership is the public-private partnership, as it allows the private sector to play a significant role while involving the public sector in a complementary manner. Additionally, I recommend the formation of strategic alliances as they typically involve two companies with complementary products or services, working together to expand their market reach. Forming alliances with other companies provides access to new markets and additional resources, which can be instrumental in achieving systemic change.



Forming alliances with others provides access to new markets and additional resources, which can be instrumental in achieving systemic change.



Integrating technology, market development and insurance schemes in drought-affected pastoralist communities

Project Title: Innovation For Resilience in Dasenech
Location: Dasenech Woreda, South Omo Zone, South Ethiopia
Implementation Period: November 2020 to January 2023

The livelihoods of pastoralist communities in South Omo Zone are primarily dependent on livestock. They are challenged by recurrent droughts and floods, as well as socio-economic challenges. Access to water for food production and animals affects households' resilience to climate change. Although the Omo River runs through the region, its use for irrigation or other uses of the water is difficult, as the river's water has a very low flow.

This project introduces three interrelated interventions. First, they used a Market Systems Development (MSD) approach in the goat value chain. To increase market access, decrease dependency on brokers and improve negotiation power, interventions in the goat value chain include the creation of market linkages and information systems; facilitate youth-owned village-level shops for feed and veterinary services, and; link goat producers to local collection centres and exporters.

Second, the project introduced a hydraulic ram pump to access the water of the Omo river. The hydraulic ram pump was installed by the bank of the Omo river but suffered from the lack of water pressure due to low flow. Upon this discovery, a windmill was provided by the local government and connected to the installation, and is able to generate the required water pressure. The installation is functional and was demonstrated to government and communities. Unfortunately, due to the delays this caused, the implementation of the water pump by communities as well as a system for its sustainable use and maintenance, were compromised.

Third, the project introduced Index-Based Livestock Insurance (IBLI). The approach of the IBLI insurance scheme recognizes the necessity of moving away from compensation approaches, towards preventative approaches: Members receive payout before drought occurs, based on predictions generated by satellite imaging of the vegetation in the area. The insurance was offered through the Oromia Insurance Company while the satellite reading is done by ILRI. The project provided subsidies to pastoralist communities who lack capacity for payment of insurance premiums during the drought. Insurance premiums were collected through Village Economic and Savings Association (VESA) of which the members are primarily female, which is expected to increase the impact for household resilience. Prolonged drought made IBLI highly relevant. Still, time and energy were required to gain stakeholder support. The project managed to inform and convince targeted communities, and IBLI resulted in key payouts.

Key Lessons

A continuous and high-quality information flow is necessary for IBLI. A key challenge to IBLI is the accurate prediction. The reading of the satellite image is difficult by nature, and improving its accuracy requires high quality satellite imaging systems. This is not always available, and has a profound impact. For example, if members do not receive payout but drought still occurs, this affects their livelihoods tremendously, and in the longer-term decreases trust in IBLI.

A key future activity for IBLI is advocacy. There is a livestock insurance policy being drafted on the federal level. This policy would strongly support the further development of IBLI schemes and is a key point of attention for actors working on IBLI in coming years.

IBLI insurance increases resilience, but it may not (yet) be a sustainable independent market solution. The insurance scheme is a cost-effective alternative to livestock recovery after drought. However, it is dependent on subsidized membership and independent profitability in times of drought is questionable. However, considering the cost of livestock recovery, the potential for cost-effectiveness is clear. Funding modalities could be considered, for example in a long-term public-private partnership.

When introducing new technology, a flexible but persistent attitude is necessary. Upon installing the ram pump it became clear that it was not functional. A creative and flexible attitude led the project to connect with local government who provided a windmill to address the issue.

A ram pump is an effective measure, but requires steady water flow. Due to its flatness, the Omo river does not generate enough water pressure. Other installations may be more suitable, although attaching a windmill is workable.

Different contextual factors, such as the length of engagement, influence the effectivity of MSD interventions. With a short project duration, the sustainability of MSD interventions can be challenging. In this case, some interventions in the goat market are functional and profitable and expected to be sustainable. Involving youth to open local stores with needed essentials was quite successful and this MSD intervention appears likely to be sustained due to its profitability, small scale and simplicity. However, linking goat producers to exporters posed a challenge due to the limited production capacity of producers. This keeps traders relevant as middlemen in the value chain.



Lead Implementer: CST Ethiopia
Co-implementers: Agri-Service Ethiopia and HEKS EPER

CAFOD Catholic Agency for Overseas Development
SCIAF trōcaire Uniting to end poverty Caritas Scotland

CST Working Together

HEKS EPER



Developing the dairy value chain: innovations for feed, collection and processing

Project Title: Viable Innovation for resilience and Livelihood (VIRAL)
Location: Moyale and Miyo woredas, Borana zone, Oromia
Implementation Period: November 2020 to April 2023

In Borana zone, the resilience of pastoralist livelihoods depends on their livestock. The impact of increasingly recurrent and prolonged droughts affects the extent to which these livelihoods are sustainable and are resilient to shocks. This project focused on the dairy value chain using a Market Systems Development (MSD) approach, supporting 1) the availability and quality of animal feed by introducing hydroponic fodder, and 2) the activities of milk collection centres by building capacity and introducing milk collecting, storing and processing methods. This approach also supports women's economic capacity, who are traditionally engaged in milk collection and processing.

Milk collection centres and a milk processing unit were provided with training, resources and equipment to store and process milk, produce yoghurt, and increase shelf life, and were connected to a local financial institution. During this time, many areas in Ethiopia, including Borana, were hit with a severe drought that continued for years. Much of the livestock in the area died or were sold at low prices, while remaining cattle did not produce sufficient milk to fuel the dairy value chain. This created a huge challenge for communities. Key choices were made to maintain the organizational units of dairy businesses and diversify their income until dairy production could be continued. Members managed to keep the businesses intact, while having received the knowledge and resources to further engage in dairy when this becomes possible.

The introduction of hydroponic fodder aimed to provide animal feed during dry seasons, and high-quality feed for fattening, and increase milk production. As a drought-resistant feeding option, the new technology was very useful



in this time and context. Targeted households produced hydroponic fodder and fed it to their livestock population during the drought. Many of these households also received support in diversifying their livelihoods during drought.



Key Lessons

Hydroponic fodder has great market potential, currently as a seasonal business. Hydroponic fodder was a simple, effective tool to generate fodder during drought, and received a lot of interest from government and private sector. It requires little input (e.g. water) and technical skills. The most important aspect to consider is the availability of improved seeds to ensure optimal production. The uptake thus far remains limited to seasonal use or during drought. The pastoralist cultural context is relevant here, as they prefer to feed their cattle through foraging. Future activities could focus on the use of hydroponic fodder for fattening and improving milk yield.

Combining technical training with demonstration supports adoption. Demonstration of innovations is key in the adoption process. For the introduction of hydroponic fodder, technical training was provided. This effectively increased the technical knowledge of the product, while the use of demonstration sites made a great impact on the acceptance and adoption of its use.

Demonstrated success increases sustainable stakeholder engagement. The demonstration of the simplicity and success of hydroponic fodder captured the interest of local government, who are committed to scaling up hydroponic feed to all pastoralist zones in the region. In addition, the success of the milk collection and processing centres, including the high level of loan repayment and the diversity and potential of business plans motivates the continued engagement of financial institutions and government alike. Other NGOs are starting activities in the milk collection and processing sectors as well.



Supporting commercial dairy production requires essential technologies. It can be challenging to provide dairy products with a quality and consistency required to commercialize the product. In this case, quality checks were done with devices provided by the project. When engaging in the milk value chain, the possibilities should be properly and realistically considered and devices like this need to be available.

Flexible management is key for effective MSD. Flexible management and continuous adaptation to the changing context were key in maintaining the dairy-based businesses during the drought. This included the capacity to support businesses in income diversification, and the option to change project activities based on emerging challenges.

Co-financing increases ownership. One of the core principles of the project implementation was a co-financing mechanism (23-42%) on project-supported supplies. This built shared ownership and responsibility among communities.

MSD in the dairy value chain can support gender inclusion. An unanticipated potential benefit of hydroponic fodder is for women and children, who are responsible for the care of small ruminants around the household, and often travel far to access food. Hydroponic fodder can limit time and effort spent on gathering, transporting and storing feed from remote grazing areas. Further, selecting the dairy sector made women's participation easily accepted.

Loan repayment can be supported by different activities and modalities. Loans provided to beneficiaries through Sinqee Bank included a monthly repayment schedule and a high rate of female loan applicants. The low default rate is attributed to a good monitoring relationship with the loan provider due to the monthly repayment scheme, and it is argued that women tend to handle loans more responsibly.

Lead Implementer: HEKS/EPER
Co-implementers: Dorcas Aid and VSF



A social contract for ecosystem preservation: Creating a win-win solution for Integrated Land Management

Project Title: Sustainable Utilization and Conservation through Compensation for Ecosystem Services in Abay Basin, Tana Sub-basin, Koga Irrigation Dam (SUCCESS)
Location: North and South Mecha woredas, West Gojam zone, Amhara
Implementation Period: October 2022 to October 2023

Land degradation is a pressing issue in Ethiopia's highlands. Around the Koga dam, soil erosion in the upper catchment causes damage and limits the amount of water that passes through the dam. Integrated Land Management (ILM) is difficult due to its high cost, and a lack of individual and institutional capacity and motivation. The ongoing situation for downstream water users is therefore deteriorating, and the potential to generate irrigation water is limited. This project uses a Compensation for Ecosystem Services (CES) approach. Through negotiation and contracts, upstream watershed management is financed by downstream users, creating a win-win situation that builds mutual responsibilities and benefits.



The project experienced unfortunate delays due to insecurity in the project area. First active in Wag Hemra, the project was forced to relocate. After this, further insecurity challenges caused additional delays. Within the limited time available, the intended project impact was difficult to achieve. Nonetheless, the project engaged in land and water restoration activities with upstream communities; supported institutional capacity building with watershed cooperatives, communities and governments; implemented multi-stakeholder platforms and dialogues; engaged in contract negotiations with up- and downstream water users; and developed guidelines and training material.

Ecosystem Services Valuation guidelines, training material and CES draft guidelines that will be further developed. Watershed cooperatives and local and zonal government are connected through dialogue platforms and engaged in the effort. Moreover, downstream Water Users Associations have committed and signed to support ILM activities in the upper catchments through in-kind and/or cash contribution. Due to the challenges and delays, official signatures between the ecosystem service providers and users are still pending.

Key achievements of the project include institutional capacity building; providing baseline data on a broad range of indicators; informing and convincing communities and government of the CES ILM scheme; a Cost-Benefit Analysis of the CES scheme;



Key Lessons

CES requires a strong knowledge system to select, learn, convince and build trust. To convince water users and other stakeholders of the CES scheme and build trust among stakeholders, evidence-based arguments are key. In this project, multiple dialogues involved different stakeholders including academics, to make sure all concerns and questions could be addressed. Second, a significant amount of information is required before implementation, including the selection of sites and stakeholders, a cost-benefits analysis, and a valuation of ecosystem services. Finally, a rigorous M&E system that combines indicators of socio-economic, institutional, and biophysical characteristics is a critical component of the scheme. CES must use different technologies (e.g. hydro-sedimentology gauging stations and automatic weather stations) to generate evidence-based information and was already supported by observable facts (e.g. reduced water flow and the colour of the water that is affected by sediment).

The selection of a strategic location is key. A CES requires the right people, government institutions, and natural environment. Helvetas has identified key criteria for selection of a location for CES implementation, which is an additional output of the project.

Open dialogue is more effective when combined with institutional capacity building and can have positive spillover effects. The CES system is quite novel and goes against what communities generally expect from NGO interventions. It is key to recognize this and respond accordingly. An innovation like this requires time, concerted effort, and open multi-stakeholder dialogue. For a productive dialogue, it is key to assess and build capacity so that all actors and institutions are well represented in a discussion

and engage with full understanding of its contents. This project used a broad range of tools and maintained an open dialogue with room for questions and comments to be answered by researchers and other relevant experts. The platforms that were created in the project are also being used for discussions on other topics, and the open dialogue appears to have brought upstream and downstream users closer.

Stakeholder cooperation is often dependent on individual factors and requires flexibility. In many cases, the impact made through stakeholder engagement rests on the shoulders of a few highly motivated individuals or departments. In this case, some (levels of) government actors were more difficult to engage than others. A flexible and dedicated approach eventually found motivated government representatives that were able to influence other departments/offices. Continued engagement with a flexible attitude further built the relationship. A key challenge related to this is staff turnover, which makes the sustainability of the engagement more complex.

CES may require economic capacity building among water users. The innovative system raised the interest of a wide range of stakeholders and shows promise (e.g. the willingness to pay from downstream users is a key achievement). However, the payment capacity of downstream users to pay the full amount of upstream ILM activities is likely to be limited. Therefore, implementers need to consider the payment capacity in the design of a CES. Activities could be combined with income generation to increase the viability and sustainability of the system.

Lead Implementer: HELVETAS Swiss Intercooperation

Co-implementers: Ministry of Water and Energy and World Resource Institute (WRI)



Resilient food systems: Addressing malnutrition and environmental challenges

Project Title: Enhancing Resilience of Livestock-based Systems in Afar and Eastern Amhara through Integrating Tailored Dryland Innovations (ELSAT)
Location: Ebinat and Tach Gayint woredas, South Gondar zone, Amhara
Implementation Period: November 2020 to October 2023

Communities in the Ebinat and Tach Gayint woredas of South Gondar experience entrenched malnutrition caused by micronutrient mining in the soil (i.e iron, zinc). There is low grain concentration of micronutrients in the area and an overall prevalence of Zinc deficiency (72%).

The project engaged in two main activities. The first is to introduce and promote nutrient-dense and fast-maturing dry land grain and fodder crops into the seed system. Since these crops have a high nutritional value, weaning food recipes are prepared and integrated into the health packages to address malnutrition amongst children. For continued supply of improved nutrient dense and early maturing varieties, the project supported the national agricultural research breeding programme for the continuous release of nutrient rich varieties of pearl millet germplasms This includes introducing new biofortified germplasms that are rich in iron and zinc.

Second is the design and construction of low-cost flood spreading weirs to decrease the impact of drought and temporal variability of moisture using flood-based farming practices. Together

with local experts and farmers the partners identified flood hot spots or occurrence of flash floods, conducted a hydrology analysis and designed the low-cost spreading weirs. Construction was done through a public work approach, meaning that community members were engaged in construction to generate some income. The project also established a community-based organization for flood irrigation management.

The project was initially designed to be implemented in three woredas of Wag Hemra in Amhara, and two woredas in Afar. However, due to the conflict in Northern Ethiopia, it was forced to relocate. The new target locations were selected following a detailed assessment, selecting an area with similar conditions. Discussions and collaborations with government offices and other stakeholders helped the project enhance project design, implementation and properly package the innovation elements.

A core element of the project strategy is co-creation and collaboration to achieve systems change and assure sustainability. It has established an innovation platform at zonal level which brought together organizations and government offices that are active in similar interventions. The platform uses offline events and social media (Telegram) for linking and learning. At end of project, the innovation platform members developed a mainstreaming plan to scale the innovations.





Key Lessons

Previous experience and expertise support the piloting process. ICRISAT is an international agricultural research institute with specialized expertise and practical experience in dryland innovations through intensification and delivering of dryland seed variety and climate resilient practices. In addition, in collaboration with other partners, it has implemented a similar construction of flood spreading weirs project in Afar region. These helped the project to enhance activities and easily interact with stakeholders, despite challenges and delays.

Combining a public work approach with low-tech solutions can support knowledge transfer. The project engaged local communities in constructing the flood spreading weirs by employing cash for work using a public work approach. Beyond the incentive, the additional income, the community members earned, they have learned how to construct low-cost flood spreading weirs.

Well-structured innovation platforms can serve as best opportunities for learning and to achieve systems change. Experiences, challenges and lessons are being frequently shared among members of the innovation platform created by the project. This has the potential to influence the system, policies and ways of doing of other stakeholders for a better promotion and adoption of innovations.

Linking up to other activities in the project context can create synergy between different development activities. The project achieved to work with and involve the Sekota Declaration Program (a larger project working on malnutrition) and the Public Safety Net Program operated by districts together with FHE. It is a successful buy-in which assured continued support and delivery of scalable nutrition sensitive agricultural practices and seed systems.

A flexible approach is necessary when working in an unpredictable context. In response to changes, the project changed initially targeted locations, and redesigned the project design to focus on achievable objectives. For example, establishing a community seed system was initially one of the objectives of the project. Now, the project brings in seed producers enterprises like Gunna Union to be part of the innovation platform to showcase new nutrition sensitive crop varieties and create demand for delivering seeds.



Lead Implementer: ICRISAT
Co-implementers: Wollo University



Transforming coffee waste into clean energy and economic opportunity

Project Title: Sustainable clean energy access for rural women

Location: Berbere woreda, Bale Zone, Oromia

Implementation Period: November 2020 to October 2023

Berebere woreda in Bale zone is known for its coffee production, natural forest cover and rich biodiversity. However, the rate of deforestation is high due a high rate of population growth, leading to high firewood and charcoal demand. The local community heavily relies on these energy sources for cooking and baking. The district is also known as the major supplier of charcoal for Robe and Goba towns. The coffee processing industry produces a huge amount of coffee, which is dumped in the area without any economic benefits, generating methane and fires throughout the year, causing air pollution. Meanwhile, communities experience high unemployment rates, especially among women and youth.

This project uses these husk as a resource for production of briquette charcoal to replace the use of firewood and charcoal and thereby reduce deforestation, create job opportunity for women and youth and bring economic prosperity and well-being. It was designed to produce and disseminate briquette charcoal from coffee husk as a sustainable energy source and to manufacture energy efficient stoves for the charcoal. Initially, the idea was to produce metal stoves but due to price increases on metal the option was replaced by clay stoves.

The project introduced a highly efficient carbonizer that suited for coffee husk, a milling machine for the char and extruder that mould/press the char in to a bar of charcoal. For promotion and initial marketing, OCFCU bought the briquettes and distributed them across community or free. This created income for youth and women, and created an opportunity to introduce the product and creating awareness for the new business.

Local government was strongly engaged in the project and has strong motive to handover and ensure sustainability after the project ends. They planned to support large scale producing and dissemination of the charcoal briquette in the project area and neighbouring regions. They were engaged in overseeing, licensing, and monitoring the activities of the briquette-making association while offering technical assistance, and have allocated land for



energy production centres, and shade/shop for demonstrating and selling briquettes. Furthermore, the woreda Climate, Environment, and Forest office have conducted awareness raising campaigns, undertaken capacity-building activities, and advocated for renewable energy and energy-efficient technologies.





Key Lessons

The technology for briquette charcoal production from coffee husk is very effective. The machinery used in this project produced an effective, marketable and sustainable renewable cooking product (charcoal) that was well-accepted by end users. It also proved that the coffee husk is a renewable resource for household energy.

The choice between imported machinery and locally sourced machinery is a key consideration. Using imported machinery in this case resulted in a highly effective process of briquette pressing. However, importing is time consuming and costly, and often results in a lack of capacity for maintenance and/or repair. In addition, the machinery required the installation of a power transformer. It could be useful to develop a low-tech machine that can be produced locally.

NGO involvement can be a good stepping stone for creating a market. Sustainable market development is the next step to develop a value chain. The initial market for the briquettes is NGO-based, where OCFCU buys the product and distributes it in communities freely. This worked well to test and promote the new product. Next step would be to further develop the value chain and exit strategy.

In a context where inflation and price changes are relevant for project inputs, it is important to be flexible and adapt. In this project that is mostly related to the cooking stove objective. While the project could have continued producing metal stoves, this would have affected the financial viability of the market intervention. Opting to change to clay stoves was therefore a realistic adaptation of the project activities.



Lead Implementer: Oromia Coffee Farmer Cooperatives Union (OCFCU)
Co-implementers: HoAREC&N



Interview with knowledge institute partner

Dr. Girma Beka Lemu

Dire Dawa University, Institute of Technology

Assistance Professor, School of Electrical and Computer Engineering Department

Dr. Girma and his team developed the machinery used for the removal and processing of the Prosopis plant, in the project “Integrated Prosopis Management” led by OXFAM (page 26). Beyond teaching and research, Dr. Girma is the director of research and technology transfer, and engages in community service activities. We asked him about his engagement with the project, and his views on cooperation between NGOs and universities.



“We were inspired by the opportunity to solve a major community problem.”

How did you get involved in the project?

This is an interesting story: We heard about this project from our collaborators at the Ethio-Italy Polytechnic College and met the project coordinators. They explained that Oxfam was working on a new integrated approach to Prosopis management in the Siti zone of Somali region, under the RESET Plus Innovation Fund. The next day they invited us to visit their project site: a solar farm in Siti zone. During the visit, Mr. Azaria Berhe (WASH and Solar specialist at Oxfam) informed us that the solar farm worked once or twice a day, but remained idle for the remaining time. He invited us to come up with innovative technology to increase the efficiency of the charcoal production process, using Prosopis. I gathered a team of 5 staff members from DDU with a background in electrical engineering (Mr Rtea Degefa and myself) and mechanical engineering (Mr. Mulualem Hailu, Mr. Habtamu Swuale and Mr. Henok Abebe).

Can you describe your activities?

After putting together our team, we delved into the design and development of a mini prototype for the electrical carbonizer. After some weeks we determined that it functioned according to our expectations, and demonstrated it to the Oxfam team. They were inspired by the result and asked us to design it at full scale, and to change the single phase to a three phase power supply without neutral line. Thus, we designed and fabricated a 4 KW three-phase electrical carbonizer

without neutral line. However, one challenge remained: the machinery was operational when linked to the power grid, but needed to function on solar energy. With confidence, we started testing the machinery at the solar farm and were successful: The prototype machine shows an efficiency of 42%, which is by far better than the traditional charcoal making machine. After relentless engagement from Oxfam and our team, we found our innovative solution to Prosopis management: a solar-based carbonizer that can be locally designed and fabricated, at DDU.

For me, the cooperation was a special one because throughout all this work and testing prototypes, we did not receive any financial support from Oxfam. We were inspired by the opportunity to solve a major community problem and therefore our motivation was strong. Upon delivery of a functional product, we ended up signing a contract and received funding. With that, we further developed our prototypes, which have since improved a lot.



What are key challenges for DDU to engage in projects like this, and to keep a strong engagement?

Looking at the university mandate, there are no challenges - the mission of our university is to produce competent graduates (teaching mandate), engage in problem-solving research and development (R&D), and provide demand-driven support to communities to support Ethiopia's vision. In addition, one of the core values of DDU is social responsibility. Nonetheless, we experience technical and financial challenges. In this case, the first challenge was time. We did not meet Oxfam until the end of their first year of implementation, and did not have enough time to come up with alternative technology. Second, it was difficult to manage in terms of budget. As we all know, universities have a limited budget to work on extensive research and technology transfer, and to access that budget means we have to go through all procedural steps. Third, it was challenging that our previous experience in R&D and technology transfer are limited to working on a laboratory scale. We lacked some experience solving practical, real-world problems. Now, because of the budget support we got from Oxfam, we developed commercially viable technology and transferred it to the community.

At DDU we have the capacity to work in different specialized fields, with NGOs, the private sector or any other stakeholder. We can offer innovative ideas and solve practical problems. It would be especially interesting to work on projects where we have some additional budget and time. I think the best option is to develop proposals together, as part of a consortium.

What motivated you to stay engaged despite many challenges, and what did Oxfam do to support you in this?

We worked with Oxfam without any formal agreement until the second electrical carbonizer prototype was tested at the solar farm. This shows we started with a committed team, which I really appreciated. A first motivation was that we were eager to solve real, practical challenges to communities instead of working on a laboratory scale, after which we file the papers on a shelf. Another was that we wanted to increase the visibility of Ethiopian academics' role in development projects, look for further collaboration and engage in solving community challenges. Finally, we were strongly motivated by the commitment of the Oxfam team. It was amazing, they visited the project day and night, invited their partners and other stakeholders to give us comments, and thereby really improved our visibility. They also provided funding when we delivered a useful machine, and embedded cooperation between Oxfam, Mermersa kebele, Shinile woreda and the DDU in a Memorandum of Understanding (MoU), for technical and financial support. The MoU establishes a framework agreement between the parties on the technical support to be provided by the different parties, for two years. Through this cooperation, I think we have learnt a great lesson on how NGOs, the private sector and other stakeholder can collaborate successfully, and how this leads to great results.

What are the impacts of your collaboration with Oxfam?

To be engaged in a national issue like Prosopis management is a great opportunity for us. Our visibility for engagement in such projects has increased. Further, it is an innovative and effective approach that has so much potential to solve community challenges, we are sure it has a bright future. And although we have not secured funding yet, we are receiving many requests for the production of the machinery. We continue to search for funding to scale up the production.

What would be an effective modality for future cooperation between knowledge institutes and NGOs?

In Ethiopia there are many development projects. However, once a project is completed there is a sustainability issue. I think the situation would improve if someone takes responsibility for the continuity of the projects. As higher education and/or knowledge institutes are located close to the project area, it is better to link the universities with development projects starting from proposal development, to the final project implementation. Universities can then contribute to R&D and technology transfer, while having ownership in the project and secure its sustainability after the project ends.

A multi-stakeholder approach for Prosopis management and technology development

Project Title: Integrated Prosopis Management

Location: Shinile woreda, Siti zone, Somali

Implementation Period: November 2020 to June 2023

The Prosopis plant is an invasive species that threatens agricultural land, grazing areas, and livelihoods in Ethiopia. Managing the plant is identified as a key policy challenge on a national level – planting is prohibited. In Somali region, Oxfam used an integrated and market-based project design to create a youth- and women led Prosopis value chain in pastoralist and agro-pastoralist communities.

The project developed a solar-powered electrical carbonizer for sustainable clean cooking solutions, and a solar-powered grinding mill for the production of animal feed. The technology successfully converts solar energy into heat that can be used to increase the efficiency of the carbonization process, a knowledge that can be applied to other purposes as well. The machines were designed to create marketable products that female and youth-led cooperatives can use to access markets, while simultaneously freeing up agricultural land for fruit- and vegetable production and grinding the Prosopis seeds to limit their further spread. Finally, the project offered advice on crop- and forage varieties.

The project worked closely with the local government, knowledge institutions and the private sector to design the machineries. Dire Dawa Poly Technic College, Dire Dawa University, Ethio-Italy TVET College, Jigjiga University, and Haromaya University were involved in the design of the machinery on a no-cure-no-pay basis. They managed to develop machinery that has gained the interest of private and public sectors alike. Dire Dawa University has taken up the responsibility of developing and implementing the technology further up to producing a solar-powered large-scale carbonizer, while private sector actors are starting businesses elsewhere.



A number of key challenges caused delay in the adoption of new technology. One example of such a challenge was that technology from imported water pumps was used as the basis for solar-driven machinery. While these water pumps are a useful means of technology transfer, it was not known that solar pumps have a built-in Variable Frequency Drive (VFD), which had to be imported. Such challenges limited the time available for adoption by the cooperatives, which means the project had less impact on the market than originally intended. At the same time, it can be argued that significant results were achieved in terms of systems change. For example, the government is highly involved, universities have started manufacturing Prosopis carbonizing machineries, private sector actors are creating business plans around the machinery, and Jigjiga University is starting a new project to scale up the efforts.

Key Lessons

The Prosopis plant shows great potential to become part of a productive value chain.

The project showed that the plant is widely applicable, from animal feed and cooking briquettes, to (unexpectedly) cement production by the government.

Proof of concept leads to stakeholder engagement. Especially the interest of private sector will contribute to sustained impact, as several companies are starting businesses around the technology. Their interest peaked when results were achieved, and it became clear to private sector actors that the benefits extend beyond the project.

Knowledge sharing is beneficial for product development and to increase impact. The project benefitted much from gaining the expertise of international experts, and by sharing their experiences and knowledge through global media such as YouTube, as well as through national channels such as conferences.

Risk sharing creates ownership and increases productivity. The no-cure-no-pay financing option was accepted and built strong commitment to results among the project partners while developing the machinery.

Choosing context-appropriate solutions increases chances of success. The design of the project was very successful for community uptake, because the idea of a Prosopis value chain aligned with community needs and preferences. The idea also aligned with Prosopis management policy on all levels, which also supported government buy-in.

Innovative technology requires a conducive innovation system. In this case, the innovation system was supported by a strongly motivated group of stakeholders: Government stakes are high, and the private and public actors that were included were highly motivated. However, there were also challenges, such as import dependency, a lack of local expertise and infrastructure, and the policy- and regulatory environment (e.g. of universities).

Innovative activities can strengthen the innovation system by effectively involving local stakeholders. The strategy of this project resulted in new knowledge and capacity of local actors, especially universities and private sector actors, which is likely to have an important impact on future innovative activities.

Flexible timing and project design when combining a technologically innovative pilot project with community impact. Not meeting expectations can do harm in the relationship between NGOs and communities. While the project achieved many successes in technology development and systems change, in the limited project time it was not able to benefit communities as intended. Considering the nature of technology development, in some cases it could be beneficial to separate technology development and innovation goals, from community support goals. In an ideal situation, technology would be designed and tested before being implemented and commercialized.



Implementer: OXFAM



Addressing nutrition and gender gaps with Enset processing technology and market development

Project Title: Enset from living larder to wealth creation for resilient highland communities in southern Ethiopia, Wolaita Zone

Location: Boloso Sore and Damot Pulasa woredas, Wolaita zone, South Ethiopia

Implementation Period: November 2020 to October 2023

Enset (*Ensete Ventricosum*), is a resilient plant and an important, nutritious source of food for many rural communities in Ethiopia. It is a species of flowering plant in the banana family Musaceae. With over 250 kilograms of weight when fully grown, Enset has a lot to give. Kocho and Bula, the most common types of traditional food products, are produced by fermenting the corn and pith from the pseudo-stem. Extracted fibre is used to make rope and a variety of useful and decorative household items. In Wolaita zone, like many Southern and Western Ethiopia areas, Enset offers a key contribution to balance the shortage of (nutritious) food.

Limitations to Enset's potential to improve income and food security include poor production and processing practices, lack of technology, undeveloped market systems, and lack of a supportive policy framework. Traditional methods of extraction and processing result in poor quality, and present a heavy workload for women, whose traditional role it is to extract Enset. It takes a full day and at least eight women to extract one matured plant.

The project introduced innovative extracting and processing machinery and storing equipment. These improve the quality and quantity of production and storing, and significantly decrease the amount of labour required. One person can now extract an Enset plant in less than two hours. With a number of machines and equipment designed and produced by Arba Minch University, the quality of Kocho and Bula products is enhanced – resulting in white and odourless produce which increases shelf life and is positively received by end-users. Introducing and piloting the technologies is done in parallel with the development and integration of the whole Enset value chain.



Activities include organizing, training and equipping four categories of business enterprises composed of youth and women members, namely 1) Enset producing and marketing groups; 2) Fibre, bula and kocho extraction enterprises; 3) Fibre work enterprises; and 4) Bula and Kocho processing, packing and marketing enterprises. In addition to Arba Minch University, the project also involved different stakeholders. For example, Areka Research Centre provided training on agronomic practice and extension services as well as an improved variety of Enset plants, while the Women in Self-Employment Organization (WISE) trained the women in the enterprises on business management.



Key Lessons

Initiating personal commitment and contribution from beneficiaries can create a sense of ownership and enhance the sustainability of businesses. Until construction is completed and technologies are brought and installed, the business enterprises saved weekly and monthly contributions of their groups. Through this, beneficiaries have contributed to the capital and operational costs of their future enterprise, enhancing their motivation, building a sense of ownership and supporting a strong commitment.

The introduction of technology can support gender inclusion. This project provides an innovative approach to significantly decrease labour of women in Enset processing. Men have also shown a new interest to engage in the Enset value chain after learning the new technologies. Hence, subsequent scaling-up and replication interventions could continue to organize, empower and equip both women and men to widely engage in the Enset value chain with these innovative technologies.

Exploring locally available innovations and technologies can be an important advantage. In the initial project design, Enset extraction and processing technologies were to be imported from India. A connection was already established with a company called Industries India, when project implementers learned Arba Minch University is widely engaged in designing and producing similar technologies and machineries. The subsequent arrangement with the university not only saved a significant amount of foreign currency, but also opens a good opportunity to promote local innovations.

Enset processing has the potential to tap broader markets. Quality Enset products have a wider market throughout the country as well as abroad. Promotion of the technologies and achieved results is very relevant so that other enterprises in the country can also acquire them for quality production and lessen the workload.

It is relevant to consider the policy environment, regulation requirements, and capacity of the target groups before incorporating any business model. The project initially planned to establish the business enterprises as private limited companies which was not supported by the legal requirements in this context. Hence, it was required to amend the plan which contributed to a delay in mobilizing the youth and women.

Foreseeing and prior consideration of contingencies can be relevant for interventions that include activities such as construction. COVID-19 caused delay on the construction of processing centres for the enterprises which led to a significant price inflation on construction materials. In addition to adequate project management and follow up, consideration of price increase on such outputs is relevant.



Implementer: SOS SAHEL
Ethiopia

Co-implementer: Christian Aid



Sustainable production and consumption: Re-introducing local crop varieties

Project Title: Building resilience of rural communities in Wolaita through sustainable production, value addition and marketing of local crops

Location: Boloso Sore, Damot Pulasa, Kindo Koysa and Diguna Fango woredas, Wolaita zone, South Ethiopia

Implementation Period: November 2020 to October 2023

In Wolaita, livelihoods are strongly dependent on agriculture. In this rural area, most small-scale and sustenance farmers experience challenges on the household level. One explanation for this is the use of limited crop varieties, unsustainable agricultural practices, and the use of seeds that require a lot of inputs or are of low quality. This challenges household nutrition and economic capacity. The value of certain types of improved seeds for small scale farming has been an issue of debate, as related to their sustainability (need to replant often), required inputs (require stringent use of fertilizer and pesticides), nutritional value and availability of quality varieties. The re-introduction of traditional/local crop varieties is therefore a core strategy of TDA to build household resilience. This is expected to improve the economic and nutritional value of smallscale crop production.

The project used a three-pronged strategy. First, it promotes sustainable production of local/traditional crops through Conservation Agriculture Approaches (CAS). This approach recognizes the importance of preserving natural resources while fostering crop productivity. The project supported farmers through training and demonstration sites to adopt CAS techniques such as minimal soil disturbance, cover cropping and crop rotation. This also includes the re-introduction of local crop varieties. A key strategy is the promotion of such crops and agricultural practices in farmer training centers (FTCS) and in schools, targeting young people and children with awareness and information campaigns, and using different media such as radio.

Second, farmers were supported in value addition and marketing. Through value addition techniques and increasing shelf life (e.g. dried spice mixes) combined with marketing, the project set out to increase farmers' economic opportunity. Third, the project engages in lobbying and advocacy towards government policies and programs that support the promotion and protection of local crops.



Key Lessons

Long-term engagement can support a sustainable impact. TDA has been working on this topic in this region for over 20 years. Their connection to local communities and government strongly enhanced their overall impact. For example, prolonged engagement with the government has resulted in a commitment to promote local crop varieties. This is formulated in an action plan, which includes the training of 350 Development Agents (DAs) at its own expense, starting this year. Moreover, the local government took the initiative to arrange visits for 45 local schools that were not initially targeted by the project, at FTCs. Finally, local government agricultural offices have now included the promotion of traditional crops and conservation agriculture in their routine farm monitoring checklists.

Targeting young people through schools can be meaningful for a sustainable impact. The program had a strong focus on the promotion of CAS and using local crops. To target primary schools is not a common approach for such activities, but has reaped interesting results in terms of the long-lasting impact of the intervention, affecting a change in attitudes towards local seeds. Schools have taken ownership of the innovation, increasing awareness of biodiversity among students, with the aid of school biodiversity clubs and other students.

Value additions are useful to increase marketability, but products require targeted marketing efforts in the right markets. Cooperatives have been able to access local markets with their crops, which are easily marketed in the area. Another one of the key value-added products is a dried mix for spiced coffee leaf which is a commonly used tool to improve health in the area. However, its marketability in the direct vicinity of farmers is limited because of its broad availability. The branded, standardized product may be fit for export to other regions or countries.

The integration of indigenous knowledge and practices with new technologies is key to ensure sustainable agriculture and improve household nutrition and resilience. Smallholder farmers already grow and consume local/traditional crops, but these practices are becoming more uncommon and unsustainable due to climate change, unsustainable farming practices and limited support from the extension system. The farmers were trained to integrate and grow local crops in CA system (which maintains soil fertility & moisture), which is likely to enable them to restore the use and availability of local crops and achieve increased and diversified crop production. This can be used to raise household income and nutrition.



Implementer: Terepeza Development Association
Co-implementer: Send A Cow



Women entrepreneurs improving vaccine delivery for pastoralist communities

Project Title: Thermostable PPR Vaccine Distribution and Delivery Model (VDDM): Synergy of Technical and Social Innovations for Enhancing Uptake of Business-Driven and Gender Inclusive Vaccines to Empower Women (GIVE-Women)

Location: Aysaita, Elidar and Afambo woredas in Afara and Ayisha, Erer and Shinile woredas in Somali

Implementation Period: November 2020 to January 2023



In Somali and Afar region, pastoralist communities are dependent on their livestock. This includes cattle, but also smaller ruminants such as sheep and goats. To keep livestock healthy and avoid outbreaks, vaccination is essential. Currently, pastoralists are primarily dependent on free government vaccination programs that suffer from budget and institutional constraints, causing deficits in timing and accessibility. Main challenges include unsustainable and delayed vaccination, lack of cold chain materials for thermolabile vaccines, the absence of a functional private sector, and the remote locations and migration patterns of pastoralists. Poor service delivery results in disease outbreaks and therefore

challenges communities' assets and economic opportunities, affecting pricing and causing bans for livestock transport and sales.

This project introduced a market-based solution to improve the vaccination system for small ruminants by designing an inclusive, profitable vaccine value chain. Two market actors played a key role: One Private Veterinary Pharmacy (PVP) owner was selected per district to serve as a strategic vaccine node and facilitate the vaccine delivery. They received training and in-kind support for capacity building. Second, they selected 10 women per woreda as vaccinators to receive cold chain and vaccination materials, as well as training and guidance on how to deliver the vaccines and engage in the business. Government involvement was key to the project. They played the regulatory role and it required them to stop free vaccine programs in the targeted area. Due to policies to offer vaccines through public-private partnerships and budget deficits to manage the vaccine program currently, cooperation was granted.

A number of challenges were faced during the implementation of the project. First, up to this point, the trust in the vaccine business model was low due to the challenging business environment, and dependency on free vaccine programs which limits the willingness to pay for services. Second, the project did not access a thermostable vaccine. Third is the small geographical scope. This created a limited impact and also causes some interference from free vaccination programs in nearby areas. Finally, it was an initial challenge to find acceptance for women, who are not traditionally involved in veterinary services, to engage in an activity that requires time and travel, as well as some measure of physical strength. The project selected women due to their traditional engagement with small ruminants, and the potential benefits of women's economic advancement and empowerment for household resilience.

Overall results include a vaccination wing for vaccine delivery, a piloted healthcare and outbreak response, a vaccine value chain tested end-to-end, and involvement rural women and veterinary pharmacies resulting in job- and income generation. A notable change is the proven value and acceptance of women as vaccinators.

Key Lessons

Dependency dynamics and reluctance to pay for services should inform project design and timing. For awareness creation on the vaccine value chain, it is key to give communities time to 1) see the effects of the vaccine, 2) to convince of its necessity (presenting the business case for vaccination), and 3) start with those most willing, to show the effects and convince others for the next, larger, vaccination round. Continuous dialogue and community sensitization campaigns with the clan leaders, elders and kebele administration enabled the acceptance of the vaccinators. Mass media as well as strategically located posters were useful methods to spread news about vaccination opportunities and inform on the benefits and opportunities of paid vaccines.

Paid services for pastoralist communities require a strategic, door-to-door approach. To be attractive, these services need to be of high quality, flexible, timely and well-informed. This requires a community-based and interactive information system that follows the migration system and combines awareness creation and knowledge sharing. The added value of private sector involvement is the ability and motivation to deliver with timeliness, quality, and flexibility.

Women are strategic actors in the vaccine value chain. Women's engagement revealed some important benefits. First, involving women helped convince peoples willingness to pay because they are more trusted. Second, project staff indicates that women used the economic opportunity to support their households. Third, beyond the training provided, women shared a lot of useful indigenous knowledge on the health and husbandry of small ruminants. Finally, a common assumption is that women are too engaged in other tasks and have no time to engage in any other business. At the same time, project staff observed that at job registration offices in this region, there are long lists of female job seekers in the area, which may suggest their desire to be involved economically.

Policy change and/or public-private partnerships are essential to further the vaccine value chain. On the current scale, communities will still have the option to take livestock to nearby kebeles and access vaccinations for free. For the vaccine value chain to be scaled up, it needs a conducive environment on a regional or national scale (e.g. policy alignment with, or cancellation of, free vaccine services) in the context of a public-private partnership.



Implementer: Vétérinaires Sans Frontières - Suisse

Co-implementer: Vétérinaires Sans Frontières - Germany



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Picture: Women providing vaccination service, Ayisha, Somali region | *Vétérinaires Sans Frontières - Suisse*
Camera: Gizaw Legesse, Fair & Sustainable Ethiopia



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