IFAD10 IMPACT ASSESSMENT

An overview

IFAD
Investing in rural people

Main contributors

Sara Savastano, Aslihan Arslan, Tim Balint, Rui Benfica, Romina Cavatassi, Alessandra Garbero, Athur Mabiso, Adriana Paolantonio, Tisorn Songsermsawas and Paul Winters

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Sara Savastano
Aslihan Arslan
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This overview provides the estimates of corporate impact for the International Fund for Agricultural Development (IFAD) during its Tenth Replenishment Period (2016-2018). IFAD is unique in assessing its corporate-level impact through project-level impact assessments that represent approximately 15 per cent of its portfolio. It uses these empirically based and attributable impact assessments to identify its overall success in reaching targets associated with its strategic objectives and corporate goals. This document provides a summary of these corporate estimates along with the project-level results. Full results of the impact assessments can be found at//www.ifad.org/en/impact-assessment.

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Acknowledgements

This report was produced by staff from the Research and Impact Assessment (RIA) Division of the Strategy and Knowledge Department of the International Fund for Agriculture Development (IFAD). It provides preliminary results of efforts to assess impact for IFAD10 based on IFAD's Development Effectiveness Framework (DEF) and was produced under the general guidance and scientific supervision of Paul Winters.

The report was managed by Sara Savastano and Alessandra Garbero, with contributions from the RIA team members who conducted the individual impact assessments, which were led by Aslihan Arslan, Tim Balint, Rui Benfica, Alessandra Garbero, Romina Cavatassi, Alessandra Garbero, Athur Mabiso, Adriana Paolantonio, Tisorn Songsermsawas and Paul Winters. Special thanks go to Caterina Ruggeri Laderchi for help critically revising the report, Heidi Fritschel for editorial revisions, and Francesca Aielli for design and graphics.

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RIA	Sara Savastano, Mohamed Abouaziza, Federica Alfani, Aslihan Arslan, Tim Balint, Rui Benfica, Peter Brueckmann, Romina Cavatassi, Bezawit Chichaibelu, Antonella Del Prete, Dieynab Diatta, Eva-Maria Egger, Heidi Fritschel, Alessandra Garbero, Daniel Higgins, Marup Hossain, Martina Improta, Kashi Kafle, Michael Keppler, Kwabena Krah, Anja Lesa, Athur Mabiso, Paola Mallia, Pierre Marion, Kristen McCollum, Luna Montozzi, Neha Paliwal, Adriana Paolantonio, Caterina Ruggeri Laderchi, Tisorn Songsermsawas, Laura Luccioli, Silvana Scalzo
SKD	Paul Winters, Constanza Di Nucci, Helen Gillman, Emily Kitongo, Sandra Reyes, Petra Valente
PMD	Donal Brown, Edward Heineman, Perin Saint Ange

APR	Nigel Brett, Bashu Aryal, Enika Basu, Frew Behabtu, Fabrizio Bresciani, Liam Chicca, Tawfiq El-Zabri, Ron Hartman, Sarah Hessel, Hoonae Kim, Liu Ke, Christa Ketting, Tarek Kotb, Matteo Marchisio, Louise Mcdonald, Miyuki Mizunoya, Jerry Pacturan, Sherina Tabbasum, Jeszel Topacio, Omer Zafar
ESA	Sara Mbago-Bhunu, Ibrahima Bamba, Philipp Baumgartner, Shirley Chinien, Ulac Demirag, Henrik Franklin, Mwatima Juma, Dagim Kassahun, Elena Pietschmann, Francesco Rispoli
LAC	Rossana Polastri, Leonardo Bichara Rocha, Enrique Callejas, Arnoud Hameleers, Magaly Luisa Herrera, Carlos Icaza, Joaquin Lozano, Laure Martin, Luisa Migliaccio, Francisco Pichon, Claus Reiner, Tomas Rosada, Paolo Silveri, Hardi Vieira, Paul Villarroel
NEN	Khalida Bouzar, Jepsen Frits, Sara Kouakou, Mikael Kauttu, Sylvia Scho Ilbrock, Abdelkarim Sma
WCA	Lisandro Martin, Valantine Achancho, Ides de Willebois, Sémou Diouf, Hani Elsadani, Vincenzo Galastro, Bernard Hien, John Hurley, Juan José Leguia, Sylvie Marzin, Richard Pelrine, Benoit Thierry
OPR	Jill Armstrong, Maria del Carmen Moyano, Eloisa De Villalobos, Maria Soledad Marco, Lauren Philips
ECG	Ilaria Firmian, Oliver Page
PMI	Richard Abila, Mariwa Chitima, Antonio Rota
ADM	Matthias Meyerhans, Susan Cross, Dmitri Lee, Michelle Latham, Sandro Luzzietti
COM	Cassandra Waldon, Francesca Aielli, Francesca Aloisio, James Edge, James Heer
External collaborators	Juan Bonilla, Joshua Brubaker, Andrea Coombes, Eric Djimeu, Kevin Kamto, Erin Kavanagh, Nancy McCarthy, Mitchell Morey, Simon Mugatha, Nisha Rai, Charles Rakotondrafara, Hannah Ring, Caterina Ruggeri Laderchi, Benjamin Wood
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Note: RIA – Research and Impact Assessment Division; SKD – Strategy and Knowledge Department; PMD – Programme Management Department; APR – Asia and the Pacific; ESA – East and Southern Africa; LAC – Latin America and the Caribbean; NEN – Near East, North Africa and Europe; WCA – West and Central Africa; OPR – Operational Policy and Results Division; ECG – Environment, Climate, Gender and Social Inclusion Division; PMI – Sustainable Production, Markets and Institutions Division; ADM – Administrative Services Division; COM – Communications Division.

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Introduction

As stated in its Strategic Framework 2016-2025, the overarching goal for the International Fund for Agricultural Development (IFAD) is to invest in rural people to enable them to overcome poverty and achieve food security through remunerative, sustainable, and resilient livelihoods. IFAD pursues this goal through three closely interlinked and mutually reinforcing strategic objectives: (i) increasing rural people's productive capacities; (ii) increasing rural people's benefits from market participation; and (iii) strengthening the environmental sustainability and climate resilience of rural people's economic activities.

To hold itself accountable on progress made in achieving this goal and these three strategic objectives, IFAD has adopted a unique approach to reporting impact at the corporate level, building on rigorous project-level evaluations. This report provides the results of these efforts to assess the corporate impact of IFAD investments for the Tenth Replenishment of IFAD's Resources (IFAD10) period of 2016-2018.

Corporate impact is founded on the impact of individual IFAD-funded interventions. This report provides an overview of corporate impact estimates, which determine whether IFAD met its IFAD10 targets, as well as project-level results including lessons learned from the project-level analysis.

The report includes the main results of the impact assessment of individual projects. Out of a total portfolio of 104 projects completed during the 2016-2018[1] replenishment period, 19 have been evaluated through 17 studies, spanning the five IFAD regions (Table 1).

Overall, the 17 impact assessments completed as part of IFAD10 show significant impacts on the lives of project beneficiaries relative to the corporate goal of greater economic mobility and its three supporting strategic objectives. In line with these findings, the preliminary results of the corporate impact assessment show that IFAD10 has exceeded its targets for its overall goal of fostering economic mobility and for two of the three strategic objectives.

1. The IFAD10 portfolio encompasses a three-year cycle and includes projects with different implementation status: approved, ongoing, and completed.

Methodology

IFAD is the only international financial institution that conducts this type of corporate-level impact assessment. The approach to assessing corporate impact builds on the use of project-level impact assessments. Specifically, IFAD has committed to assess the impact of 15 per cent of its projects and to use that to determine overall corporate impact.

The project-level impact assessments use data and statistical methods to ensure attribution of project impacts – that is, the assessments seek to guarantee that impact can be attributed to IFAD interventions. The project-level impact assessments include the collection of quantitative and qualitative information and are designed in close collaboration with local stakeholders and government counterparts to ensure an adequate understanding of the project and the learning of relevant lessons. The final outcomes of the impact assessments are quantitative estimates of project impact on key variables and lessons from the analysis.

Since the projects selected for impact assessment reflect the regional distribution of IFAD projects and thematic intervention areas, they are a good representation of IFAD's portfolio and can be used to estimate overall impact. This approach allows for both an estimate of average per cent corporate impact in terms of IFAD's goal and strategic objectives and an estimate of the number of beneficiaries who have made significant gains.

Corporate impacts

Globally, beneficiaries analysed as part of the IFAD10 impact assessments are better off than comparison or control groups, with the strongest impact found for strategic objective 2 (SO2) – rural people's benefits from market participation. Figure 1 shows the average impacts and the range of results for the overarching goal and strategic objectives.[2]

Goal: Economic mobility. Results show that IFAD's beneficiaries increased their economic mobility by 74 per cent relative to comparison farmers. This result is also statistically significant. Economic mobility is defined as improvements in economic status and was measured through asset-based and other money-metrics indicators (e.g., total and agricultural income). It is worth noting that the magnitude of income effects varies widely across projects.

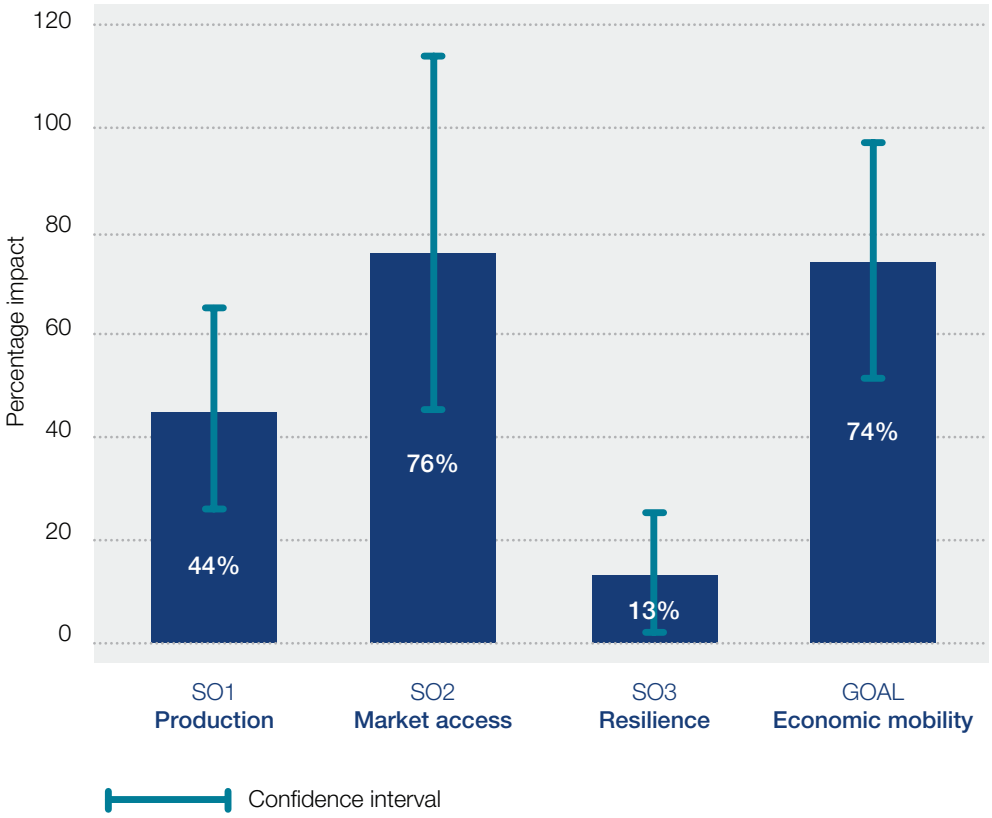
SO1: Production. Overall production increased by 44 per cent for beneficiaries relative to counterfactual farmers. This aggregate impact is positive and significant.

SO2: Market access. Market access increased by 76 per cent for beneficiaries relative to the comparison group. The impact across market access indicators (value of sales, gross margins or indicators concerning market participation) is positive and significant.

SO3: Resilience. Resilience encompasses both a subjective indicator of farmers' perceived ability to recover from shocks and indicators of crop and income diversification. Results, which are positive and significant, show that beneficiaries are 13 per cent more resilient than their counterparts.

2. Figure 1 shows impact estimates along with their 95 per cent confidence intervals (lower- and upper-bound CIs respectively).

Figure 1 IFAD10 Aggregate impacts on strategic objectives and overarching goal



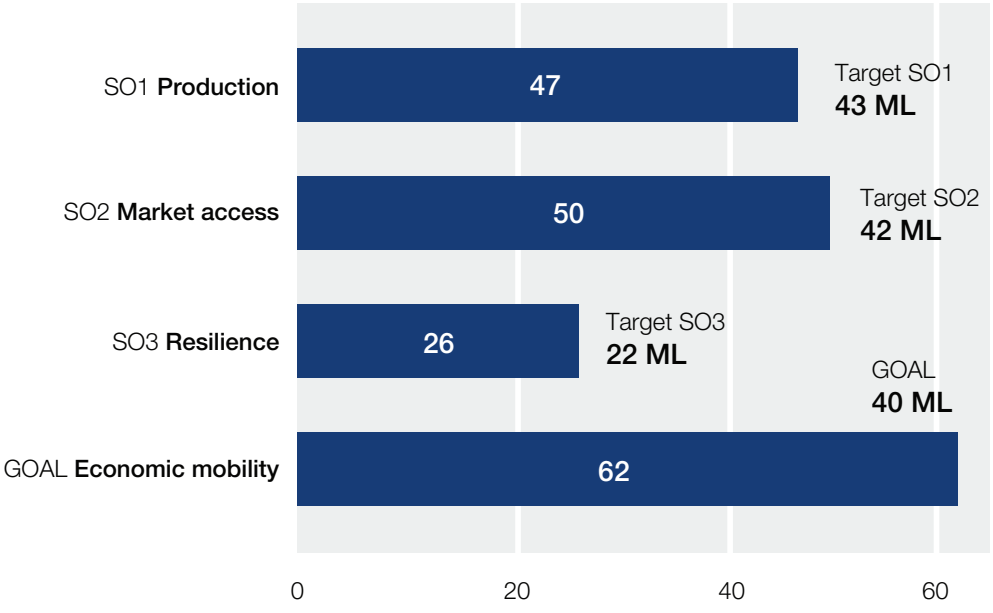
Source: IFAD calculation based on impact assessments

Projections and comparison to targets

According to the IFAD corporate impact methodology, 62 million beneficiaries will benefit from improved economic mobility, 47 million from improved production, 50 from increased market access and 26 from increased resilience (Figure 2).

The Results Management Framework (RMF) targets for IFAD10 estimated that 40 million individuals would experience significant economic mobility, 43 million people would significantly increase production, 42 million people would increase market access, and 22 million people would experience greater resilience. The projections of corporate impact exceeded the targets in all four areas (Figure 2).

Figure 2 IFAD10 Impacts on actual beneficiaries (millions)



Source: IFAD calculation based on IFAD10 impact assessment results

Individual project results

A core team of RIA staff and external consultants conducted the 17 impact assessments for IFAD10 with strong expertise and intellectual rigor as well as with passion and dedication for their work. The leading team members are listed in the last column of Table 1.

Table 1 Impact assessments during IFAD10

Region	Country	Project	RIA's team
APR	Bangladesh	Coastal Climate-Resilient Infrastructure Project (**CCRIP**)	Aslihan Arslan, Daniel Higgins, Saiful Islam (RIA)
	China	Guangxi Integrated Agricultural Development Project (**GIADP**)	Alessandra Garbero, Tisorn Songsermsawas (RIA)
	Indonesia	Coastal Community Development Project (**CCDP**)	Romina Cavatassi, Athur Mabiso, Peter Brueckmann (RIA)
	Nepal	High-Value Agriculture Project in Hill and Mountain Areas (**HVAP**)	Kashi Kafle, Tisorn Songsermawas (RIA)
	Philippines	Irrigated Rice Production Enhancement Project (**IRPEP**)	Aslihan Arslan, Daniel Higgins, Paul Winters (RIA), Fabrizio Bresciani (APR)
ESA	Ethiopia	Participatory Small-scale Irrigation Development Programme (**PASIDP**)	Alessandra Garbero, Bezawit Beyene Chichaibelu (RIA)
	Kenya	Smallholder Dairy Commercialization Programme (**SDCP**)	Juan Bonilla (American Institutes for Research), Nancy McCarthy (LEAD Analytics), Simon Mugatha, Nisha Rai, Andrea Coombes (American Institutes for Research), Joshua Brubaker (LEAD Analytics)
	Madagascar	Project to Support Development in the Menabe and Melaky Regions (**AD2M**)	Hannah Ring, Mitchell Morey, Erin Kavanagh, Kevin Kamto (American Institutes for Research), Nancy McCarthy, Joshua Brubaker (LEAD Analytics), Charles Rakotondrafara (Catholic University of Madagascar)
	Rwanda	Project for Rural Income through Exports (**PRICE**)	Athur Mabiso, Mohamed Abouaziza (RIA), Benjamin D. K. Wood (3ie), Tim Balint (RIA)
	United Republic of Tanzania	Agricultural Sector Development Programme – Livestock (**ASDP-L**) and Agricultural Services Support Programme (**ASSP**)	Alessandra Garbero, Bezawit Beyene Chichaibelu (RIA)

LAC	Bolivia (Plurinational State of)	**Plan VIDA-PEEP** to Eradicate Extreme Poverty – Phase I: Pilot Project to Strengthen the Capacity of Communities and Families Living in Extreme Poverty in Cochabamba and Potosí	Adriana Paolantonio, Romina Cavatassi, Kristen McCollum (RIA)
	Brazil	**Gente de Valor** – Rural Communities Development Project in the Poorest Areas of the State of Bahia	Alessandra Garbero, Neha Paliwal, Rui Benfica (RIA)
	Mexico	Community-based Forestry Development Project in Southern States (Campeche, Chiapas and Oaxaca) (**DECOFOS**)	Romina Cavatassi, Federica Alfani, Adriana Paolantonio, Paola Mallia (RIA)
NEN	Tajikistan	Livestock and Pasture Development Project (**LPDP**)	Romina Cavatassi, Paola Mallia (RIA)
WCA	Chad	Rural Development Support Programme in Guéra (**PADER-G**)	Romina Cavatassi, Athur Mabiso, Mohamed Abouaziza (RIA), Eric Djimeu (3ie)
	Sao Tome and Principe	Participatory Smallholder Agriculture and Artisanal Fisheries Development Programme (**PAPAFPA**) and Smallholder Commercial Agriculture Project (**PAPAC**)	Alessandra Garbero, Martina Improta, Sónia Gonçalves (RIA)
	Senegal	Agricultural Value Chains Support Project (**PAFA**)	Alessandra Garbero, Dieynab Diatta (RIA), Markus Olapade (African School of Economics)

Note: APR – Asia and the Pacific; ESA – East and Southern Africa; LAC – Latin America and the Caribbean; NEN – Near East, North Africa and Europe; WCA – West and Central Africa.

Evidence from Asia and the Pacific (APR)

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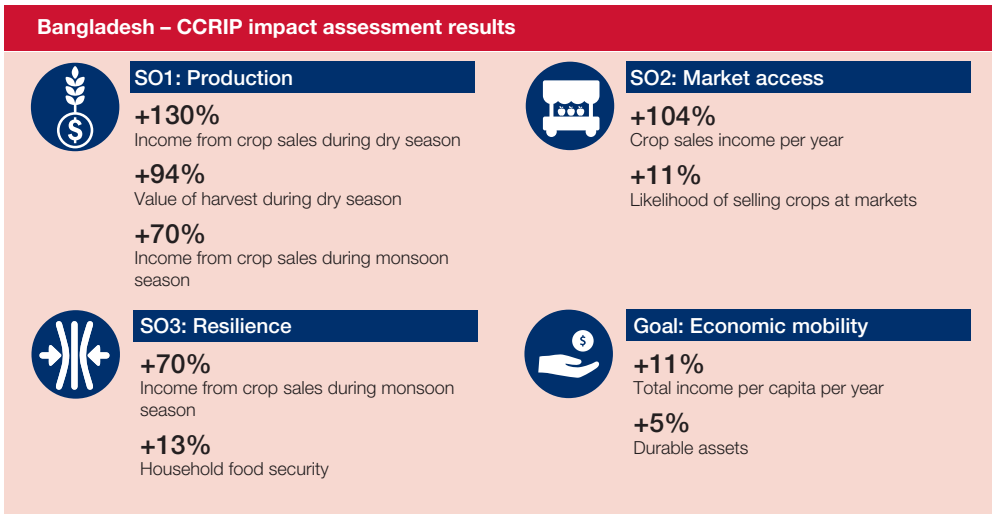
Bangladesh
CCRIP

About the project

Objective. The Coastal Climate Resilient Infrastructure Project (CCRIP) aimed to improve the connectivity of remote, poor households in southwest Bangladesh by making community markets more resilient to flooding, improving their facilities and management, and constructing flood-resistant roads connecting these markets. The project also aimed to empower women by providing employment and training through labour contracting societies.

Key impact estimates



Impacts on households' production were measured by value of harvest and income from crop sales in the dry and monsoon seasons. Value of harvest was 94 per cent higher for beneficiaries compared to control households in the dry season. Positive impact was found on income from crop sales in both the dry and the monsoon seasons. Although the dry season impact was much higher (130 per cent), beneficiaries have 70 per cent higher income from crop sales even in the monsoon season during which market access becomes more challenging, which also speaks to the resilience impact of the project. Regarding market access, results show that although beneficiaries' agricultural productivity (measured by gross margins) did not increase, thanks to the improved market access they were 11 per cent more likely to sell at market than at home or at the farm gate; they sold 5 per cent more of their harvest; and they were 8 per cent more likely to cultivate high-value crops. For the full sample, the impact on crop sale income was 104 per cent, which increased to 108 per cent for households located within 1 km of the market. Beneficiaries also had 50 per cent higher

revenues from fish sales. Qualitative interviews pointed to the greatly improved accessibility and functioning of markets as a key factor in these impacts. Better-managed markets with more participants now collect higher rents that are used to operate and maintain the markets in a sustainable manner.

Resilience impacts were measured by the household Food Insecurity Experience Scale, dietary diversity score, and access to markets in the monsoon season. The project reduced the likelihood that households had experienced food insecurity in the past year by 13 per cent, but it did not improve dietary diversity. This finding may reflect the pro-poor focus of the project, which helped the poorest households meet their basic food needs but had less impact on richer, food-secure households for whom dietary diversity is a greater concern. By increasing the value of crop sales in the monsoon season by 70 per cent, the project improved resilience by smoothing their income throughout the year.

Contributions to economic mobility can be assessed by total income and asset values. CCRIP improved total household income by 11 per cent. When the sample is split between farm and non-farm households, the income effect for farm households rises to 16 per cent while it is not significant for non-farm households. This suggests that CCRIP's market and road improvements did not improve off-farm income-generating opportunities for these households. The impact on income was higher for households located farther from the connecting roads, which are poorer than those living closer to the roads. The value of durable assets improved by 5 per cent for beneficiaries.

Lessons learned

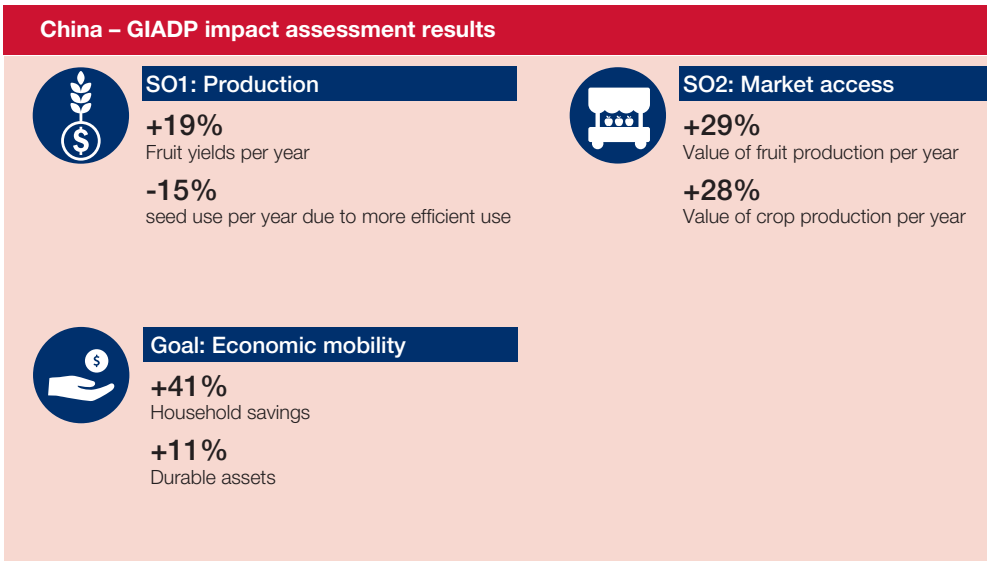
- Focused infrastructure projects that improve the climate resilience and accessibility of local markets can greatly increase income from crop sales, leading to increased total income.
- This type of support can prove especially beneficial for the most remote, poorest households in terms of increasing their income and food security.
- Agricultural productivity does not necessarily increase with improved access to output markets. Further support should be provided to improve agricultural productivity and encourage crop diversification, which can be achieved by providing farmers with training, improved technology, and better access to and more affordable inputs.
- Additional interventions are needed to extend the effects of improved market access to other important livelihood sources, such as livestock and fish production and sales, as well as off-farm income generation. Activities that are better adapted to local contexts may be an effective way to achieve this. Qualitative interviews reveal that solving local barriers to credit access and skills acquisition are key to stimulating off-farm income generation.
- Providing complementary capacity-building support to the institutions that manage the markets, as CCRIP did, can improve the operation and maintenance of markets, thus bolstering the sustainability of project impacts.
- The barriers faced by women in traditionally conservative contexts deserve special attention. In the case of CCRIP, results on women's empowerment were mixed due to constraints on their mobility and participation in the economy. Based on the success of such initiatives in countries including Egypt and Uganda, future projects could provide multifaceted support to improve women's hard and soft skills, provided within a safe space environment, and involve the wider society to ensure the sustainability of impacts.

China
GIADP

About the project

Objective. The Guangxi Integrated Agricultural Development Project (GIADP), now closed, was designed to raise the incomes of smallholder farmers in China. This effort involved developing community infrastructure, supporting agricultural production and marketing activities, and improving the rural environment.

Key impact estimates



Overall, GIADP showed some significant impacts in terms of crop production, savings, and asset ownership.

In terms of project impact on SO1 (production), fruit crop yields in the treatment group were 19 per cent higher than those of the control group. In addition, households in the treatment group used 15 per cent less seeds due to the project's promotion of more efficient use of seed, which is confirmed by qualitative evidence.

For SO2 (market access), the value of fruit production and the value of crop production overall in the treatment group were 29 and 28 per cent higher than those of the control group. Impacts were particularly strong among those households that received agricultural support and infrastructure interventions in better-off counties, defined as the ones that had greater potential productive capacity to harness the benefits from the project.

Results also revealed positive effects on indicators of economic mobility, namely savings and durable assets. Household savings in the treatment group were 41 per cent higher than those in the control group. Moreover, households in the treatment group had 11 per cent higher durable assets than the control group (as measured by the value of the asset index). No significant positive impacts were observed on income-based indicators.

Lessons learned

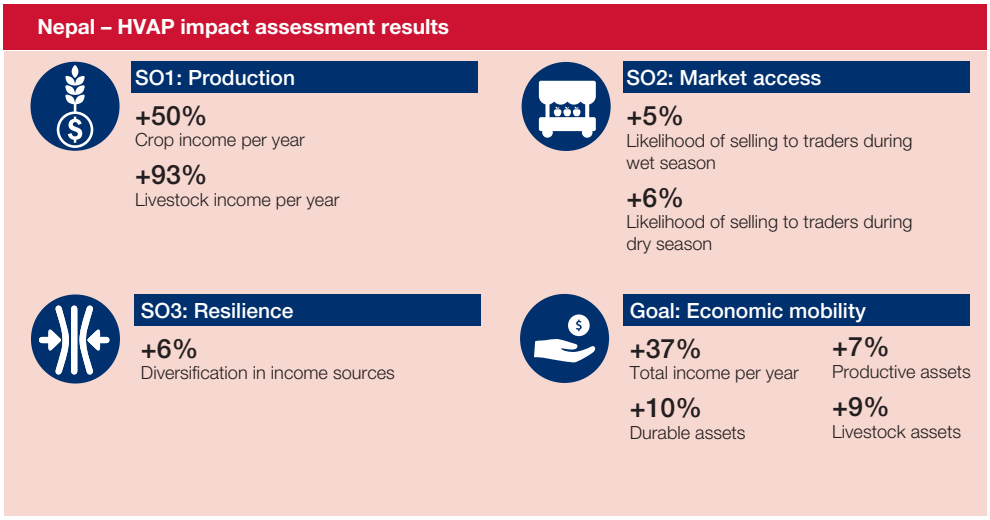
- Overall, findings suggest that GIADP was successful in improving crop production, in particular the production of fruit crops.
- GIADP offered agricultural training activities with a specific focus on promoting niche crops, which improved the yields and value of fruit crop production and led to higher savings and asset accumulation for project beneficiaries.
- The project's impacts on savings were particularly strong for households that received both agricultural support and infrastructure development interventions in better-off counties. In less well-off counties, those receiving both agricultural support and infrastructure development experienced improvements only in asset ownership (in particular durable assets).
- Findings from this impact assessment suggest that providing agricultural production and marketing interventions along with infrastructure interventions may lead to stronger impacts on production and economic mobility outcomes.
- GIADP developed an innovative approach by delivering agricultural support interventions along with interventions aimed at improving the rural environment. Results show that households receiving this combination of interventions experienced higher yields and value of vegetable production, which are consistent with qualitative findings. These results might provide some evidence for scaling up this approach in similar contexts in the future.
- While evidence on the positive impacts of agricultural support and infrastructure interventions on production and marketing outcomes is encouraging, additional research will be required to understand the mechanisms through which improvements in production and market access may improve household welfare.
- Strong and positive impacts on assets among less well-off households that received both agricultural and infrastructure interventions raise a point of consideration when designing future rural development projects. Specifically, an integrated approach covering both production and marketing aspects may be needed to specifically target those at the lower end of the income distribution.

Nepal
HVAP

About the project

Objective. The primary objective of High-Value Agriculture Project in Hill and Mountain Areas (HVAP) was to reduce rural poverty and improve food security through enhanced value chains for high-value agricultural commodities in the hilly and mountainous areas of Nepal. The project employed a unique approach, bringing different actors in the value chain together; smallholder producers were linked with input suppliers, traders, technical service providers, and financial institutions. The project also provided business literacy training and helped strengthen production and marketing by forming farmers cooperatives or groups, collectively called producer organizations (POs).

Key impact estimates



Overall, the analysis shows positive impacts of the project on the income, assets, market access, and dietary diversity of farmers in the treatment group.

For the project impacts on SO1 (production), results from the impact assessment show that the project was successful in achieving its objectives. Annual crop and livestock income of project beneficiaries increased by 50 per cent and 93 per cent, respectively. It is worth noting that among the Dalit, Janjati, and other ethnic minority households, crop income and livestock income increased by 92 per cent and 62 per cent, while the crop income and livestock income of households that are not Dalit, Janjati, or other ethnic minority increased by 43 per cent and 99 per cent. This finding shows that the project led to differential increases in income components of those receiving the project.

In terms of the project impacts on SO2 (market access), HVAP increased market access among households in the treatment group throughout the year. They were 5 per cent more likely to sell their produce to a trader during the wet season and 6 per cent more likely to sell to a trader during the dry season. For SO3 (resilience), results show that households in the treatment group diversified their income sources by 6 per cent relative to the control group.

Results also show that HVAP was successful in improving the economic mobility of its target group. Specifically, households in the treatment group earned 37 per cent more annual income in the 12 months preceding the time of data collection – equivalent to an increase of approximately US$500 a year. Among treatment households, ownership of durable assets, productive assets, and livestock increased by 10 per cent, 7 per cent, and 9 per cent, respectively.

Lessons learned

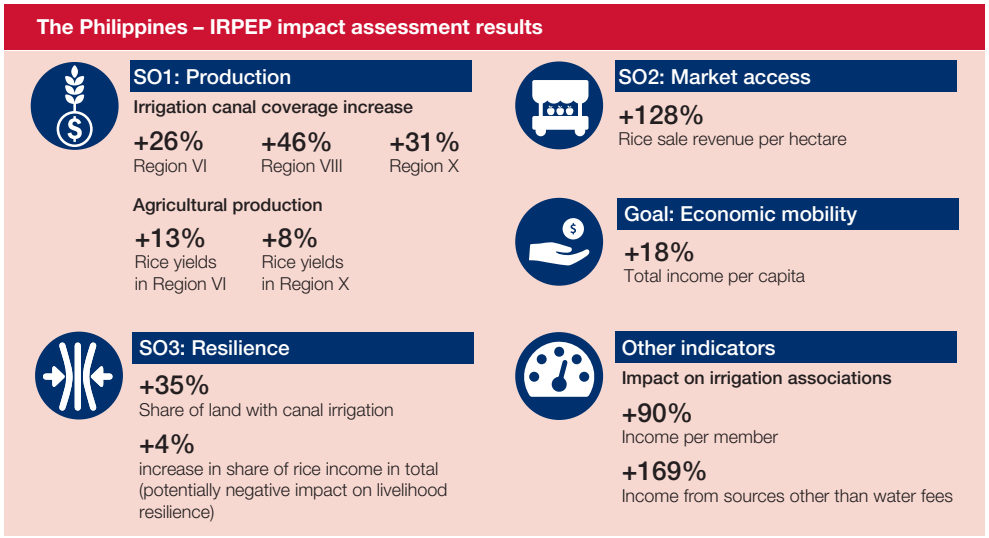
- The impact assessment of HVAP shows positive and significant impacts on income, assets, market access, and dietary diversity among farmers in the target group.
- The impacts on income are particularly strong for crop income and livestock income, both of which were the focus of value-chain development in the project. Livestock income increased at higher rates than crop income among households belonging to Dalit, Janjati, and other ethnic minority groups, whereas crop income increased more for other households in the treatment group. The project also increased market access and asset accumulation (in particular durable assets, productive assets, and livestock assets).
- Results suggest that households in the treatment group have higher dietary diversity than those in the control group. This increase is driven mainly by greater consumption of vegetables, fruits, and milk and other dairy products. This finding is consistent with previous findings in the literature noting the relationship between agricultural interventions and food security.
- The focused project design, concentrating on small but linked interventions, contributed to consistent project logic and consistent sets of project interventions. This focused and consistent logic is more likely to deliver positive and significant development outcomes.
- Qualitative evidence suggests that the small size of the cooperatives and POs supported by the project allowed project staff to engage closely with beneficiaries and provide sufficient technical support to meet local demand.
- A combined top-down and bottom-up approach to engaging smallholder producers in the value chain resulted in the successful identification of an appropriate set of activities and interventions for project beneficiaries.

The Philippines
IRPEP

About the project

Objective. The Irrigated Rice Production Enhancement Project (IRPEP), now closed, was designed to improve rice productivity and smallholder livelihoods in three regions of the Philippines. The project strengthened the canal irrigation infrastructure of communal irrigation systems (CISs), built capacity of the irrigators' associations (IAs) that manage the CISs, improved market information and encouraged the collective sale of rice, provided rice-based farmer field schools (FFSs), and enhanced emergency rice seed buffer stocks.

Key impact estimates



The impact assessment found that IRPEP improved household production by unequivocally increasing water delivery across the three project regions. It also found that impact was higher for downstream parcels, suggesting an improvement in the equity of water delivery.

Improved water delivery resulted in a 13 per cent increase in rice productivity in Region VI and an 8 per cent increase in Region X. It did not increase rice productivity in Region VIII due to the damage caused in the region by Super Typhoon Haiyan. The yield impact was also larger for downstream parcels, which are predominantly owned by poorer households and are known to have the most severe water access issues due to overuse by upstream parcels.

In terms of market access, increased yields translated into a large increase in rice sale revenue in Region X but not in Region VI. The project had a significant impact on rice sale revenue for downstream parcels, but unlike the yield impact, the revenue impact was higher for up- and midstream parcels. Region VI and downstream households used a large proportion of their harvest to repay production costs, suggesting a lack of improvement in production efficiency

and in access to capital during production. Qualitative insights suggest that the marketing component was largely ineffective owing to long-term relationships between traders and farmers that fill the financing gap because of lack of credit, meaning efforts to improve selling practices were hindered by farmers being tied to these credit-for-harvest arrangements.

Reliable canal irrigation systems contribute to household resilience. On this score IRPEP improved resilience by increasing the share of land covered by irrigation by 35 per cent. The project, however, increased the concentration on rice production as opposed to diversification (an effect observed in irrigation projects in smallholder rice systems in the region), which can negatively affect livelihood resilience. Household dietary diversity has improved, although only slightly, in spite of this.

IRPEP increased household income by 11 per cent overall, and this impact was larger in Region VI (18 per cent) than in Region X. This difference was caused by a narrowing of livelihood focus onto rice production in Region X mentioned above and a large increase in livestock-related income in Region VI.

On the cross-cutting issue of nutrition, IRPEP had a somewhat unexpected positive impact on nutrition. Households' dietary diversity increased significantly, as did their consumption of meat and eggs, which may be linked to a significant increase in livestock ownership.

Irrigation associations are the backbone of the small-scale irrigation systems supporting producers in the country. IRPEP had a significant positive impact on the number of IA members and the number of female IA officers. The assessment also found improvements in IAs' income-generating capacity and in their expenditures on maintenance and support to CIS users. Importantly, given the upcoming abolishment of water user fees, the analysis found a large increase in IA income from sources other than water user fees, suggesting that impacts are likely to be sustainable.

Lessons learned

IRPEP proved effective in improving the supply of irrigation water to households across the project regions, and this effect translated into higher rice yields in two of the three project regions. Strengthened capacity of IAs combined with a conducive institutional environment can have distinct benefits for sustainable improvements in smallholder livelihoods, including improved water equity, women's empowerment, and significant increases in IA participation, income, and operation and maintenance expenditures. A project with this bundle of activities also has potential to boost income from livestock production and improve nutritional outcomes.

However, mixed results for production, market participation, and household income highlight the following:

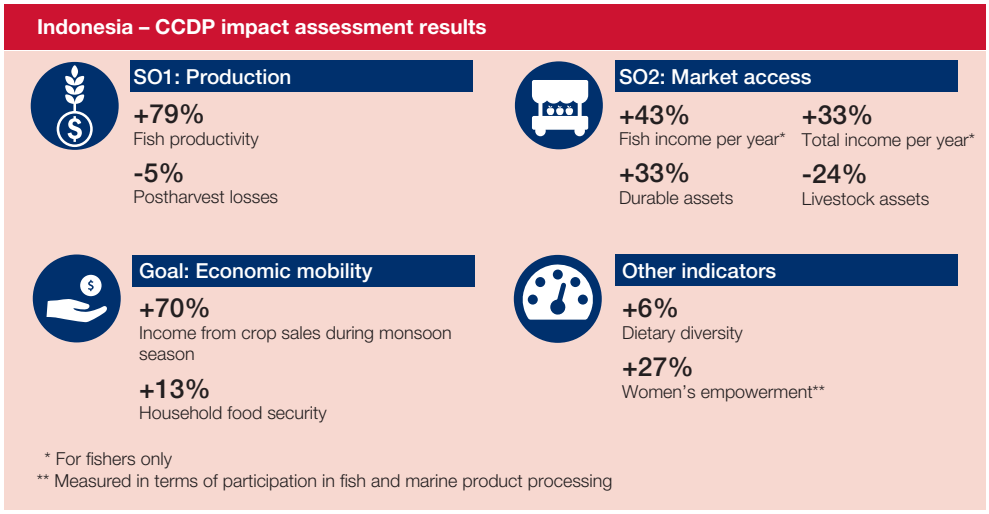
- Further supplementary support is required when households are coping with extreme weather conditions.
- Production efficiency does not automatically increase with improved irrigation supply; other supplementary support should be provided to ensure that yields increase in proportion with increased expenditure on water and other inputs.
- Capital constraints may have limited beneficiaries' use of production inputs. This finding suggests that the yield impact may be greater if future projects can address these constraints.
- Marketing support must be rethought. More research is needed on whether and how to encourage collective marketing and how best to provide market information services.
- Future projects must consider household income in its entirety and should be wary of encouraging concentration of livelihoods on a narrow range of activities to the potential detriment of livelihood resilience.

Indonesia
CCDP

About the project

Objective. The Coastal Community Development Project (CCDP) was designed to reduce poverty and enhance sustainable and replicable economic growth among the active poor in coastal and small island communities in Indonesia, through investments in fisheries, aquaculture, and related marketing and support structures.

Key impact estimates



CCDP proved quite effective in improving fishing productivity (SO1) by 79 per cent (609 kg more fish per month per cubic meter of fishing boat) while absolute volumes of fish did not increase. This was seen as an overall positive impact in the sense that the project was able to increase productivity while avoiding overfishing among its beneficiaries. This is a result of CCDP's emphasis on sustainable fisheries and natural resources management, which were integrated into the project interventions.

Regarding market access (SO2), fishers that benefited from CCDP were able to realize a 28 per cent increase in fish and marine product sales and a 5 per cent reduction in postharvest losses. Moreover, CCDP supported women's fish-processing groups with the result that the CCDP women beneficiaries were 27 per cent more likely to engage in processing of fish and marine products compared to the comparison group women. Indeed, qualitative insights suggest that the marketing component of CCDP was largely effective. In part, the effectiveness was due to the brokering role that CCDP played in setting up off-taker contracts and memoranda of understanding (MOUs) with processors and traders.

Unfortunately, no significant impacts on resilience (SO3) were found. In fact, qualitative results suggest that some CCDP beneficiaries (as well as comparison group fishers) experienced shocks such as storms, which damaged their boats and fishing gear, leading them to leave fishing altogether.

With regard to IFAD's overarching goal of economic mobility, CCDP was able to help fishing households to increase their total net incomes by 33 per cent and fish income by 43 per cent. Nonetheless, when non-fishing beneficiaries were analysed, the total incomes declined by 17 per cent, emphasizing the importance of non-fishing activities in generating higher incomes in contexts where rural transformation is at an advanced stage.

In addition, durable assets of fishers supported by CCDP increased by 33 per cent, yet a 24 per cent decrease in livestock assets was registered. This is perhaps not surprising given that fishers would be less inclined to invest in livestock, which require time-consuming care. This reveals the different types of trade-offs at play, which may need to be considered when promoting economic mobility.

Lessons learned

A number of key lessons can be drawn from the impact assessment of CCDP:

- First, it is clear that coupling technical capacity strengthening with investment in improved fishing gear, infrastructure, and inputs (such as aquaculture stands, cages, motors for fishing boats and landing sites) increases fishing productivity.
- Deliberately integrating sustainable coastal resources governance and management is critical as it not only helps increase fishing productivity and value of fish sales, but also ensures sustainability, in addition to generating positive spillover effects, such as the eco-tourism benefits that endogenously emerged.
- Marketing support proved to be a lynchpin, underscoring the importance of market considerations in fish and marine enterprise interventions, especially for women's empowerment.
- Promoting labor participation in non-fishing activities, especially in the service sectors, should be considered an alternative and complementary investment area in contexts where rural and structural transformation has taken root, as is the case in Indonesia; total net incomes of those who did not participate in CCDP but engaged in non-fishing activities were found to be higher than incomes of CCDP fishers.
- How to integrate resilience to a number of shocks, including climatic and geological shocks, should be carefully thought through in shock-prone contexts such as the coastal communities of Indonesia. Asset wealth did not significantly increase, and some CCDP beneficiaries ended up leaving the fishing sector altogether after their boats were damaged by shocks.


Evidence from East and Southern Africa (ESA)
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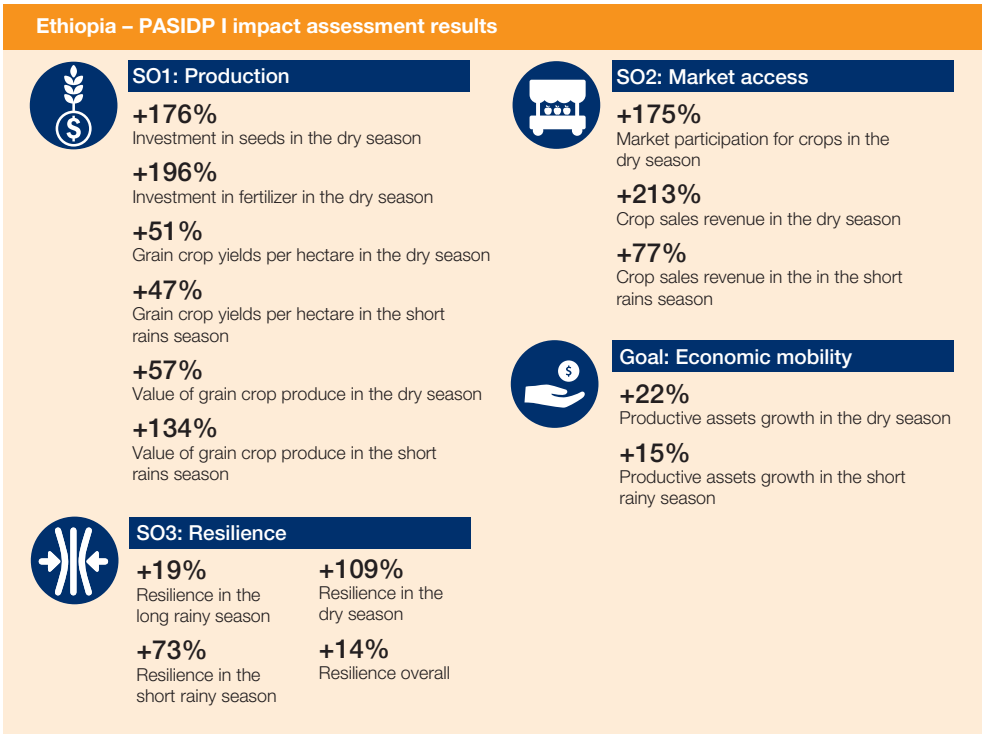
Ethiopia
PASIDP

About the project

Objective. The Participatory Small-Scale Irrigation Development Programme (PASIDP), now closed, was implemented to improve the food security, family nutrition, and income of poor rural households living in drought-prone and food-deficit areas in Amhara, Oromia, Tigray, and Southern Nations, Nationalities and Peoples Region (SNNPR) in Ethiopia through a sustainable farmer-owned and -managed system of small-scale irrigated agriculture.

Key impact estimates



In terms of strategic objectives, results are positive across all SOs.

With regard to agricultural production, SO1, beneficiary farmers invested 57 per cent more in fertilizer in the short rainy season and obtained higher yields. As one would expect, the impacts were particularly evident in the dry season, with a 196 per cent increase in investment in fertilizer, when the benefits of irrigation should be felt the most.

Impacts were also apparent across the crop portfolio as far as SO2 was concerned (market access), where the value of sales of specific crops (notably grains and cereals, but also vegetables and fruit) was significantly higher for farmers who had access to modern irrigation than for their rain-fed counterparts. Specifically, beneficiaries exhibited a 55 per cent and

130 per cent increase in the value of their cereal crop produce in the dry season and the short rainy season, respectively. Beneficiaries were 175 per cent more likely than their rain-fed counterparts to sell their crop produce to the market in the dry season, and to a lesser extent in the following short rainy season.

Also, crop sales revenue increased by 213 per cent and 77 per cent for beneficiaries farmers during the dry and short rainy seasons respectively, compared to their counterfactual counterparts.

Relative to SO3, resilience, the major focus of this study, beneficiaries farmers exhibited 109 per cent higher resilience in the dry season compared to their counterfactual farmers. Another key finding was the reduction in negative coping strategies to which households resorted in times of distress. This reduction was particularly significant in the season immediately following the dry season, implying that beneficiary farmers increased their resilience status. Results also showed that the project encouraged gains in resilience across the seasons and that these gains increased over time.

With regard to economic mobility, the overarching IFAD goal, beneficiary farmers experienced higher returns from productive assets during the dry season (22 per cent) as well as in the short rainy season (15 per cent). In addition, the findings from the dynamic analyses stressed the fact that the interventions increased beneficiary households' welfare despite the drought shock, contributing to their increased resilience. Asset growth was also found to be inversely related to initial assets, suggesting that asset growth was greater for those farmers who were asset-poor at the outset of the project.

Lessons learned

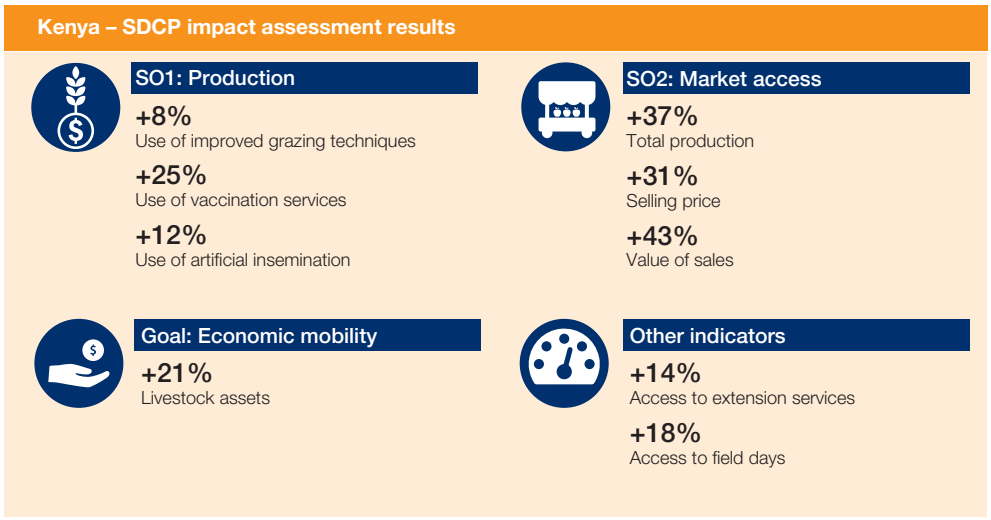
- Overall this study clearly provides strong evidence that investing in irrigation is transformative for farmers, particularly for the poorest farmers, and generates returns that make farmers resilient to climatic shocks. To this end, irrigation may act as an effective risk management strategy, increasing farmers' income and building their resilience.
- Small-scale irrigation infrastructure is effective at increasing production of high-value crops but must be bundled with marketing and market access interventions to allow farmers to maximize the benefits from increased production. Commercialization and marketing support continue to be areas where improvement is needed and should be bundled with interventions aimed at improving agricultural production.
- A key finding is the reduction in the negative coping strategies to which households resort in times of distress. This reduction is particularly significant in the short rainy season, which immediately follows the dry season, illustrating the persistence of project impacts beyond the dry season.
- Measuring the impact of IFAD-supported project interventions on resilience requires adequate data. Projects that aim to enhance resilience and protect smallholders from climatic shocks need to have different data systems from conventional monitoring and evaluation approaches. Resilience data must be collected at a high frequency to capture the impacts of stressors and shocks (and responses to shocks) using shock-sensitive indicators. The data must be collected over the long term – ex ante rather than ex post – because vulnerability to shocks is the product of slower-moving stressors as well as of long-term, multisector interventions for building resilience.
- To minimize the costs of such a data collection, specific data should be collected at sentinel sites – small samples of sites that are strategically selected to monitor risk, shocks, and welfare outcomes while maintaining the representativeness of key structural characteristics, such as specific agro-ecologies or livelihood zones. Remotely sensed data can be used to provide objective shock metrics on a more frequent basis.

Kenya
SDCP

About the project

Objective. The Smallholder Dairy Commercialization Programme (SDCP) was designed to address constraints in the smallholders' milk sector in Kenya by increasing smallholders' production, productivity, and participation in milk markets. It pursued these objectives by training dairy groups, offering technical support for household dairy production, and developing milk-marketing chains.

Key impact estimates



Results showed positive effects on farmers' production (SO1) – namely feeding practices and use of artificial insemination and animal health services. In particular, SDCP farmers were 8 per cent more likely than control farmers to practice improved grazing techniques, 25 per cent more likely to have access to and use vaccination services, and 12 per cent more likely to have used artificial insemination.

With regard to market access (SO2), beneficiary farmers had 37 per cent higher total milk production. In terms of quantity sold, there was no statistically significant difference between participants and comparison farmers. Nevertheless, those SDCP farmers who sold to the market obtained a selling price 31 per cent higher than that received by non-beneficiaries, suggesting beneficiaries had better linkages with milk markets or had higher-quality dairy products. The total value of milk sold – the quantity of milk sold times the price obtained – by SDCP farming households was 43 per cent higher than the value obtained by control groups.

The project has also been successful in improving beneficiaries' economic mobility. In particular, positive effects were found on the composition and number of cattle per household: beneficiaries owned 49 more head than control groups, a 21 per cent increase. Additionally, relative to non-participants, SDCP dairy farmers were 14 per cent more likely to have cattle extension services available, and their access to field days also increased by 18 per cent.

Lessons learned

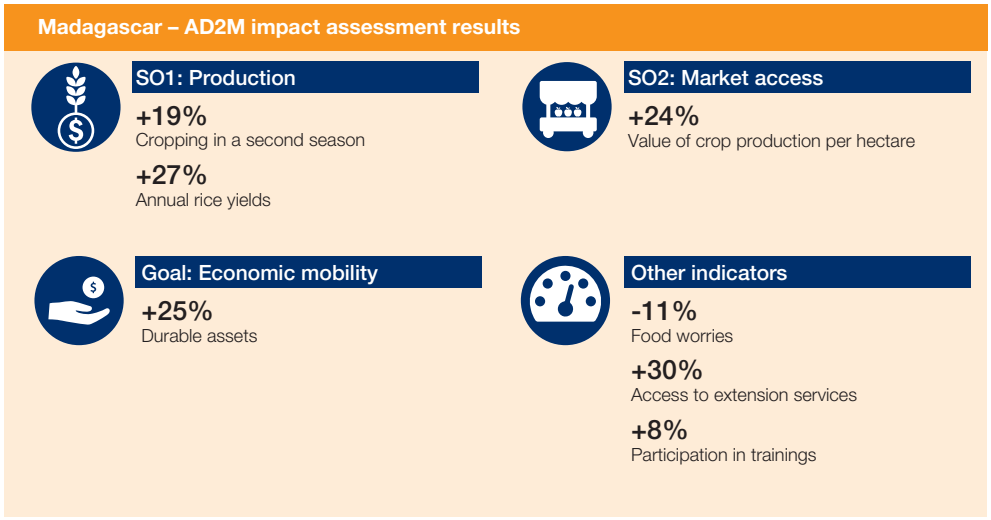
- Interventions that aim to support dairy groups, enhance farmers' productivity through training, and strengthen market linkages for small-scale milk producers can translate into higher incomes for smallholder farmers. The results presented here show that this outcome results mainly from the higher per-litre selling price that participants were able to obtain.
- Disseminating information on different aspects of production through training, field days, and demonstrations to dairy group members increases the availability of extension services, and beneficiaries tend to adopt these practices more than do comparison farmers. However, adoption rates for all promoted activities remained low, suggesting that there is still significant room to improve activities and training in future project designs.
- Special emphasis should be placed on disseminating market-related information and promoting dairy group marketing. Quantitative results show that the services provided to dairy group members had limited impacts on marketing. Only a minority of dairy groups facilitated links between members and input suppliers as well as milk purchasers. Although SDCP dairy groups contracted more with milk purchasers than did comparison groups, the number remained low. Despite these low numbers, SDCP farmers obtained higher prices in the market, indicating the considerable potential to strengthen market linkages for small-scale milk producers.
- The private sector has been instrumental in implementing the programme, especially in providing market linkages for the dairy groups: two of the largest dairy-processing firms have offered support to some of the dairy groups in terms of marketing and technical support for high-quality milk handling and the operation of milk-bulking facilities. This finding suggests that partnership and involvement with the private sector could create good synergies that would increase the project's impacts.

Madagascar
AD2M

About the project

Objective. The Project to Support Development in the Menabe and Melaky Regions (AD2M) sought to improve the well-being of marginalized farmers facing individual and environmental constraints by implementing a multifaceted programme that combined land titling with improved irrigation infrastructure to increase productivity and reduce farmers' susceptibility to weather and climate shocks.

Key impact estimates



Results indicate positive and significant impacts of the project on indicators related to SO1 (production). Annualized rice yields were estimated to be about 27 per cent higher for beneficiary than for non-beneficiary households. Results also show that most of the gains for the farmers in the project communities came from their ability to crop in the second season; beneficiary households were 19 per cent more likely to cultivate a crop in more than one season.

Related to SO2 (market access), results from the impact assessment show that annualized total value of crop production per hectare was estimated to be about 24 per cent higher for beneficiaries than for non-beneficiaries.

In terms of the impact on economic mobility, qualitative evidence from interviews with farmers and project implementers suggests that incomes increased as a result of the farming practices and irrigation schemes introduced or improved by AD2M. Quantitative data appears to support this finding: beneficiary households owned 25 per cent more durable assets than non-beneficiary households.

And finally, results also show project impacts on other indicators. AD2M improved access to extension services and trainings. In particular, beneficiary households were 8 per cent more likely to attend any trainings than non-beneficiary households. The project had limited impacts on beneficiaries' adoption of soil and water conservation structures and use of inorganic fertilizer, but beneficiaries were more likely to have applied pesticides and herbicides than were non-beneficiaries. Beneficiaries also were 11 per cent less likely to have worried about securing enough food for the family in the preceding week compared with non-beneficiaries.

Lessons learned

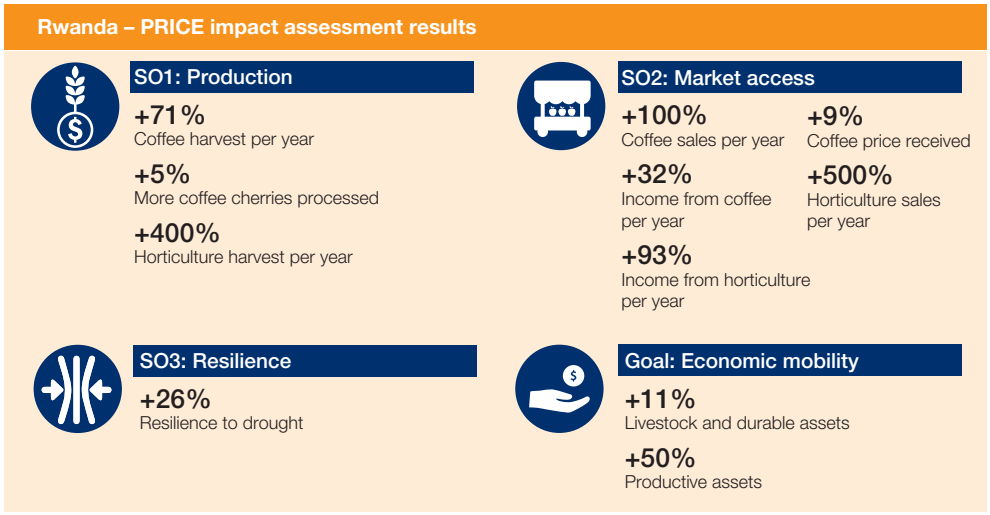
- The value of crop production and rice yields in the primary season were similar between beneficiary and non-beneficiary households, so annual differences were due primarily to beneficiary households' ability to cultivate a second season.
- Thus, future projects can explore whether their focus should be on trainings and practices to increase possibilities for second-season cropping or on determining how to alter trainings and information dissemination to achieve higher crop production in the primary season.
- Benefits depend on maintaining and managing irrigation infrastructure, especially in the medium to long term. Maintaining the resulting increases in crop production throughout the year requires a well-functioning water user association (WUA).
- Both quantitative and qualitative results suggest that the ability to generate significant crop production benefits is already compromised by the inability of at least some beneficiary WUAs to manage and maintain the irrigation infrastructure. There is ample opportunity to learn from WUA functioning and performance in both project and non-project areas, in order to strengthen and improve governance of WUAs in the second phase of AD2M.

Rwanda
PRICE

About the project

Objective. The Project for Rural Income through Exports (PRICE) has been designed to achieve sustainable increased returns to farmers from export-driven value chains. It pursues this objective by helping farmers gain access to financing and markets and increase the production and quality of their cash crops. PRICE has five components: (1) coffee, (2) tea, (3) silk (sericulture), (4) horticulture, and (5) financial services.

Key impact estimates



In terms of SO1 (production), the coffee farmers belonging to cooperatives that benefited from PRICE experienced a 71 per cent increase in coffee harvest, while the horticulture farmers reaped a fivefold increase in the horticultural crop harvest.

With respect to beneficial market access (SO2), coffee farmers saw a 100 per cent increase in the value of their coffee sales partly as a result of a 9 per cent increase in the coffee prices they received from their cooperatives (relative to the comparison group of coffee farmers). In the case of horticulture farmers, an impressive 500 per cent increase in horticulture sales was recorded, demonstrating the resounding effects of the performance-based matching grants. This huge increase occurred mostly among seasonal horticulture farmers, who were able to take advantage of producing and selling high-value horticulture crops with a short production cycle; thus allowing them to harvest two to three times per year.

Significant gains were also found on resilience (SO3), with coffee farmers that benefited from PRICE reporting 26 per cent higher ability to recover from a drought. In the case of horticulture farmers, no significant differences were found on resilience to drought as most horticulture farmers irrigated their crops beforehand, whether they benefited from PRICE or not; as such they were equally resilient to drought.

Regarding economic mobility, which is IFAD's overarching goal, when measured by annual income, PRICE coffee farmers experienced a 32 per cent increase in their income while PRICE horticulture farmers saw a 93 per cent upsurge in income (for those whose business proposals were selected). Those horticulture farmers who eventually received the 50 percent matching grant enjoyed a remarkable 540 per cent increase in their annual income. This bears witness to the transformative impact that was generated by the PRICE performance-based matching grants, for those who benefited from them.

Lessons learned

- The impact assessment of PRICE generated a number of valuable lessons. One of the lessons is that the sequencing of Turnaround Programme 1 (TAP1) and Turnaround Programme 2 (TAP2) interventions enabled the project to learn from earlier phases of implementation and to integrate these lessons in its latter phases. This adaptive implementation approach contributed to the greater impacts realized under TAP2, and future projects could benefit from similar sequencing or piloting and adaptive implementation.
- Another lesson learned was the importance of sustained support and follow-up on the beneficiary cooperatives, to ensure sustainability of the impacts realized; some farmers whose cooperatives received support claimed that the one-year program they participated in was insufficient to tackle the long-term profitability issues they faced.
- New interventions designed to enhance the quality and quantity of coffee production often came with higher input and marketing costs. Therefore the project design should consider incorporating ways of minimizing the increased costs to ensure increased incomes.
- For the performance-based matching grants awarded to the horticulture farmers, it was established that the majority of benefiting horticulture farmers were relatively better off to begin with. This was largely because the type of intervention naturally causes screening or selection of more capable and resource-endowed farmers. Therefore, to improve equity, projects that use performance-based matching grants should be designed with special attention to accommodate participation of smaller farmers with fewer resources.
- Finally, it is encouraging to see that significant large impacts were generated for those horticulture farmers whose business ideas were selected and endorsed but who did not receive a grant. This demonstrates that helping farmers to develop business plans and officially vetting them can be a useful tool for motivating them to implement their business ideas using their personal savings and external loans, thereby creating significant development impacts even if financial capital is not provided by the project.

United Republic of Tanzania
ASDP-L and ASSP

About the project

Objective. The Agricultural Sector Development Programme – Livestock (ASDP-L) and the Agriculture Service Support Programme (ASSP) were implemented in Zanzibar to contribute to the government's efforts to increase agricultural productivity and profitability, generate employment in rural areas, and ensure national and household food security.

Both ASDP-L and ASSP were designed to develop agricultural production systems by empowering livestock keepers and farmers through capacity-building and training activities offered in the form of farmer field schools (FFSs).

Key impact estimates

United Republic of Tanzania – ASSP and ASDP-L impact assessment results

SO1: Production

+65%
Vegetable crop yields (high adopters)

+111%
Crop revenue (high adopters)

+65%
Livestock revenue per year

+129%
Livestock revenue per year (high adopters)

+38%
Livestock product revenue per year

+63%
Livestock product revenue per year (high adopters)

SO2: Market access

+21%
Market participation for crops (high adopters)

+20%
Market participation for livestock

SO3: Resilience

+10%
Crop diversification (high adopters)

Goal: Economic mobility

+69%
Livestock income per year

Other indicators

+9%
Dietary diversity (high adopters)

+6%
Ownership of land and other assets

+42%
Group membership

+42%
Membership in influential groups

The findings of this study are positive, contingent on beneficiaries' level of adoption of FFS-taught practices and specialization. Beneficiaries with a high level of adoption and involved in livestock activities benefited most relative to the control farmers.

In terms of SO1, production, the study found high returns on vegetable crop productivity (65 per cent increased vegetable crop yields) and crop revenue (111 per cent increase), but only for high adopters of FFS practices, and thus a very specific subset of the beneficiaries. The whole sample of beneficiaries exhibited positive returns on livestock revenue (65 per cent increased revenue per year), as did high adopters (129 per cent livestock revenue per year).

In terms of SO2, market access, the study found increased market participation for crops (21 per cent, albeit only for high adopters), while overall beneficiaries exhibited 20 per cent increased market participation, albeit only for livestock-related sales.

Turning to overall economic mobility, lower returns for total crop income were found for the whole sample of beneficiaries, possibly because of heterogeneity in the crop portfolio between treated and control samples, Overall beneficiaries consistently received higher positive and significant livestock income. Increases were particularly substantial for high adopters, whose livestock income increased by 141 per cent, compared with 69 per cent for the total sample.

Relative to SO3, resilience gains were only found for high adopters, who had an 11 per cent increase in crop diversification compared with their control counterparts.,

With regard to nutrition and food security, improvements in food security were only seen for high adopters, whose dietary diversity score increased by 9 per cent.

The project had a strong focus on gender empowerment, and significant results were found in one of the empowerment domains – collective agency. There was a 31 per cent gain in group membership for the full sample of beneficiaries and a 42 per cent gain for high adopters. Female FFS participants' ownership of land and other assets increased by 6 per cent compared with control farmers. For high-adopting female FFS participants, the assessment also showed positive effects on a range of women's empowerment indicators, such as input into productive decisions, access to and decisions on credit, control over the use of income, mobility, and group membership.

Lessons learned

- Livestock farmers and farmers having both crop and livestock activities were more likely to adopt agricultural practices promoted by FFSs. Adoption of FFS practices increased when participants were led by an extension worker instead of a farmer.
- Livestock income, unlike crop income, has increased significantly for all beneficiary households, especially for high adopters of FFS practices. Moreover, FFSs increased the number of small livestock holdings and reduced the asset-based poverty of the participant farmers compared to the non-participant farmers.

- The study found higher expenditures on fertilizers for crop producers as well as for the sample of crop and livestock producers. Such expenditures are particularly large for high adopters of FFS practices, who also exhibit higher expenditures on pesticides and other capital inputs, such as labour. This may point to the fact that the FFS induced farmers to invest more in farming inputs by combining organic and inorganic fertilizers and potentially led to Good Agricultural Practices (GAP).
- Higher adopters of FFS practices exhibited better food security. Additionally, they have better access to markets, particularly for crop production. They are significantly more likely to sell to the market with fruit crops, and to a lesser extent, vegetables. Interestingly, only high adopters exhibit higher market participation for total crop production.
- The collective learning approach of FFSs has a value in itself, particularly by stimulating collective and individual empowerment. Moreover, female FFS participants' ownership of land and other asset holdings increased significantly. There are also positive effects on a broad range of empowerment indicators, such as input in productive activities, access to and decisions on credit, control over the use of income, and mobility, for the high-adopting female FFS participants.
- The FFS training involved a large number of activities (spanning livestock and crop production), which were adjusted and adapted over time. One recommendation would be to have more focused curricula, perhaps assessing before-hand the profitability of the technology and the possible uptake, given the specificities of the agroecological context. The results show that the fragmentation of FFS activities along with the requirement to tailor the technology to local needs was not conducive to sizeable impacts across all activities promoted.

Evidence from Latin America and the Caribbean (LAC)

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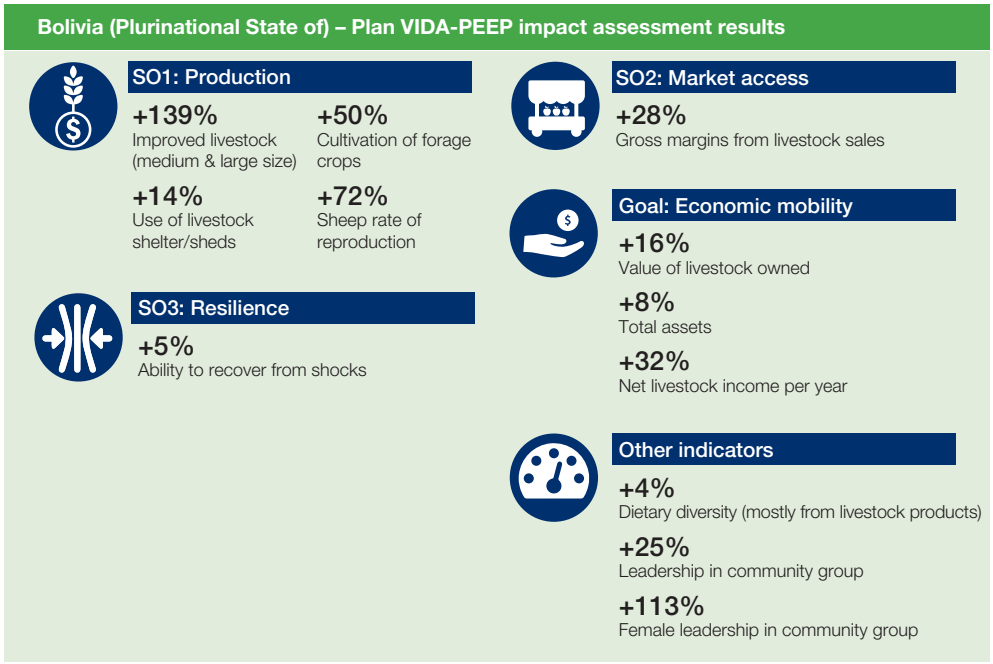
Bolivia (Plurinational State of)
Plan VIDA-PEEP

About the project

Objective. The Plan VIDA-PEEP project was designed to improve the livelihoods of rural households residing in vulnerable municipalities in the departments of Potosí and Cochabamba. It supplied financial support to communities for the implementation of rural development projects and to municipalities for the realization of production infrastructure projects. The project also provided community training and capacity building focused on organizational and productive skills.

Key impact estimates



Plan VIDA-PEEP shows significant positive impacts on a number of indicators related to the different SOs and, as a consequence, on some key variables in the economic mobility domain. These positive impacts are particularly significant for those benefiting from livestock-specific community investments, which constituted about 85 per cent of all the Community Based Productive Investments (*Proyectos Inter Comunales*, or *PICs*) implemented.

The results suggest that the project was effective in increasing the production of its beneficiaries (SO1). As a direct effect of the intervention, beneficiaries are 139 per cent more likely to own improved livestock breeds (mainly cattle and sheep). Beneficiary households also tend to adopt better rearing and care practices as demonstrated by the fact that they are 14 per cent more likely to use shelter and sheds to protect their livestock and 50 per cent more likely to cultivate forage crops to feed their animals. In terms of livestock productivity, the rate of sheep reproduction is 72 per higher for beneficiaries relative to the non-beneficiaries.

Although not the focus of the project, which was mainly aimed at improving the productive base of its recipients, the results show a 28 per cent increase in gross margins from livestock sales in the previous year for beneficiaries compared to non-beneficiaries – a proxy for increased market participation (SO2).

Project beneficiaries also seem to have strengthened their resilience (SO3), as shown by a 5 per cent increase in their ability to recover from climate and/or economic shocks relative to non-beneficiary households. Furthermore, livestock *PIC* beneficiaries experienced a 5 per cent increase in income diversification, which is an important determinant of household resilience capacity.

In terms of the broader goal of improving households' economic mobility, Plan VIDA-PEEP achieved positive results for asset wealth and agricultural income. Durable and productive asset ownership of beneficiary households increased by 3 and 12 per cent respectively, corresponding to an 8 per cent increase in total asset wealth. Beneficiaries also earned higher net agricultural income in the previous year compared with non-beneficiaries. This increase amounted to about US$127 per year, which corresponded to a 21 per cent gain. When looking at the livestock *PIC* subsample, the increase in agricultural income was even higher, amounting to 24 per cent. The analysis suggests that beneficiaries' ownership of more and better-quality livestock played an important role in determining this positive impact.

In terms of other relevant indicators, a positive impact on nutritional outcomes was seen only for the livestock *PIC* subsample, with an overall benefit of a 4 per cent increase in dietary diversity. The strongest increase in diversity was seen in consumption of livestock sub products (eggs, milk, and milk products).

Finally, the analysis found no strong effects on social capital increase, save for a 26 per cent increase in leadership among beneficiary households. This impact is strongest for Potosí, where it holds also when disaggregated by gender, with a significant increase in women's leadership. Although the lack of strong effects on social capital is slightly surprising given the emphasis the project placed on community capacity building and networking, these results do not differ from recent literature on similar community-driven development projects and social cohesion. Our qualitative findings show that existing social capital was high as respondents called attention to social norms and practices that had existed before Plan VIDA-PEEP implementation. These social norms were put into practice during the course of the project and likely contributed to its success.

Lessons learned

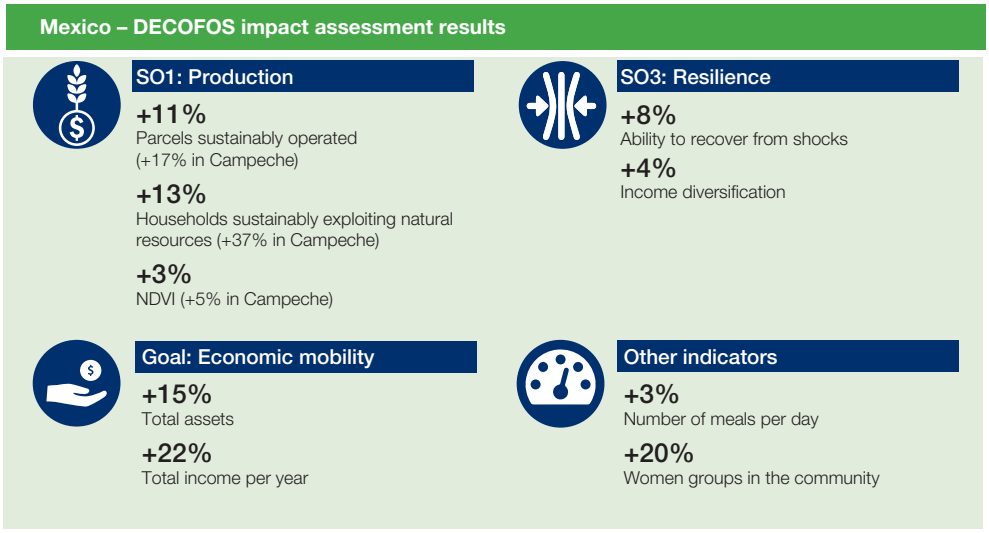
- Overall the project shows some significant and positive impacts on the main indicators in the domain of economic mobility proxied by asset ownership and agricultural income, suggesting that improving livestock herds is a viable option for ameliorating the livelihoods of poor households in remote rural communities of Bolivia.
- The impacts found across the entire sample are stronger and more significant for interventions that focus specifically on livestock. These impacts are likely attributable to a more robust, better-constructed, and interlinked logic of intervention for the livestock-related activities.
- Results suggest that a more focused type of intervention with less diversified development priorities may lead to larger and more positive direct impacts. This is also true for indirect but related indicators such as dietary diversity, which is significantly positive for livestock beneficiaries and driven by higher consumption of livestock-related products.
- Indicators of social capital were high among both beneficiaries and non-beneficiaries, and qualitative evidence suggests that social capital can be considered a principal driver of the project's successful implementation rather than a result.
- In summary, the project shows good results, which are stronger for more focused and more interlinked components that develop positive synergies at the local level. This suggests the effectiveness of community-driven development projects can be enhanced by identifying key development needs at the onset with strong internal coherence vis-à-vis the result chain.

Mexico
DECOFOS

About the project

Objective. The Community-based Forestry Development Project in Southern States (DECOFOS) was designed to address and overcome problems linked to deforestation and forest degradation in rural communities of marginalized forest areas in Campeche, Chiapas, and Oaxaca. The project was carried out through the restoration and reforestation of degraded areas together with the provision of technical and financial support for the development of microenterprises and sustainable production initiatives.

Key impact estimates



DECOFOS positively contributed to increase the production (SO1), market access (SO2), and resilience (SO3) of its beneficiaries and therefore to greater economic mobility in terms of asset and income wealth.

Given the particular nature of the project, many of the positive results achieved in terms of production have a strong sustainability connotation. In particular, the analysis shows that, overall, project beneficiaries operate 11 per cent more parcels in a sustainable way and are 13 per cent more likely to sustainably exploit natural resources from common land compared to non-beneficiaries. These results are even stronger in the state of Campeche, which is

characterized by large community-owned forested areas and where project activities were tailored to local needs and focused on the sustainable extraction of timber and non-timber forest products for income-generating purposes and on increasing forestry and agroforestry.

Reforestation activities promoted by the project also produced important environmental benefits as shown by an increase of 3 per cent in the normalized difference vegetation index (NDVI), a remote-sensing indicator assessing the live green vegetation, in project areas compared to non-project areas. The result is stronger in Campeche, where the NDVI increased by 5 per cent. This suggests that reforestation activities promoted through DECOFOS were successful in increasing green mass and thus mitigating CO2 emissions.

Project beneficiaries experienced a considerable increase in their income from sales of natural resources relative to non-beneficiaries, suggesting higher market participation compared to non-beneficiaries. Again, this result is even stronger for Campeche, where the annual increase in income sales for beneficiaries amounts to about US$52 relative to an average of US$6 for non-beneficiaries.

DECOFOS also contributed to increased household resilience: project beneficiaries are 8 per cent more likely to recover from any type of experienced shocks and 16 per cent more resilient to drought shocks than non-beneficiaries. Furthermore, project beneficiaries experienced a 4 per cent increase in income diversification, which is an important determinant of household resilience capacity.

In terms of economic mobility, the analysis shows significant improvements in household wealth: project beneficiaries increased their annual income by 22 per cent and owned 15 per cent more assets compared to non-beneficiaries. The project succeeded in achieving positive impacts that were aligned with the specific agroecological and socioeconomic characteristics of the states involved. In Campeche the increase in total household income seems to be driven by gains realized from selling natural resources extracted from common land. In Chiapas, where livelihood diversification opportunities are higher, the project intervention concentrated on supporting small business enterprises. Results show that beneficiaries were 120 per cent more likely to enter into new business activities compared to the other states, with a significant increase in off-farm income that translated into a 39 per cent rise in annual household income.

The project also had a positive impact on total asset wealth, which increased by 15 per cent for beneficiary households and, even more, on productive asset ownership, which increased by 41 per cent.

In terms of other important indicators, project beneficiaries are more food secure compared to non-beneficiaries, as shown by a 3 per cent increase in the number of meals per day.

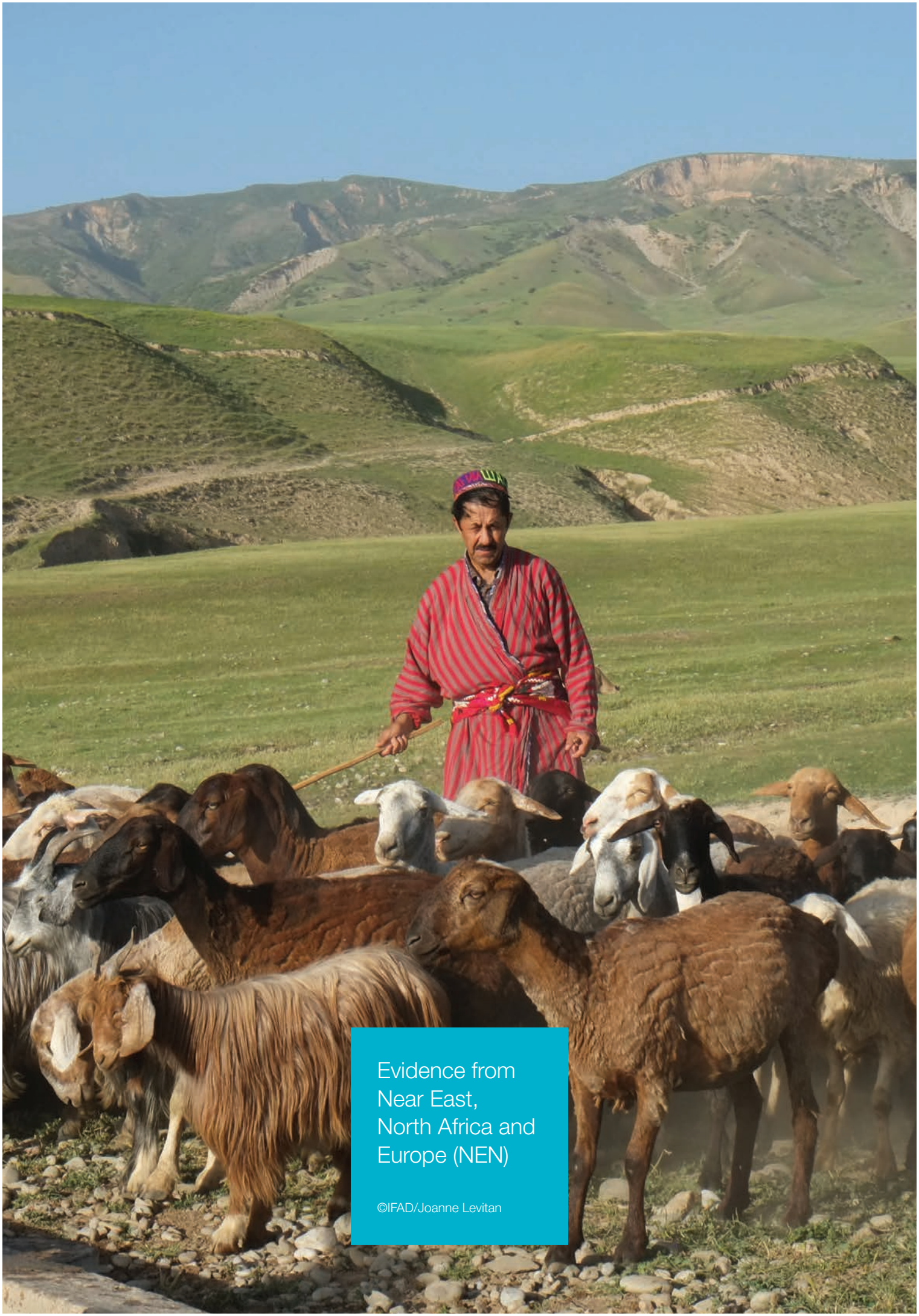
Finally, no strong impacts were found on social capital except for the greater presence of women's groups in the community (20 per cent increase) and a higher presence of associations in participant villages (29 per cent increase).

In summary, results tend to be particularly strong where interventions have been more focused and designed based on local needs and characteristics of natural and capital endowments, especially in Chiapas and Campeche. In Oaxaca, where project components were equally distributed and the intervention was smaller in terms of both financing and number of beneficiaries, results are weaker.

This suggests that a well-structured intervention that follows a strong logic with interlinked components is more effective in transforming rural economies and achieving impacts than highly diversified types of interventions.

Lessons learned

- The project in its practical implementation tried to represent and reflect the topographical, agroecological, and socio-economic differences among the three southern states involved (Campeche, Chiapas, and Oaxaca). Impact assessment results are perfectly aligned with the different strengths and emphases the project put on the different components in the different states.
- Overall, the project showed interesting and good results, which are stronger for the activities that were more focused and more tailored to development needs and characteristics of the states participating in the project, suggesting that well-structured interventions aligned to local needs are more effective in transforming rural economies and achieving impacts.
- The project shows successful results with regard to environmental outcomes, suggesting that when households are given the right incentives, projects can successfully achieve private benefits as well as public environmental benefits.
- The promotion of agroforestry and forest practices was proven to be successful in achieving positive environmental impacts, in particular in the state of Campeche.



Evidence from Near East, North Africa and Europe (NEN)

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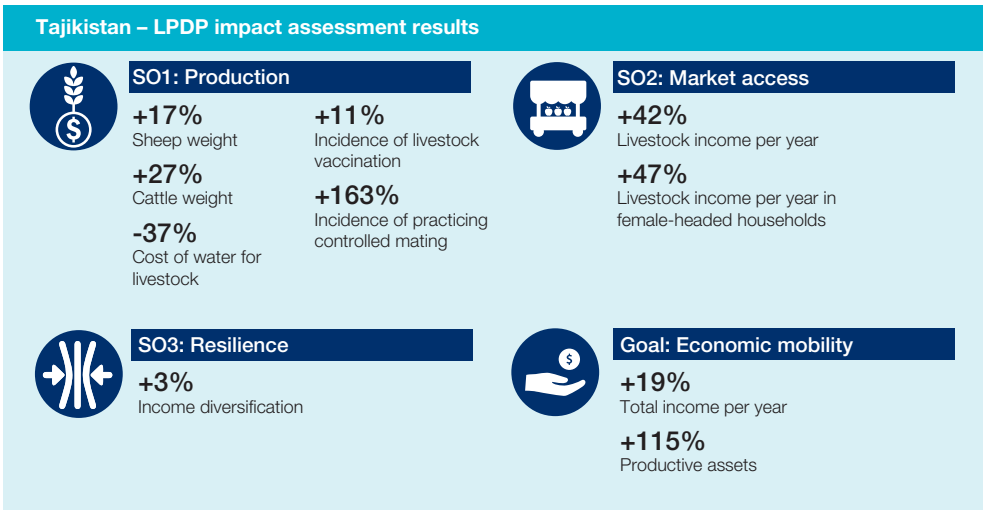
Tajikistan
LPDP

About the project

Objective. The Livestock and Pasture Development Project (LPDP) was designed to increase the nutritional status and incomes of poor rural households in the Khatlon region by boosting livestock productivity through improvement of the productive capacity of pastures and through breeding and mating techniques combined with easier access to water. The project developed institutional capacity at the village level by creating a managerial structure and social cohesion in managing pasture land with the aim of improving livestock husbandry practices and increasing livestock productivity.

Key impact estimates



Overall the LPDP showed some significant impacts on incomes and productive asset ownership, as well as on other important domains of household well-being.

The project contributed to improving beneficiaries' production. Beneficiary households exhibited larger livestock herds and increased livestock weight resulting from better access to and lower cost of water, tractor services, and adoption of improved or controlled breeding and mating techniques: beneficiaries were 163 per cent more likely to adopt these practices compared to non-beneficiaries. These achievements did not result in an increase in milk production, possibly due to the fact that the focus of the livestock production was on meat rather than milk and dairy and that most of the milk is not harvested and transformed into

dairy products or sold. It is important to bear in mind that compliance with pasture rotational plans without a parallel increase in the amount of fodder or other type of animal feed may create challenges in maintaining livestock herds while pasture is being restored. Positive results were also found in the domain of empowerment. Women-headed households exhibited increases in both livestock income (47 per cent) and livestock ownership (77 per cent) and significantly higher decision-making power with regard to small ruminants' feed, livestock breeding, and crop income earnings.

In terms of market access, the number of transactions and types of buyers seem to suggest that beneficiary households had better access to outside and more formal markets than did non-beneficiary households. Moreover, results show positive impacts on livestock sales, with beneficiary experiencing a 282 per cent increase in comparison to non-beneficiaries.

Regarding economic mobility, impacts on the beneficiaries' incomes and assets were positive and significant, with an increase of 19 per cent in total household income and 115 per cent in productive assets, along with increases in agricultural income (livestock net income rose by 42 per cent and crop income by 18 per cent).

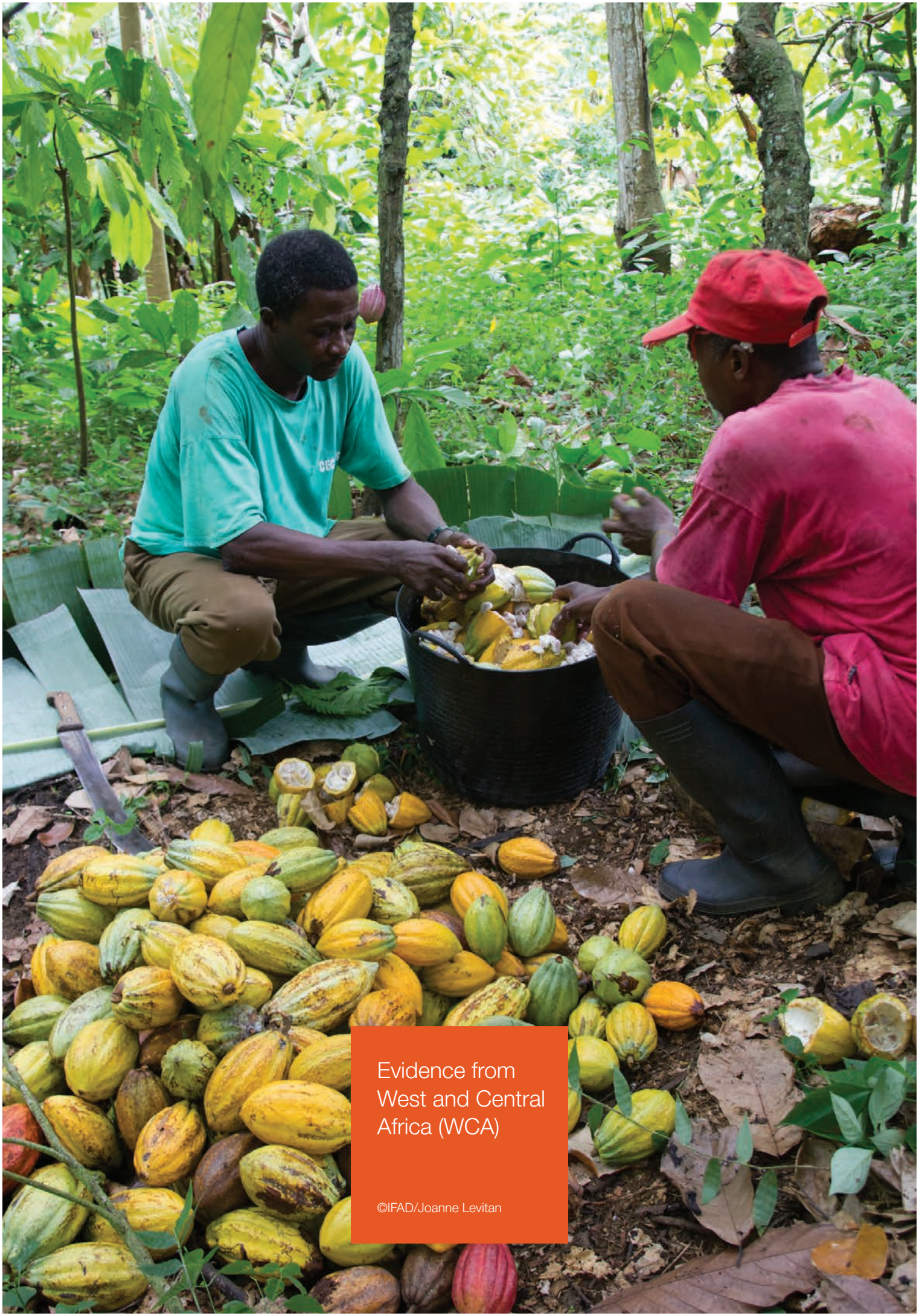
With regard to resilience, beneficiary households are more resilient than non-beneficiary households, showing higher total annual income despite drought (20 per cent higher) and economic shock (17 per cent higher). LPDP had a significant positive impact on the number of households that enforced pasture rotational plans, resulting in greater adaptation to climate change. The assessment also found beneficiary households to be significantly more diversified in terms in terms of income sources than non-beneficiaries.

On the cross-cutting issue of nutrition, results for nutrition and food security are somewhat controversial: although anthropometric measures were positive and significant, showing that children of beneficiary households presented a better nutrition status and growth rate (as indicated by an increase of 0.3 standard deviations in length/height-for-age Z-score) than children in non-beneficiary households, the opposite was true for food insecurity and food diversification. This result may suggest that the Food Insecurity Experience Scale (FIES) approach did not allow for good data, given how sensitive certain questions are.

Lessons learned

- Overall the project shows some significant improvements in the main impact indicators – namely, economic mobility proxied by an increase in productive asset ownership, income, and, given the particular focus of the project, livestock ownership and weight.
- These positive results seem to be due to a well-implemented project with a strong theory of change, where the different components were meant to achieve objectives and outcomes in a synergistic fashion. In particular, these results stem from better access to and reduced costs for water, reduced costs of agricultural production owing to tractor services provided by the pasture user unions (PUUs), and the adoption of improved or controlled breeding and mating techniques.

- The project also had environmental objectives linked to the restoration of degraded pastureland through pasture rotation plans implemented by the PUUs. Results show that whereas rotational plans were established and adopted, the normalized difference vegetation index (NDVI) was positive but not significant. This is not surprising given the amount of time needed for pastureland restoration. Using geo-referencing to monitor pastureland under LPDP-II would allow for better monitoring and assessment as well as for a calculation of the potential to mitigate greenhouse gases linked to pasture rotation.
- The project sought to increase empowerment and income for more vulnerable women-headed households. Results suggest that these objectives were achieved. Positive results were found on income and productive assets among women-headed households, and in general women gained significantly higher decision-making power with regard to small ruminants' feed, livestock breeding, and crop income earnings.
- Interestingly, the project had positive unintended impacts: by freeing children's time and increasing their families' income, it allowed more children to attend school, as shown by positive and significant school participation among beneficiary children and as reported from qualitative analysis conducted.
- The somewhat controversial and confusing results on nutrition and food security suggest that further analysis in the assessment of the LPDP-II be complemented by qualitative assessment to ascertain whether the sensitive questions used in the FIES approach allowed for a good assessment of this indicator.



Evidence from West and Central Africa (WCA)

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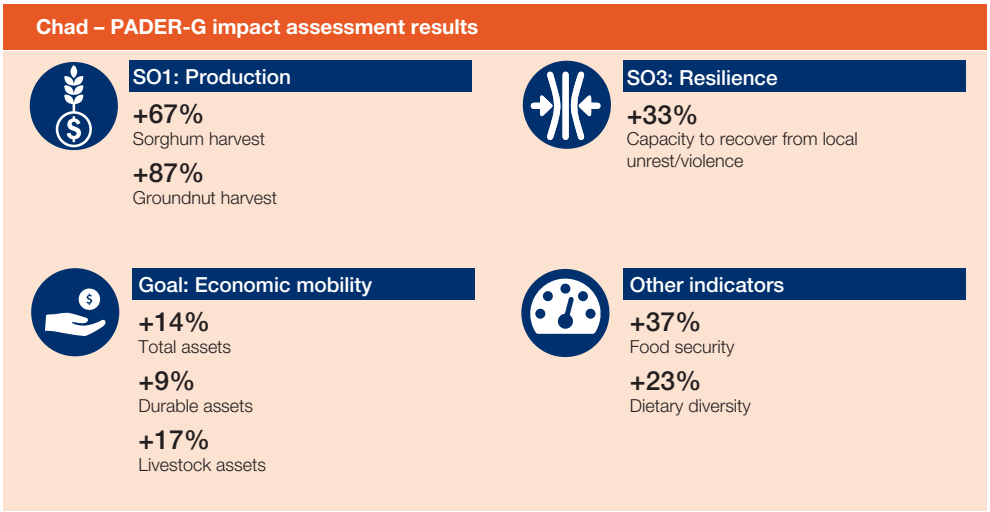
Chad
PADER-G

About the project

Objective. The Rural Development Support Programme in Guéra (PADER-G) is an IFAD-funded project that was implemented in Guéra, Chad, to improve the food security and livelihoods of poor rural households. PADER-G aimed to manage food shortage risk by improving cereal storage among smallholder farmers through the construction and management of community cereal banks. This element of the project established community committees (COGES) and trained them in effective management of the cereal banks.

Key impact estimates



In terms of production (SO1) the impact assessment of PADER-G found that yields of major grains (sorghum, millet, berebere) increased by 47 per cent, when measured in terms of kilograms of output per hectare. At the same time, yields of major oilseeds (groundnuts and sesame) increased by 65 per cent as a result of the project's cereal bank intervention.

Given that the cereal banks intervention of PADER-G was mostly intended to increase food security, no impacts on market access (SO2) were found. Cereal banks alone were neither able to help farmers increase the value of crop sales nor crop prices received. Nevertheless, food security did increase by at least 37 per cent while dietary diversity increased by 23 per cent among beneficiary households.

While no significant impacts were found on overall resilience or resilience to drought indicators (SO3), PADER-G beneficiaries were 33 per cent more able to recover from incidents of violence or civil unrest taking place in their communities. These impacts likely emanated from increased cooperation and cohesion among members of the community cereal bank management committees.

In terms of economic mobility (IFAD overarching goal), PADER-G helped households increase their asset holdings by about 14 per cent overall. Productive assets as well as livestock assets increased by 17 per cent each, while durable assets increased by about 9 per cent for those households that benefited from PADER-G cereal banks. The improvement in assets was likely due to households' reduced liquidation of assets for the purposes of obtaining cash to purchase food during the lean season

Lessons learned

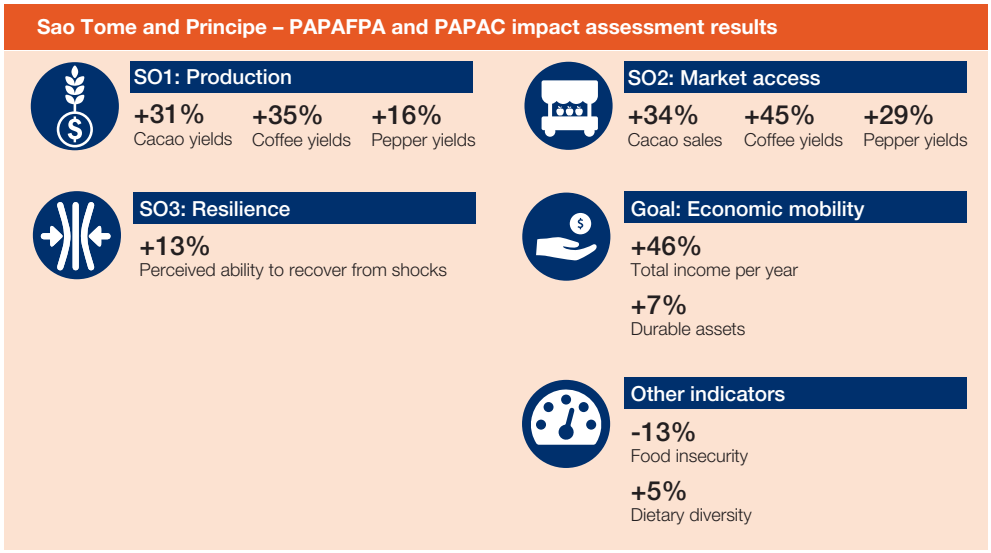
- One key lesson of this impact assessment is that in contexts where basic needs such as food security and basic public services are lacking, setting smart goals and targets that are not overambitious is a practical approach that can lead to real impacts for poor farm households as well as set a firm foundation for future interventions.
- Sustaining the impact of PADER-G cereal banks is critical: mechanisms for continued maintenance and management of the infrastructure will need to be put in place.
- A related lesson is that by providing training to community cereal bank committees, PADER-G effectively built capacity for management of the infrastructure. This capacity strengthening may have contributed to the higher impact of the PADER-G cereal banks compared with other cereal banks and is likely to promote the sustainability of the PADER-G cereal banks' impacts.
- The role of markets is crucial in influencing farmers' commercialization decisions. Because market linkages and profitability appeared limited for sorghum, farmers mainly stored sorghum for home consumption while they expanded groundnut production for sale. Whereas this had positive implications for food security and dietary diversity, it did not result in income increases through profits and gross margins from selling to the market. If the impact of cereal banks is to go beyond food security to include profitable market participation, future interventions may consider deliberately supporting beneficiaries' access to markets for inputs, cereals and oilseeds.
- Finally, it is encouraging to see that beyond the main objective of food security, cereal banks were able to achieve other impacts such as protecting household assets from distress sale, increasing dietary diversity and improving resilience to civil unrest and violence. These results imply that cereal banks can be an effective platform for generating impacts on a number of development outcomes.

Sao Tome and Principe
PAPAFPA and PAPAC

About the project

Objective. The Participatory Smallholder Agriculture and Artisanal Fisheries Development Programme (PAPAFPA) and the Smallholder Commercial Agriculture Project (PAPAC) are complementary projects designed to improve the livelihoods of smallholders in Sao Tome and Principe. PAPAFPA created four farmers' cooperatives to enhance the development of the cacao, coffee, and pepper value chains through increased commercialization in domestic and niche export markets. PAPAC aimed to consolidate the activities carried out under PAPAFPA and to introduce family plantations within each value chain.

Key impact estimates



Overall, the analysis shows positive impacts of the projects on agricultural production and productivity, household income and assets, food security, and commercialization for beneficiary farmers.

The interventions delivered under PAPAFPA and PAPAC contributed to an increase in the extent of organic certification among beneficiaries. In terms of SO1, harvests and productivity for the value chains directly targeted by the interventions generally increased: cacao (whose productivity increased on average by 31.1 per cent for beneficiaries compared to non-beneficiary households), coffee (35.1 per cent), and pepper (16 per cent).

Relative to SO2, beneficiary households achieved increased revenue from sales of these crops: 34.2 per cent higher sales revenue from cacao, 44.7 per cent higher from coffee, and 28.7 per cent higher from pepper than non-beneficiary households.

Turning to SO3, resilience, beneficiaries farmers increased their their perceived ability to recover from shocks by 13 per cent.

As fare as economic mobility was concerned, beneficiary households earned 46 per cent higher net income in the 12 months preceding the time of data collection, equivalent to an increase of approximately US$650 a year as compared to non-beneficiary households. This increase in income is mainly driven by an increase in agricultural income of 77 per cent. Similarly, asset accumulation increased for beneficiaries relative to the counterfactual farmers for durable (6.6 per cent) and productive assets (19.4 per cent).

Regarding nutritional impacts, beneficiaries exhibited greater dietary diversity (by 5.3 per cent), and lower food insecurity (by 13 per cent).

Lessons learned

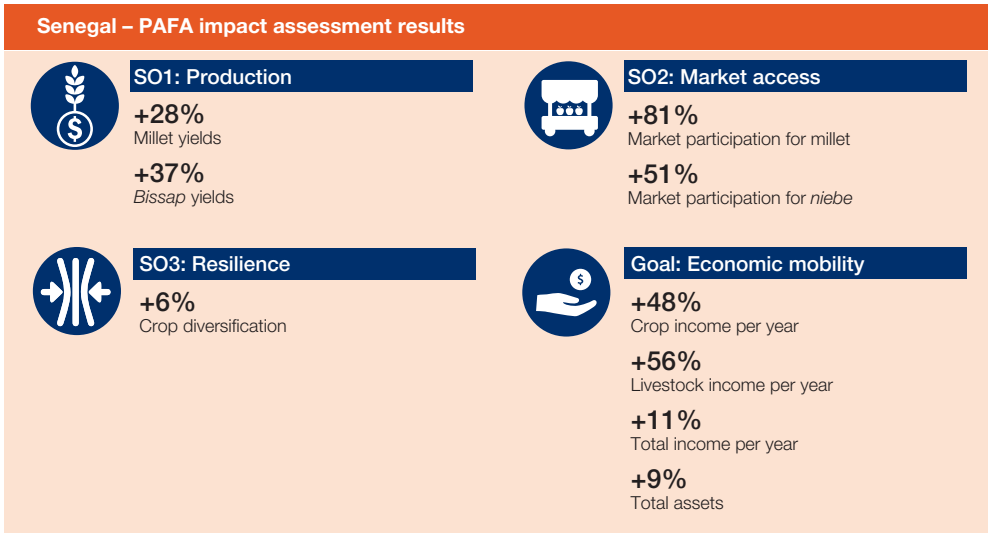
- Linked interventions in the provision of agricultural organic inputs and techniques, farmers' professional development, and rural infrastructure were crucial to ensure that gains in agricultural yields resulted in increased sales revenues, asset ownership, and income for beneficiary households. The magnitude of these gains, however, is still constrained by a lack of processing infrastructure, which prevents farmers or farmers' associations from selling a higher-value-added product (such as cocoa powder or chocolate instead of cacao seeds).
- Given that some key project interventions were not crop- but rather farmer-specific (e.g., professional training, access to productive assets and techniques), gains in yields and sales revenues were not restricted to project-targeted crops but extended to other crops such as sugar cane, tobacco, fruit, and tubers. There were, however, no measurable gains in crop diversity.
- The projects accentuated households' specialization in agricultural activities as a source of income, mostly at the expense of self-employment. While this was in part a consequence of the projects' success in increasing agricultural production and associated revenues, it flags concerns about increased vulnerability in the medium and long run in the event of an agricultural shock.
- The project cooperatives played a key role in articulating different agents in the value chains, connecting farmers and producers' associations to international buyers, and ensuring minimum guaranteed prices for their products, thus buffering the impact of price shocks. However, the fact that these cooperatives appear to deal with a small number of international buyers may pose a risk for households' resilience moving forward.
- The project targeted female farmers with the aim of promoting greater gender parity. Although the qualitative evidence suggests that the projects generated a high level of satisfaction among beneficiary women, it showed no significant measurable impacts on women's empowerment. For empowerment to occur, stronger interventions directed at women would have to be implemented.

Senegal
PAFA

About the project

Objective. The Agricultural Value Chain Support Project (PAFA) was designed to improve the livelihoods of smallholder farmers in Senegal's groundnut basin. The main intervention, implemented through producer organizations, consisted of a comprehensive package of agricultural inputs, machinery, technical advice, and commercialization contracts with market operators. The project targeted vulnerable smallholder farmers, women, and underemployed youths.

Key impact estimates



The analysis reveals that PAFA, through the SPAM subsidy, was successful in boosting the production capabilities of participating households as well as in encouraging them to adopt particular crops and diversify away from groundnut production, which traditionally dominated the region.

The impact assessment focused on the market access subproject ("Sous Projet d'Accès au Marché" or SPAM), a support package consisting of the provision of agricultural inputs, technical support, a degressive subsidy over three years, and the establishment of contractual linkages between producer organizations (POs) and market operators. Results were extremely positive as far as SO1 was concerned. They showed a larger crop harvest for SPAM beneficiaries as well as increased value of millet, *niebe,* and *bissap* production, resulting in a more diverse crop portfolio. These gains also translated into higher yields for millet (28 per cent returns), *niebe* (32 per cent) and *bissap* (37 per cent). In terms of SO2 (market access), PAFA beneficiaries were more likely to sell crops and market larger quantities across

all crops (particularly for millet and *niebe*, farmers were more likely to sell by 81 per cent and 51 per cent, respectively) . PAFA farmers were also more likely to sell to a market operator, which provided more assurance of output sales and reduced price uncertainty.

Relative to SO3, resilience, beneficiary farmers increased their crop diversification by 6 per cent.

In terms of economic mobility, PAFA resulted in higher crop (48 per cent), livestock (56 per cent), and overall gross income (11 per cent), but it had no impact on wage income and resulted in lower income from self-employment. This suggests that while PAFA might have encouraged cultivation of various crops and thus made agricultural production more remunerative for farmers, it also decreased the need for smallholder farmers to engage in wage labor and self-employment.

Crop harvests, as well as the value of production for millet, *niebe*, and *bissap*, were higher for SPAM beneficiaries, who also enjoyed a more diverse crop portfolio. Crop adoption was higher for *niebe*, *bissap*, and millet. SPAM households were also more likely to use fertilizer on their plots, leading to higher yields for millet, *niebe*, and *bissap*.

The analysis reveals that the treatment increased beneficiaries' food security as well, especially vis-à-vis their counterparts in the control outside regions.

In general, PAFA achieved the goals set up at its inception. The impact of PAFA is more pronounced for POs with a large youth membership. Overall, women's POs experienced greater gains in production quantities, value of crops sold, yields, and income indicators, suggesting that PAFA's targeting was successful. At the PO level, results show that PAFA POs enjoyed greater market access than control POs through a higher quantity and value of commercialized harvest.

Non-SPAM households were better off than households from other POs, with a higher likelihood of selling their harvest, higher quantity sold, and higher crop and gross income than control households. Moreover, the spillover analysis reveals that had the neighborhood effects been taken into consideration, one could expect higher impacts from PAFA.

Lessons learned

- Programs that simultaneously develop value chains and facilitate market access are crucial in making production profitable for smallholder farmers. Market access increased at the intensive, and more so at the extensive, margin for SPAM households.
- SPAM households diversified production into less traditional crops while maintaining groundnut production at similar levels.
- Income and production diversity gains did not translate into diet diversification, possibly owing to biased allocation of resources within households. In addition, production growth might have translated into increased marketed output at the expense of home consumption.
- Targeting was successful because gender and youth were integrated into the project at an early stage – with the selection of the value chains. In fact, value chains were selected because they were likely to employ women and youth.
- The impact assessment reflects the sustainability of the project; the three cohorts stopped receiving support in 2013, 2014, and 2016, respectively. Five years on, project impacts are still high, suggesting that project gains were sustained over time.
- PAFA's success was due partly to its rigorous design and especially to its flexibility in adapting to realities in the field. A key project component was modified to accommodate cash-constrained participants. Because these participants were at times unable to bring their cash contributions, they could give contributions in kind.

International Fund for Agricultural Development
Via Paolo di Dono, 44 - 00142 Rome, Italy
Tel: +39 06 54591 - Fax: +39 06 5043463
Email: ifad@ifad.org
www.ifad.org

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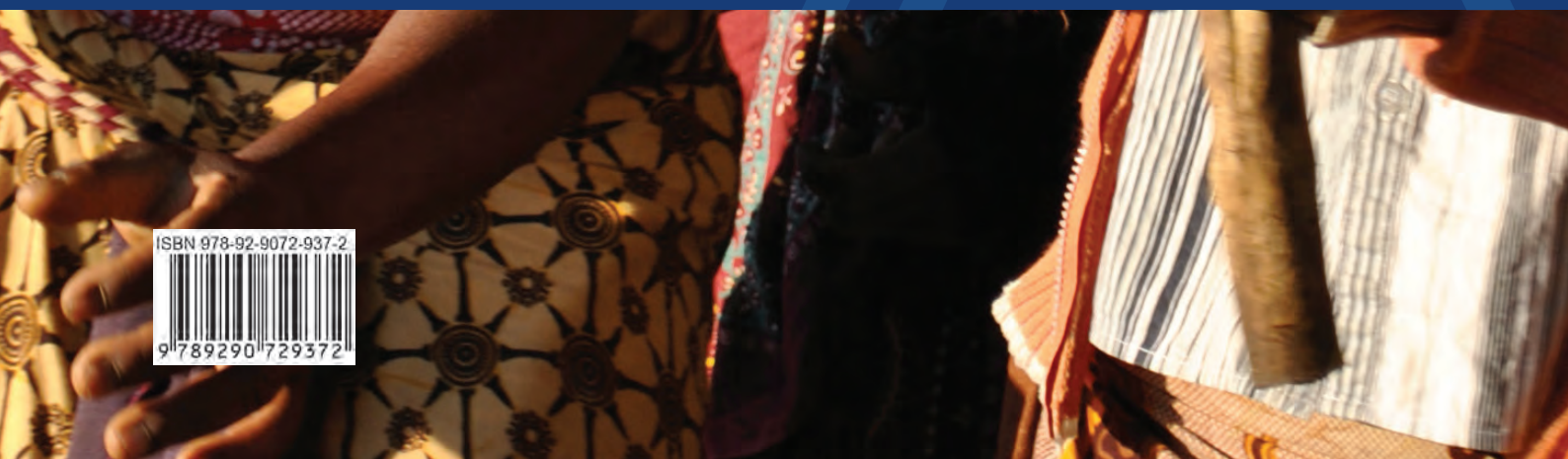

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