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Scaling Up Fodder Innovations to Catalyse Agricultural Systems Transformation in Southern Ethiopia

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Key messages

- This InfoNote shares project experiences of scaling up fodder production in southern Ethiopia as an entry point to catalysing agricultural systems resilience and landscape transformation.
- The fodder innovations build on 20 years of experimentation on soil & water conservation work in the region by Inter-Aide and various development partners to refine the design and delivery of the technology.
- Earlier versions of the technology, however, saw low adoption in part due to limited engagement with social relations to translate innovation into a perceived relevant opportunity for end-users.
- Over time, Inter Aide leveraged and strengthened the capacity of various local stakeholders to stimulate community ownership of fodder innovations work and to ensure consistent implementation at watershed levels.
- The process has empowered local actors to champion the scaling of fodder innovations and more, in ways that leverage the agency of beneficiaries to catalyse action on systems change in the management and preservation of natural resources.

Introduction

Agriculture is the pillar of Ethiopia's economy and is predominantly undertaken by subsistence farmers. The sector currently faces risks from a changing climate and rural communities face increasing pressures and vulnerabilities as a result. For over 20 years starting in the late-1900s, Inter Aide France has tested, developed, and disseminated soil and water conservation practices, working with farming families especially in the Southern Nations, Nationalities, and People's Region (SNNPR) of Ethiopia. Among these practices is the multiplication and growing of fodder grasses to control soil erosion, maintain soil fertility and increase feed for livestock.

From 2020, Inter Aide in collaboration with various partners, i.e., community-based organizations, local government authorities from the Ministry of Agriculture, and the CGIAR has been expanding this work under the project: Developing and Protecting Mountainous Watersheds to Improve the Resilience of Farming Families.



The project aims at improving the resilience of rural farming families and to preserve the natural resources of mountainous territories of Southern Ethiopia, targeting about 40,000 households (240,000 people) located in three administrative Zones of

Kembatta-Tembaro, Hadiya and Wolayta SNNPR within SNNPR, for a period of four years from 2020-2024. The project mainly focuses on the dissemination of proven CSA practices on soil and water conservation, fodder production, soil fertility management through legumes associations and green manure introduction, and agroforestry systems.

This InfoNote shares project experiences of scaling fodder innovations in southern Ethiopia as an entry point to catalysing agricultural systems resilience and landscape transformation. The project combines the diffusion of fodder grasses, integrated into farming systems, with strengthening local leadership and community engagement in the management of productive resources. As such, local institutions and end-users have been involved in project planning and implementation to ensure participatory decision-making and inclusive learning. To date, more than

37, 000 farming households have adopted the fodder innovations, enabling them to rehabilitate over 4,000 km (5, 900 ha) of degraded agricultural landscapes, using promising climate-smart agriculture innovations validated through rigorous experimentation over many years, and relevant to perceived needs and to available local resources (InterAide, 2020).

Addressing an urgent problem with an innovation refined over 20 years

There are various interconnected components that determine smallholder farmers' uptake of innovations as well as potential to realize meaningful impacts at scale from agricultural development interventions. One key component is a deep understanding of the context under which an innovation is implemented, including ascertaining whether a solution will address an important problem that is recognized as such in the local context. Another vital component is to involve intended beneficiaries throughout the design process of an innovation to help embed it within household and community structures, material conditions and symbolic practices (Glover et al., 2017). This later factor is especially crucial for unlocking the affordance of agricultural



innovations, which has to do with harnessing opportunities that enable (or constrain) the agency of different kinds of people, including intended beneficiaries, to act upon or use an innovation (Glover, 2022).

In the mountainous areas of southern Ethiopia, rural communities in Kembatta-Tembaro, Hadiya and Wolayta administrative zones practice mixed cereal-livestock farming on steep topography and on small family farms, of about 0.5 hectares. Over the years, agriculture in this region has been exposed to climate change and variability, through late onset and early cessation of rains, as well as more frequent droughts. The area also suffers from intense soil erosion and loss of soil fertility. These climate- and agronomic challenges have contributed to declines in crop yields, as well as recurrent food and fodder shortages, making food insecurity a chronic problem for rural families in this region (CTA, 2018).

In response to some of these challenges, Inter Aide started to pilot several soil and water conservation practices, initially, soil bunds (embankment-and-ditch structures) on farms to control soil erosion and water-run off and improve soil fertility. These soil bunds were then planted with Desho grass (*Pennisetum pedicellatum*) vetiver grass (*Vetiveria zizanioides*) to retain the fertile topsoil on the structures and to aid water infiltration. Although this initial package sought to address a crucial local challenge, it was not widely adopted among farming families. There were challenges as vetiver plantlets where being multiplied in a central nursery maintained by the project (CTA, 2018), which initially restricted the numbers of farmers that could access the technology, and those that did saw relatively low survival rates of the plantlets. Low adoption of this technology could also be attributed to the limited use of vetiver, which cannot be used as forage for livestock. A closer look further suggests that the early design of anti-

erosion technologies had not adequately configured or harnessed situated social and technical relations to translate innovations into a perceived relevant opportunity that is useful, accessible, and realistic for the target beneficiaries (Glover et al., 2019).

Over time, Inter Aide leveraged and strengthened the capacity of various local stakeholders to co-create and disseminate different fodder innovations, such as desho grass (*Pennisetum pedicellatum*), integrated into existing legume cropping systems as an entry point to improve farming resilience while preserving entire watersheds. Working collaboratively with community-based organizations and local authorities, Inter Aide helped to establish communal nurseries for the large-scale production and supply of planting material and seeds (i.e., riparian grasses, legumes, hedges, and trees). The location of such nurseries at the Kebeles¹ has allowed easier access to planting material even for isolated farmers in remote mountainous areas, who can source the vegetative materials communal multiplication sites for direct planting or to start their own backyard nurseries.

These efforts have seen a progressive increase in the uptake of diverse fodder innovations in the communities where the project operates, with adoption rates occurring especially rapidly over the last two years (Table 1). In 2004, only 204 households were engaged in fodder production, covering 58 kms with vegetative structures (CTA, 2018). Ten years later in 2015, 13,960 households had adopted the technology, covering over 2,000 kms (more than 20,000 hectares) of anti-erosive agricultural landscape structures with fodder grass. Today more than 37,000 farming households have adopted the fodder innovations, enabling them to rehabilitate over 4,000 km (5,900 ha) of degraded agricultural landscapes.

¹ A kebele is the smallest government administrative unit in Ethiopia, which is like a ward in other countries in the region.

Table 1. Fodder Innovation Uptake by Farming Households

Major Indicators	10 years	5 years	2 years	Total accomplishment in 17 years
	2004 – 2015	July 2015 – April 2020	July 2020 – June 2022	
Number of households adopted the practice	13,960	9,039	14,713	37,712
Vegetative fodder hedges established on anti-erosive structures (linear line in kilometers)	2,067	942	1,156	4,165
Total protected fields (total surface of individual holdings)	2,600	1,224	2,163	5,987

The multiplication of fodder materials by farmers in their local communities offered several beneficial affordances, beyond their anti-erosive purpose. The management and use of fodder resources helps household save money from purchasing livestock feeds especially during the dry season, as well as reduce the burden on women and children on the time spent collecting natural grass and forage. Fodder production also enabled farmers, where possible, to increase their livestock heads and to improve their productivity for more milk and calves (Gebermedihin et al., 2019). The economic impact from fodder innovations is estimated at an average increase at least 100 USD per household per year, ranging from the sale of fodder and animal by-products to greater crop diversification (Inter Aide, 2020). Reaching the above number of farming households required the project team to work effectively with multiple key local partners.

Harnessing partnerships to catalyse a scaling environment for systems transformation

Today, the scaling literature appreciates the role of socio-political dynamics in enabling (or constraining) innovations to reach large numbers of beneficiaries as well as to institutionalize successful piloted cases. Indeed, the long-term sustainability of an innovation depends significantly upon engaged partners and local actors with sufficient capacity and resources to champion its vision and ideas (Hartman and Linn, 2008). However, suitability of such partners to effectively support the scaling process depend on several experience competency traits that they hold within local contexts, including professional experience, political agency, and influence (Shilomboleni et al. 2019). Whereas some partners have resource capacities and institutional support to further the scaling process, others may have fewer resources but hold significant trust and respect from local communities or intended beneficiaries. Thus, choosing the right mix of partners requires project teams to understand well

these socio-political dynamics, including how the motives and priorities of different actors as well as power relations can influence the scaling process.

Over the years, Inter Aide has collaborated with multiple partners. Among these were research partners that helped to refine the design and delivery of fodder technological packages, notably CGIAR centers (International Center for Tropical Agriculture (CIAT), International Center for Agricultural Research in the Dry Areas (ICARDA), International Livestock Research Institute (ILRI). Local authorities also served as important partners, initially development agents from the Ministry of Agriculture to facilitate agricultural extension services in fodder demonstration and multiplication plots, exchange visits, and to co-create education and training manuals related to fodder technological packages. Partnerships with these research centers and government institutions, however, largely focused on strengthening the technical aspects of fodder innovations, such as ensuring availability of planting materials, training intended beneficiaries in the use of the technology, etc. Their efforts alone were not able to sufficiently embed fodder innovations at a scale needed to achieve landscape restoration and transformation at a watershed level.

Thus, Inter Aide established partnerships with traditional community-based organizations, notably 'Iddirs' to stimulate community ownership of the soil & water conservation work and to ensure consistent implementation at watershed levels, as well as to establish guidelines to control open grazing for livestock (Inter Aide, 2020). Iddirs are indigenous associations, created primarily as a form mutual aid based on contributions from community members in exchange for material support at times of funerals or other adverse events. While Iddirs have been long recognized as potential interlocutors for participative planning by government entities and development organizations, they are often not integrated into formal institutional structures of innovation networks (CTA, 2018). Inter Aide not only involved

Iddirs in project planning and implementation activities but facilitated their engagement with I

CONCLUSION

The project Developing and Protecting Mountainous Watersheds to Improve the Resilience of Farming Families being implemented in southern Ethiopia by Inter Aide and partners promotes fodder innovations, integrated into legume cropping systems, as an entry point to catalyse agricultural systems resilience and landscape transformation. The fodder innovations build on 20 years of experimentation on anti-erosive measures in the same region, working with research partners to refine the design and delivery of the technological package. The early versions of the innovation saw low adoption in part due to limited engagement with local institutions and end-users to translate them into a perceived relevant opportunity that could be embedded into household and community structures or over larger territories to achieve impact at scale at broader landscape or watershed levels.

Inter Aide has addressed some of these constraints by involving local actors in project planning and implementation more closely, as well as strengthening collaboration between community-based organizations, notably Iddirs, and local government authorities. The process has empowered local actors to champion the scaling of fodder innovations and more, in ways that leverage the agency of beneficiaries to catalyse action on systems change on building resilient farming systems and durable preservation and management of natural resources at the landscape or watershed levels. A gender and socially inclusive approach to scaling can identify the mechanisms needed to bridge the gap between the wider approaches required to scale innovative CRA and participatory approaches that address the priorities and needs of different groups in society.



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