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IFAD10 Impact Assessment Report

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Abbreviations and acronyms

DEF	Development Effectiveness Framework
FFS	farmer field school
IA	Impact Assessment
M&E	monitoring and evaluation
PCR	project completion report
PMU	project management unit
SO	strategic objective

IFAD10 Impact Assessment Report: Draft

I. Introduction

1. This report provides the results of the 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 interventions. The report therefore describes the efforts to measure corporate impact, the project-level results achieved, and the lessons learned from the project-level analysis, and provides corporate impact estimates to determine whether IFAD has met its IFAD10 targets.

II. Background

2. The efforts to assess impact for IFAD10 began with the Development Effectiveness Framework (DEF),¹ which lays out the guidelines for implementing impact assessments in the context of IFAD's overall drive to improve development effectiveness. The DEF was created to provide a structure for using evidence in decisions regarding project design and implementation – including a series of activities to overcome the constraints on the generation and use of evidence for decision-making – and to push forward a results-based agenda.
3. The DEF requires that approximately 15 per cent of projects, representative of the IFAD10 portfolio, undergo rigorous impact assessment in order to assess and report on the corporate impacts of IFAD operations. As part of the DEF, reforms were also undertaken to improve the Results and Impact Management System by creating core indicators that could be used to report corporate-level outputs and outcomes. Together, the impact assessments and core indicators allow IFAD to present a comprehensive picture of its results. In fact, IFAD is the only international financial institution (IFI) that has a corporate methodology that allows for aggregation of impact estimates in the manner described in this report.²
4. Along with measuring impact, the assessments were designed to allow IFAD to draw significant lessons from individual projects and aggregate lessons at the corporate level. The impact assessments (IAs) undertaken for IFAD10 include 17 studies, spanning the five IFAD regions. Each provides an assessment of impact along with lessons from the project. The ultimate objectives of the IFAD10 IAs were therefore both to report on corporate impact (i.e. aggregate development effectiveness) and to glean lessons from the individual project impact assessments in order to extract key messages that could feed back into operations.
5. Corporate impact reporting uses the key indicators laid out in the IFAD10 Results Measurement Framework. These indicators are linked to the corporate strategic goal and objectives. The latter are in turn linked to the Sustainable Development Goals (SDGs), notably to SDG 1 (no poverty) and to SDG 2 (zero hunger) (specifically SDG 2.3 [double agricultural productivity and the incomes of small-scale food producers by 2030] and SDG 2.4 [ensure sustainable food production systems and implement resilient agricultural practices by 2030]). IFAD's corporate strategic goal is to increase economic mobility, while its strategic objectives (SOs) are: improved production (SO1), improved market access (SO2), and greater resilience (SO3).³ These indicators were measured in the impact assessments. They complement the project-specific impact indicators used for the individual impact assessments, which were identified in consultation with governments and IFAD regional divisions.

¹ The DEF was approved by the Executive Board. It is based on the lessons learned from the experience of demonstrating impact for the IFAD9 Impact Assessment Initiative (see EB 2016/117/R.8/Rev.1)

² An overview of the approach pursued by IFAD can be found in the journal [Rural21](#) and the second section of the IFAD DEF document (EB 2016/119/R.12).

³ See [EB 2016/119/R.13/Rev.1](#): Proposed refinements to the IFAD10 Results Measurement Framework.

6. Targets for these four corporate indicators were informed by a careful and systematic review of IFAD's portfolio, which determined – based on IFAD's actual investments – the overall potential impacts of the entire portfolio. For IFAD10, the impact assessment targets were set as follows: 40 million individuals are expected to experience significant economic mobility as a result of IFAD-financed investment projects, 43 million people are expected to significantly increase production (SO1), 42 million people are expected to experience significantly increased market access (SO2), and 22 million people are expected to experience greater resilience (SO3) (figure 1).

Figure 1
IFAD10 impact assessment targets



III. IFAD10 impact assessment objectives

7. In line with the DEF, IFAD10 IAs build on the lessons from the IFAD9 IAs. To move towards a more consolidated corporate impact assessment system (to be fully achieved by the end of the IFAD11 period), a clear and specific set of objectives was identified for the IFAD10 period. These objectives were intended not only to measure impact but also to develop an adequate system to formalize the approach.
8. The specific objectives for the IFAD10 IAs were as follows:
- Complete at least 12 ex post⁴ impact assessments and estimate the aggregate impact for IFAD10;
 - Design impact assessment plans and initiate baseline data collection in at least six ex ante impact assessments;
 - Develop a standardized management system for ensuring high-quality and consistent impact assessments;
 - Create a strategy for disseminating the outputs of impact assessments; and
 - Prepare training material on impact assessment.
9. Achievement of these five objectives means that IFAD can realize the key goals for the IFAD10 IAs as laid out in the DEF. They generate the data that IFAD needs to report on the aggregate impact of its operations, using indicators related to both the overall IFAD goal (increase economic mobility) and the IFAD SOs (increased production, market participation and resilience) while also drawing project- and corporate-level lessons. They also allow IFAD to establish a standardized system to manage its impact assessment activities that complements its ongoing project-based data collection activities. Through this process, IFAD continues to strengthen its efforts towards improved development effectiveness.

⁴ With ex post impact assessments, data collection is planned after an intervention, whereas with ex ante impact assessments, data collection is planned in advance of implementation and a baseline is usually included. Generally, ex ante approaches are preferred, however several years are needed to implement them and issues often arise. IFAD's ante approach has been to learn from ex post approaches and work towards more ex ante assessments over time.

10. The specific objective of IFAD10 relative to impact assessment has been achieved: 17 ex post impact assessments have been completed, covering 19 IFAD-supported projects. Table 1 presents the projects evaluated through ex post impact assessments along with their thematic areas.

Table 1
Ex post impact assessments during IFAD10

<i>Region</i>	<i>Country</i>	<i>Project</i>	<i>Thematic area</i>
APR	Bangladesh	Coastal Climate-Resilient Infrastructure Project (CCRIP)	Climate-resilient road and market infrastructures
-	China	Guangxi Integrated Agricultural Development Project (GIADP)	Infrastructure (road), rural environmental improvements
-	Indonesia	Coastal Community Development Project (CCDP)	Community planning/business development training, coastal management training, market and value chain facility construction and development
-	Nepal	High-Value Agriculture Project in Hill and Mountain Areas (HVAP)	Inclusive value chain development and service market strengthening
-	Philippines	Irrigated Rice Production Enhancement Project (IRPEP)	Irrigation (rice)
ESA	Ethiopia	Participatory Small-scale Irrigation Development Programme (PASIDP)	Irrigation, agricultural training, community training
-	Kenya	Smallholder Dairy Commercialization Programme (SDCP)	Household dairy production and developing milk marketing value chains
-	Madagascar	Project to Support Development in the Menabe and Melaky Regions (AD2M)	Irrigation, land tenure
-	Rwanda	Project for Rural Income through Exports (PRICE)	Value chains/public-private partnerships (coffee, tea, silk, horticulture)
-	United Republic of Tanzania	Agricultural Sector Development Programme – Livestock (ASDP-L) and Agricultural Services Support Programme (ASSP)	Extension – farmer field schools (FFS)
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	Technical assistance/capacity-building for agricultural production base development
-	Brazil	Gente de Valor – Rural Communities Development Project in the Poorest Areas of the State of Bahia	Productive and Market Development, Human and social development
-	Mexico	Community-based Forestry Development Project in Southern States (Campeche, Chiapas and Oaxaca) (DECOFOS)	Forestry and microenterprise development and climate change
NEN	Tajikistan	Livestock and Pasture Development Project (LPDP)	Livestock/livestock climate change component
WCA	Chad	Rural Development Support Programme in Guéra (PADER-G)	Access to seeds and credit
-	Sao Tome and Principe	Participatory Smallholder Agriculture and Artisanal Fisheries Development Programme (PAPAFPA) and Smallholder Commercial Agriculture Project (PAPAC)	Development of family plantations, strengthening of producers' organizations (POs)
-	Senegal	Agricultural Value Chains Support Project (PAFA)	Value chain development

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.

11. Six ex ante impact assessments are also in the process of being completed;⁵ however, these will not be reported on in this document given that only baseline data have been collected at this time. Table 2 presents the ex-ante impact assessments that have been initiated and their current status.

Table 2
Ex ante impact assessments during IFAD10

<i>Region</i>	<i>Country</i>	<i>Project</i>	<i>Status</i>	<i>Baseline report*</i>	<i>Funding</i>
APR	India	Odisha Particularly Vulnerable Tribal Groups Empowerment and Livelihoods Improvement Programme (OPELIP)	Completed	Dec-17	Project
ESA	Ethiopia	Participatory Small-scale Irrigation Development Programme – Phase II (PASIDP II)	Completed	Dec-18	Project
-	Uganda	Project for the Restoration of Livelihoods in the Northern Region (PRELNOR)	Data collection ongoing	Sep-19	IFAD
NEN	Jordan	Rural Economic Growth and Employment Project (REGEP)	Draft under revision after comments	Nov-18	IFAD
-	Tajikistan	Livestock and Pasture Development Project – Phase II (LPDP II)	Draft available	Nov-18	IFAD
WCA	Chad	Project to Improve the Resilience of Agricultural Systems in Chad (PARSAT)	Report writing	Nov-18	IFAD

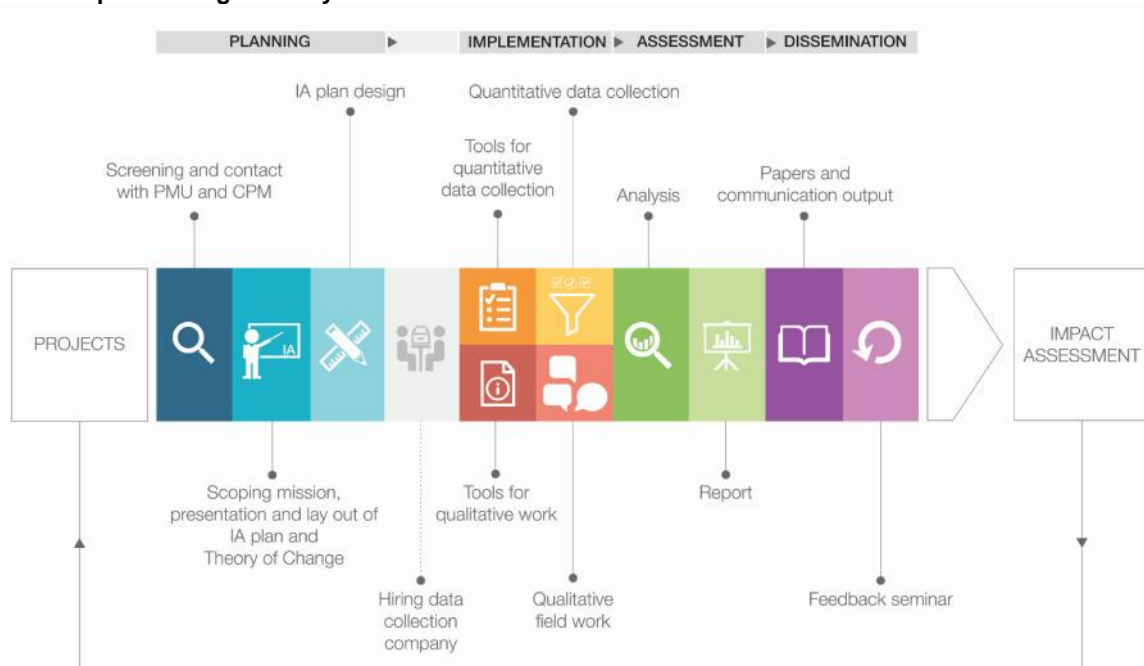
* The estimated timeline for the baseline report is valid as of October 2017.

12. During IFAD10, IFAD also developed a standardized, consolidated management system for conducting impact assessments. The system ensures that the impact assessments meet quality standards and are consistent. The International Initiative for Impact Evaluation, the World Bank (Center for Development Data and Survey Solutions) and external experts provided technical support to standardize the production cycle. Annex I provides an overview of the approach used for the assessments.
13. The IA production cycle includes four main activities:
- (i) Planning. The project's theory of change, the indicators to be considered and the questions to answer in a given impact assessment are clarified, in consultation with the government and IFAD country team, in alignment with the project rationale and IFAD's main corporate indicators. A standardized impact assessment plan is then prepared identifying the quantitative and qualitative approaches to be used.
 - (ii) Implementation. The tools for qualitative and quantitative data collection are developed, procurement of a data collection firm is completed, data collection protocols to ensure quality control are created, the qualitative and quantitative fieldwork is completed, and datasets are created.
 - (iii) Assessment. Quantitative and qualitative results are analysed and, after feedback from governments and country teams, results are compiled in a standardized impact assessment report, which includes the indicators and answers the questions identified in the impact assessment plan.
 - (iv) Dissemination. Ancillary products (briefs and infographics) are developed to accompany the impact assessment report – which is of a more technical nature – and dissemination activities are undertaken.

⁵ The data for ex ante impact assessments is often collected in conjunction with the ex post data collection in order to save resources. It is less expensive to undertake data collection for a project that is being completed (ex post) at the same time as for a project that is being initiated and in need of a baseline (ex ante).

14. The different stages of the IA management system are illustrated in figure 2.

Figure 2
IFAD10 impact management system



15. All IFAD10 IAs have followed this system. This standardization ensures comparability across projects and countries along the entire impact assessment cycle, while allowing the assessments to be contextualized by country and project circumstances. It also enables the aggregation of impact estimates from different studies. This system, together with an analysis protocol, is crucial for research transparency, data sharing and aggregating impact estimates.
16. A key activity linked to the last stage of the system was to create a dissemination strategy for the assessment's outputs. Building on the lessons learned from IFAD9 IAs, and IFAD's focus on generating evidence for operations, a systematic approach was set up to create knowledge products to disseminate impact assessment findings among the general public. Several complementary knowledge products have been developed and are being shared, including a technical impact assessment report, a series of policy briefs and infographics based on the impact assessments and a corporate publication on IFAD's development effectiveness available on IFAD's website. Stakeholder workshops are also held to disseminate and validate/discuss assessment findings with country teams and project staff so that they can synthesize lessons learned for future project design and implementation; however such workshops have not been held as systematically as originally planned.⁶ The overall approach behind these products is to develop suitable material for different audiences, using a variety of communication channels.
17. In line with other corporate efforts towards improving monitoring and evaluation (M&E) capacity in the rural sector, several impact assessment training sessions have been developed. These include sessions held with the Centers for Learning on Evaluation and Results under the Programme in Rural M&E/Centres for Learning on Evaluation and Results initiative, targeted at government counterparts, and training

⁶ This is partly due to the fact that many of the impact assessments completed at the same time limiting the capacity to disseminate results.

for project management units (PMUs) and local stakeholders on the impact assessment concept and methodologies. The training materials prepared for PMUs and local stakeholders on the impact assessment concept and methodologies are shared with the country teams and project staff after each scoping mission.

18. More broadly, impact assessment guidelines are being finalized and will serve as a toolkit for implementing the assessment cycle.

IV. IFAD10 project-level impacts

19. Overall, the 17 impact assessments completed as part of IFAD10 show significant impact on the lives of project beneficiaries relative to the three IFAD strategic objectives and the corporate goal.
20. Table 3 summarizes the magnitude of the impacts of the projects evaluated. The columns show the magnitude of impact with respect to each SO or overarching goal: plus sign (+) = positive impact; minus sign (-) = negative impact; zero (0) = insignificant impact⁷ and n/a = not applicable.⁸ Annex III includes a more detailed synthesis of the impact and results of individual projects.⁹ The stronger the impact on the SO, the higher the number of symbols in each cell. For example, a single plus sign indicates a good impact (ranging from 0-20 per cent), two plus signs mean strong impact (20-40 per cent), three plus signs signify very strong impact (above 40 per cent).
21. SO1: Production (first column). Overall, the project activities that were evaluated had statistically significant¹⁰ impacts on production, although the nature of these impacts varied across countries and depending on the project type and value chain supported. On average, production and productivity impacts were very strong and significantly positive for beneficiaries relative to comparison farmers in all projects apart from those in Bangladesh where these impacts were not significant; and in Tajikistan, where they were negative and significant.
22. Production gains were particularly large in Rwanda, Nepal and Ethiopia. PRICE, which targeted two value chains (coffee farmers through cooperatives and horticultural farmers) in Rwanda, substantively increased horticultural farmers' production through an innovative value chain approach combined with financial support. The HVAP, in Nepal, which supported producers' organizations, led to production impacts thanks to the strong implementation approach that ensured progress in the value chain activities. In the PASIDP, in Ethiopia, which had countrywide coverage, beneficiaries experienced significant impact on production in the horticultural domain even in the dry season, thanks to the irrigation infrastructure, which played an ex ante risk management role in a context of particularly severe drought.
23. In the LPDP in Tajikistan, the livestock herd increased significantly for beneficiaries; however, both the annual and the daily amounts of milk produced were significantly lower for beneficiaries relative to the comparison or control group counterparts. This is possibly attributable to the fact that the feeding sources used were insufficient to feed a larger herd of cattle.
24. SO2: Market access (second column). The impacts across market access indicators (notably value of sales, gross margins or indicators concerning market participation) are strongly positive overall and significant for all projects evaluated.

⁷ This means that from a statistical standpoint there is limited confidence (less than 90 per cent) that the results were different from zero.

⁸ Not all projects seek to achieve all three SOs. If the theory of change did not suggest it should have an impact on a SO it was not included in the measurement. In such cases, the indicator is "not applicable".

⁹ The policy briefs of each project of IFAD11 are also available and contain a summary of the projects, its objectives and the impact on IFAD's beneficiaries compared to the counterfactual. The policy documents also include infographics that focus on specific impact on outcome variables of interest. The documents for the impact assessments can be found at www.ifad.org/en/impact-assessment.

¹⁰ "Significant" in this section means statistically significant at least the 90 per cent confidence level.

The exceptions are the projects in the Plurinational State of Bolivia, Brazil and in Sao Tome and Principe where the indicators for beneficiaries were not significantly different from the outcomes of comparison farmers.

25. The GIADP in China developed an innovative approach by implementing agricultural support activities along with activities aimed at improving the rural environmental conditions. Results show that households receiving this combination of support experienced higher yields and value of vegetable production. In Senegal, PAFA was successful in making production profitable for smallholder farmers. Market access increased at the intensive margin, and to a greater degree at the extensive margin for beneficiary households.
26. In the Plurinational State of Bolivia, the Plan VIDA-PEEP project focused mostly on community-based interventions centred on livestock distribution of improved breeds. Here, impact refers to sale of livestock products, and the results achieved were not significantly different from the outcomes for comparison farmers. However, this is understandable given that the main focus of the intervention was to improve the production base of extremely poor and remote communities. On the other hand, in Sao Tome and Principe, results pertain to two value chain projects focused on strengthening cacao, coffee and pepper value chains through cooperatives (PAPAFPA and PAPAC), and although results were on average positive, the estimated effects were only statistically significant for the coffee and pepper value chains.
27. SO3: Resilience (third column). Resilience encompassed both a subjective indicator of farmers' perceived ability to recover from shocks and indicators of crop and income diversification. The indicators are largely positive and significant for almost all projects evaluated.
28. Resilience impacts were particularly strong in PASIDP in Ethiopia, where beneficiaries exhibited a higher capacity to diversify their crop portfolio as opposed to their comparison counterparts, due to the buffering role of the irrigation infrastructure, which allowed them to generate returns during severe drought. Equally, in Rwanda, beneficiaries of supported coffee cooperatives exhibited greater resilience outcomes, e.g. a significant positive impact on the ability of households to recover from drought.
29. Exceptions were found in Bangladesh and China where impacts were not statistically significant. Resilience impacts were negative in Sao Tome and Principe (but marginally significant) when measured by farmers' self-perceived ability to recover from shocks. There, both perceived severity and exposure to shocks were higher for beneficiary farmers' compared with their counterfactual counterparts.
30. Goal: Economic mobility (fourth column). Relative to IFAD's overarching goal of improving the economic mobility of beneficiaries, results are positive and significant for all projects evaluated. Economic mobility is defined as improvements in economic status and has been measured through asset-based and other money-metrics indicators (e.g. total and agricultural income). It is worth noting that income effects vary widely across projects in terms of magnitude.
31. As an example, income gains were very large in Rwanda. There, coffee farmers saw a 32 per cent increase in income while horticulture farmers experienced up to a fivefold increase in harvests and sales. Some farmers saw a 100 per cent increase in their income. In Ethiopia, the impacts of irrigation on economic mobility indicators – specifically crop, livestock and agricultural wage income – were remarkably positive, particularly for crop income – with the largest impacts experienced in the second rainy season.

Table 3
Magnitude of impacts of the IFAD10 projects evaluated

Division	Country	Project	SO1: Production	SO2: Market access	SO3: Resilience	Goal: Economic mobility
APR	Bangladesh	CCRIP	0	+++	0	+
	China	GIADP	+	+++	0	+
	Indonesia	CCDP	+++	++	0	+++
	Nepal	HVAP	+++	+++	+	+++
	Philippines	IRPEP	+	+++	0	+
ESA	Ethiopia	PASIDP I	+++	++	+++	+++
	Kenya	SDCP	+++	+++	+	++
	Madagascar	AD2M	++	+++	++	+++
	Rwanda	PRICE	+++	+++	+++	+++
	Tanzania	ASDP-L and ASSP	+++	+++	+	+++
LAC	Bolivia	Plan Vida-PEEP	+	0	0	+
	Brazil	Gente de Valor	+++	0	0	-
	Mexico	DECOFOS	+++	+	+	+
NEN	Tajikistan	LPDP	-	+++	+	++
WCA	Chad	PADER-G	+++	N/A	0	+
	Sao Tome and Principe	PAPAFPA and PAPAC	++	0	-	+++
	Senegal	PAFA	++	+++	+	+

Note: Size of magnitude: +++(---) greater than 40 per cent – very strong impact ; ++(--) between 20 per cent and 40 per cent – strong impact; +(-) less than 20 per cent – good impact; 0 not statistically significant at 90 per cent confidence level; and **N/A** – not applicable for the project.

V. IFAD10 lessons learned

32. Three preliminary messages that have implications for project design and implementation going forward have been extracted from the IFAD10 IAs. These are described below, accompanied by the supporting evidence.

First, projects with a strong theory of change exhibit stronger impacts.

33. Projects that are focused and consist of interlinked activities and objectives can generate larger impacts than projects with more diversified or unlinked interventions.
34. An example of focused projects are those implementing infrastructure-based interventions. These have been found to generate positive impacts (for instance in PASIDP in Ethiopia, grain crop yields increased by 51 per cent relative to comparison farmers); however, impacts are maximized when infrastructure interventions are combined with marketing activities (as in the case of the GIADP project in China where fruit yields for the whole sample exhibited only a 19 per cent increase for beneficiaries relative to comparison farmers, whereby if delivered along with marketing support would have achieved a 70 per cent increase).
35. Another example of focused interventions are those implemented by value chain projects. These can be very effective and the impacts can be even greater when combined with support for market access, agroprocessing and rural finance (in the case of PRICE in Rwanda, horticulture sales increased by 100 per cent relative to comparison farmers; in the case of HVAP in Nepal, crop income and livestock income increased by 50 per cent and 93 per cent; and in PAFA in Senegal, millet crop sales increased by 119 per cent). In a nutshell, the analyses show that projects implementing agricultural production and marketing activities along with, for example, infrastructure activities may lead to stronger production and economic mobility impacts.

36. Contrary to focused interventions, projects with diverse and unlinked activities – e.g. development projects that materialize into numerous and not necessarily well-linked interventions – were found to have less impact. This could be due to the potential dilution of project impacts resulting from the high heterogeneity and small scale of interventions across project areas. One example is provided by community-driven development projects, when communities request that their most immediate concerns take priority. These often fulfil a short-term need without a long-term strategy. However, the approach often translates into clustering needs around similar thematic areas within which stronger impacts could be found. For example in the Plan VIDA-PEEP project in the Plurinational State of Bolivia, various interventions were implemented; however the majority focused on livestock activities. When looking at the results, impacts were strong for livestock-related activities: a 24 per cent increase in agricultural income per year was registered for the livestock sample whereas no impact was found for the recipients of non-livestock interventions. This slightly diluted the overall impact on agricultural income down to 21 per cent for the overall sample. This result suggests the need to identify key development needs at the onset and ensure strong internal coherence with the results chain.
37. In Zanzibar (United Republic of Tanzania), two projects (ASSP/ASDP-L) were implemented to facilitate learning for farmers and promote improved practices through capacity-building and training activities. The latter were offered in the form of farmer field schools (FFS) which included about 57 different types of training (curricula). The impact assessment found that when the curricula focused on the major agricultural products of the region such as livestock, it was more effective and also had higher potential to create synergies and generate multiplier effects at the local level. This also ensured the relevance and uptake of the training. Specifically, while the study found lower returns on the increased investment in crop inputs for FFS participants engaging in crop production, larger returns in livestock revenue were realized both from sale of assets and produce and from the higher investments in animal health and feed for FFS participants engaging in livestock production.
38. Another aspect – linked to a strong and coherent theory of change – is the need to link long-term objectives with short-term outcomes. For instance, achieving sustainable development requires more sustainable use of natural resources, which in some cases takes longer to achieve. For example, degraded pasture requires nearly 20 years to be restored; therefore additional feeding is required for livestock in the meantime. In the LPDP project in Tajikistan, rotational plans were enforced and a good strategy for livestock improvement implemented; however, fodder production through distribution of dedicated seeds was not sufficient to compensate for the rotation. This also translated into similar vegetation outcomes for both beneficiaries and comparison farmers, which resulted in insignificant gains in the extent of restored pasture and some reductions in milk production. Nonetheless, the livestock interventions still translated into higher livestock productivity thanks to better breeds, more appropriate breeding techniques, water availability and veterinary services (the weight of beneficiaries' sheep increased by 17 per cent and their cattle by 27 per cent).

Second, benefits from market participation require holistic identification of constraints.
39. Income from sales and market access benefits overall can only increase if all barriers along the value chain (e.g. in production, value addition, credit, market access, price information, buyer identification) are addressed in a linked and coordinated way. Three value chain projects provide evidence in this regard.
40. The first is in the HVAP project in Nepal, where an integrated approach successfully engaged all actors along the value chain, leading to positive market access impacts (beneficiaries experienced a 5 to 6 per cent increase in market access outcomes

year-round, as well as gains of 50 per cent and 93 per cent in crop and livestock income respectively). The second example is in Sao Tome and Principe, where two value chain projects (PAPAFPA and PAPAC) increased production, facilitated organic certification and established relationships with export markets in the domain of three value chains, notably cacao, coffee and pepper. This led to positive returns overall which could be also maximised by value chain addition opportunities (commodity-specific sales increased from 28.7 to 44.7 per cent for beneficiaries relative to comparison farmers). The CCRIP in Bangladesh, which developed climate-resilient market and road infrastructure, provides the third example. In this instance, insufficient facilitation of access to improved inputs during the rainy season curtailed productivity and market access impacts (e.g. crop sales increased by 103 per cent for beneficiaries relative to comparison farmers, but this increase was mainly driven by sales during the dry season). Similarly, IRPEP (Philippines) had a marketing component that was largely ineffective due to pre-existing relationships with input traders based on credit.

Third, building in precautionary measures to manage risk of extreme events (weather or other natural hazards) is crucial, especially in highly vulnerable regions.

41. Projects that establish safeguards or contingency plans for extreme events are more likely to achieve sustained impacts. These events include weather events such as typhoons, or other natural hazards such as tsunamis, landslides, earthquakes and volcanic eruptions. Projects should pay particular attention to slow-onset shocks (droughts, for instance) as these are also likely to negatively affect development outcomes.
42. Two irrigation projects provide evidence to this claim. First, for IRPEP in the Philippines, no impacts were observed in the region (out of the three targeted) hardest hit by a super typhoon. The typhoon appears to have reduced the benefits by disrupting the management of project irrigation investments and seed storage facilities. Thus project impacts were muted in this region, but were measurable in the other two (where increases of 8 to 13 per cent were seen in rice yields and 11 per cent in income). The second example is PASIDP (Ethiopia), which provided small-scale irrigation. In the country's challenging agro-climatic context, irrigation acted as an effective risk management strategy against drought-related shocks (in the dry season, beneficiaries exhibited a gain of 51 per cent in grain yields and their market participation increased by 175 per cent).
43. The IA initiative not only generated lessons on project design and implementation projects, it also yielded lessons on IA processes. These are presented in annex II.

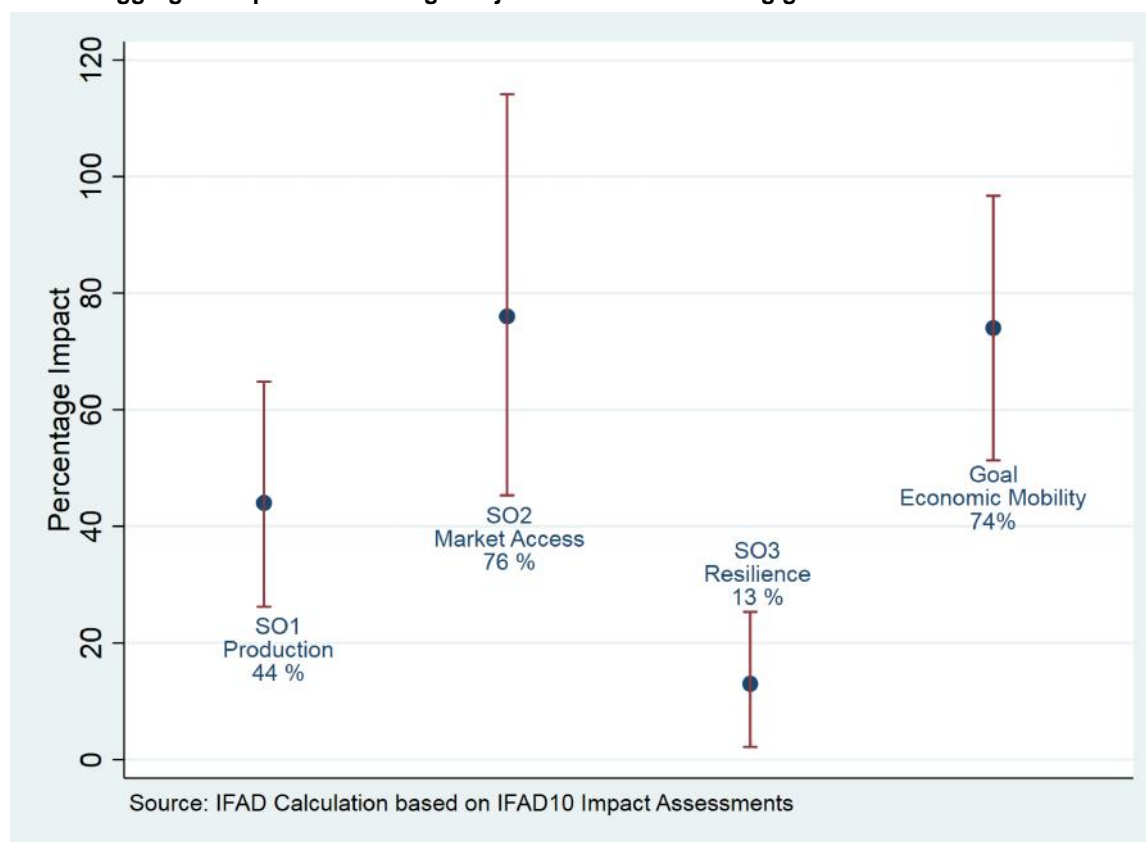
VI. Corporate impacts: estimates and projections

44. As laid out in the DEF, corporate reporting of impact is conducted using projections to the portfolio. The main steps to implement the projections are summarized below and described in annex I:
 - (i) Identify a representative sample of projects completing during IFAD10 to form the basis of the projection;
 - (ii) Conduct ex post analysis and estimate individual project-level impacts;
 - (iii) Aggregate project-level impacts to determine corporate-level impacts; and
 - (iv) Projection to determine future beneficiaries impacted across the portfolio of projects completing during IFAD10.

Results: aggregate impacts

45. Step (iii) provides estimates of aggregate impacts reported in percentage terms. This shows whether IFAD’s beneficiaries are better off, on average, than comparison farmers.
46. Globally, beneficiaries analysed as part of the IFAD10 impact assessments are better off when compared to a comparison or control group. The strongest impact found on rural people’s benefits was from market participation. Figure 3 shows the average impact along with the range of results.¹¹
47. Regarding production (SO1), the overall aggregate impact is positive and significant, indicating that production increased by 44 per cent for beneficiaries relative to comparison farmers. This aggregate impact is positive and significant.
48. With regard to market access (SO2), which is mostly measured by indicators such as value of sales, the overall impact is also positive and significant: market access increased by 76 per cent for beneficiaries relative to the comparison group.
49. Regarding resilience (SO3), which is measured by common indicators linked to the ability to cope with shocks and crop and income diversification, results are also positive and significant, indicating that beneficiaries are 13 per cent more resilient than their counterparts.
50. In terms of economic mobility, defined as increases in income and/or asset-based indicators, results show that IFAD’s beneficiaries increased their economic mobility by 74 per cent relative to comparison farmers. This result is also statistically significant.

Figure 3
IFAD10 Aggregate impacts on strategic objectives and overarching goal



¹¹ Figure 3 shows impact estimates, along with their 95 per cent lower- and upper-bound confidence intervals.

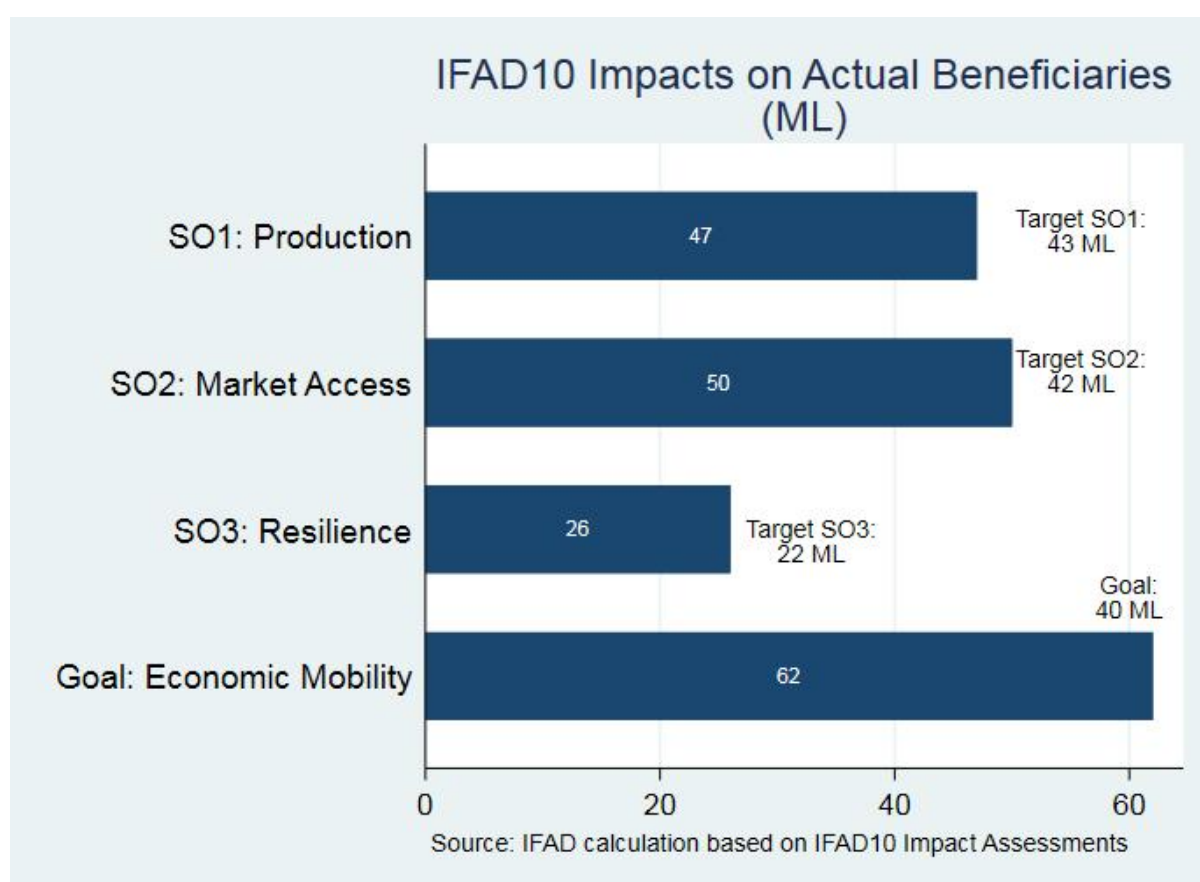
Results: projections and comparison to targets

51. Projections of beneficiaries impacted are reported in figure 4, along with a comparison to targets noted previously in figure 1. For step (iv), (paragraph 44) the number of projected beneficiaries benefitting from improved economic mobility is 62 million; from improved production: 47 million; from increased market access: 50 million; and from increased resilience: 26 million.
52. Relative to the estimated RMF targets for IFAD10, which stated that 40 million individuals are expected to experience significant economic mobility, 43 million people to significantly increase production, 42 million people to increase market access, and 22 million people to experience greater resilience, projections of corporate impact are favourable, and exceed the targets for all strategic objectives (figure 4).

Results: overall

53. The IFAD10 corporate impact results show that IFAD is attaining its strategic objectives and goal and is exceeding all of the targets agreed to in the IFAD10 RMF. They show that IFAD’s investment in rural people is enabling them to overcome poverty and achieve food security through remunerative, sustainable and resilient livelihoods. In delivering on its core mandate, IFAD is playing a critical role in the achievement of the SDGs, particularly in relation to SDGs 2.3 and 2.4.
54. This does not mean that IFAD has no work to do to improve its projects and overall approach: other reports have flagged issues related to efficiency and sustainability, for example. However, the results show that even with these issues, IFAD is having an impact.

Figure 4
IFAD10 impacts on actual beneficiaries (millions)



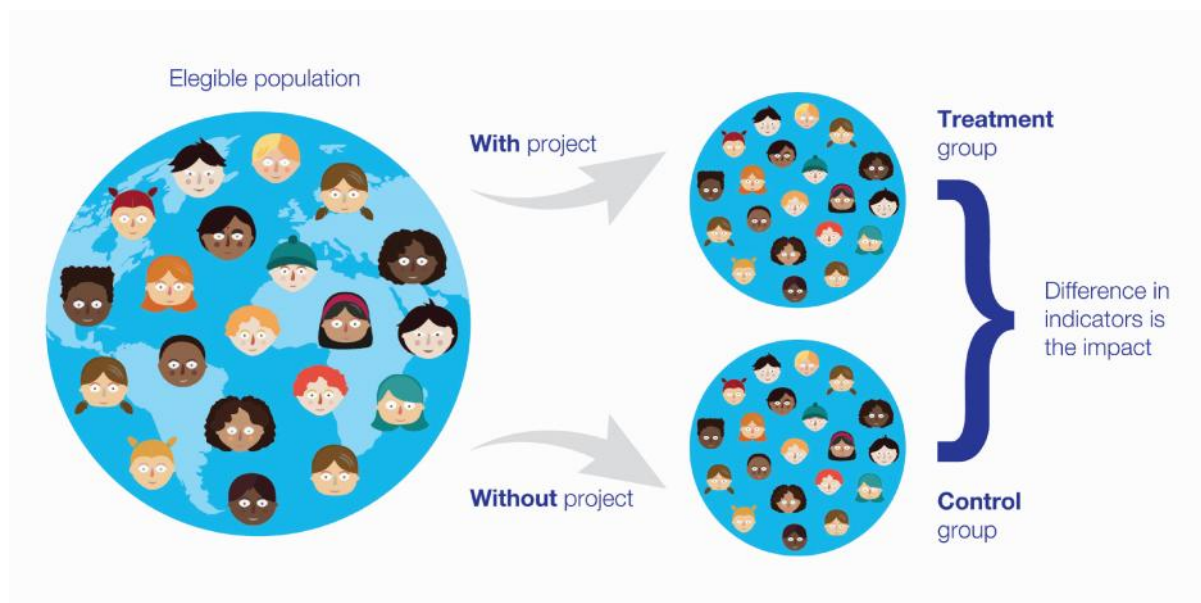
VII. Conclusions

55. The IFAD10 IAs have provided substantial learning potential and operationalized the DEF. During IFAD10, IFAD successfully implemented the impact assessment methodology and made further progress vis-à-vis creating an evidence-based culture. Notably, systematizing the overall impact assessment production cycle generated consistent results that are suitable for the estimation of corporate impacts.
56. The IAs represent a shift from the narrow focus on accountability prominent during IFAD9, to a focus on learning where results are policy-relevant and thus have the potential to improve development effectiveness, efficiency and the overall relevance of IFAD operations.
57. In terms of corporate impacts across the strategic objectives, results are positive, particularly in the domain of production and market access, and regarding the overall goal of improving beneficiaries' economic mobility. The findings also show that IFAD investments have contributed to SDG 2.3. and 2.4. The lessons learned from the IFAD10 IAs highlight how a strong theory of change remains the core element for internal coherence and success in projects. Overall, the results of the IFAD10 IAs can be translated into programmatic improvements that will inform policy decisions at different stakeholder levels.
58. The lessons learned on the implementation of the IFAD10 IA process will be put into practice under IFAD11. In addition, IFAD11 will focus on bridging the gap between analytical work and policy by strengthening collaboration within IFAD and by building the capacity of stakeholders in impact assessment concepts and practice.

Approach to measuring project- and corporate-level impact for IFAD10

1. IFAD carries out project-level impact assessments (IAs) on a selection of projects (15 per cent) that are representative of the portfolio as a means of measuring corporate impact. This requires a methodology that can attribute IFAD impact at the corporate level, e.g. provide an estimate of aggregate impact for the corporate indicators laid out in the IFAD Strategic Framework 2016-2025. The approach used is systematic, comprehensive and transparent.
2. IFAD's Development Effectiveness Framework sets forth key criteria for the selection of projects to undergo an impact assessment: (i) potential to learn lessons; (ii) feasibility of conducting a scientifically rigorous impact assessment; (iii) buy-in from the government and IFAD; and (iv) the capacity of a project to represent IFAD's portfolio. This final criterion was key to ensuring that the selection was representative of the portfolio. An additional selection criterion was included: the relevance of the impact assessment for subsequent project phases. The reasoning for this inclusion was that a key factor of impact assessment, in addition to accountability, is learning; and that learning needs to inform the design of new projects in the same country or elsewhere. This provides a public good for policymakers.
3. The actual selection of the projects for impact assessment was carried out in a participatory manner with the IFAD's regional divisions. The divisions provided a list of projects suitable for inclusion based on the criteria specified. Subsequently, a process to determine project feasibility was conducted in consultation with the regional divisions and relevant country directors.
4. The approach for individual project-level impact assessments was designed to ensure attribution, i.e. the ability to claim that impact on a key high order indicator is a result of a particular investment. Attribution requires the creation of a reasonable counterfactual that allows for comparison of what would have happened in the absence of an intervention.
5. Figure 1 below illustrates the concept of attribution. To ask "what is the impact of an IFAD-supported project" is really to ask: "how do beneficiaries' outcomes under the IFAD project differ from what their outcome would have been in the absence of the project?". The outcome that would have been obtained had the group not been targeted by the project is called the "counterfactual outcome".
6. To discern the impact of an IFAD project on a group of individuals (treatment group), they are compared to a similar group of individuals who were not exposed to the project (control or comparison group). However, for this to be a valid approach, one needs to ensure that the outcome of the individuals who were not exposed to the project (control group) would be the same, on average, as the outcome that would have been experienced by the individuals who received the project (treatment group), had they not received it. This is the key challenge of impact assessments.
7. For attributing impact, methods of data collection and complementary statistical analysis have been established. These methods – namely careful ex post data collection of treatment and control groups and non-experimental approaches to the analysis of the data – have been used for the IFAD10 IAs. The careful quality control put in place during IFAD10 allowed IFAD to establish valid counterfactuals and compute reliable impact estimates.

Figure 1
Schematic representation of attribution



8. Along with other variables, project-level impact assessments determined the impact of the project on the key indicators in the IFAD10 Results Measurement Framework (economic mobility, production, market access and resilience). These then had to be aggregated to obtain corporate-level impact estimates.
9. Concerning corporate-level impact, the methodology for estimating corporate impact consists of two features: aggregation and projection. Aggregation is the process whereby results from project-level impact assessments are aggregated across the studies (via meta-analysis) to create the average impacts across those projects: for example, on average how much does an IFAD project increase production? Projection refers to the approach that allows this impact to be extrapolated to the whole IFAD portfolio to obtain an assessment of the number of people that have benefited from IFAD investments. For example, given the average impact, how many people have seen substantial increases in production as a result of IFAD investments? This overall approach is illustrated in figure 2 below.
10. While aggregation requires all the project-level impact assessments to be completed, projection requires detailed data on the number of actual beneficiaries of IFAD projects for the period in question. These data are reported in the annual Report on IFAD's Development Effectiveness (RIDE), thus projections are undertaken along with the reporting for the RIDE.

Figure 2
IFAD Approach for measuring impact



11. In summary, the main steps to implement the projection can be laid out as follows:
 - (i) Identify a representative sample of projects completing during IFAD10 to form the basis of the projection;
 - (ii) Conduct ex post analysis and estimate individual project-level impacts;
 - (iii) Aggregate project-level impacts to determine corporate-level impacts; and
 - (iv) Projection to determine future beneficiaries impacted across the portfolio of projects completing during IFAD10.
12. The first step is the identification of a sample of IFAD10 IA studies (15 per cent) that are representative of the portfolio of projects completing during IFAD10. Seventeen studies were selected in collaboration with the regional divisions based on the five criteria listed above (paragraph 2), namely:
 - (i) The potential to learn lessons;
 - (ii) Impact assessment feasibility and evaluability;
 - (iii) Buy-in from government and IFAD;
 - (iv) Representativeness of the portfolio; and
 - (v) Relevance of the impact assessment for subsequent or phase II projects.
13. The second step entails the estimation of individual project-level impacts using rigorous ex post impact assessments. This methodology involves comparing the specific outcomes experienced by the beneficiaries of an IFAD project (the treated group) with those of a group similar in all respects to the treatment group (the comparison/control group) but who were not beneficiaries of the project. The comparison group provides information on what would have happened to the beneficiaries had they not been exposed to the project, i.e. the counterfactual case. All the outcomes of interest have been computed as proxies of IFAD's strategic objectives (SOs) and overarching goal.

14. The third step is the aggregation of project-level impacts. This step moves from individual project-level impact to corporate or aggregate impact. The aggregation was done through a meta-analysis, a statistical technique that allows for the generation of a summary (pooled/corporate) estimate using impact estimates of individual projects. Once aggregated, corporate impacts¹² were computed as percentage changes over the comparison group for the each SO, notably production, market access or participation, and resilience, and for the overall IFAD goal of increased economic mobility.
15. The corporate impact is interpreted as percentage change gains in each of the SOs and on IFAD's overarching goal. To translate this into the number of beneficiaries who benefited from IFAD's investment projects, distributional assumptions are needed to extrapolate the corporate estimates to the universe of beneficiaries in the portfolio. The information on the number of beneficiaries can be extracted from project documents that belong to the IFAD10 portfolio.
16. The IFAD10 projection universe includes 107 projects, and is defined as the total number of projects completing during the replenishment period (2016-2018).¹³
17. As the projections require estimates of beneficiaries reached across the whole universe, the additional challenge has been to aggregate the number of beneficiaries for the overall portfolio. Projected beneficiaries impacted are calculated based on the number of actual beneficiaries¹⁴ which belong to the universe of 107 projects. The latter amount to around 65.3 million beneficiaries.
18. The fourth step consists in the actual computation of the projected impacts across SOs. To this end, average corporate impacts were extrapolated to the total number of beneficiaries belonging to the portfolio universe to obtain the total number of projected individuals benefiting.
19. At the basis of the extrapolation, there are two main assumptions. One concerns the distribution of impacts where the assumption is that corporate impacts are normally distributed with means and standard errors corresponding to the ones estimated empirically while obtaining aggregate impact estimates from the 17 impact studies covering 19 projects (equivalent to 18 per cent of the universe).
20. The second assumption is about defining what benefiting means in terms of exceeding a certain threshold. The projected number of beneficiaries impacted by IFAD's investments can be obtained by setting a threshold of at least 20 per cent for impact gains. Using estimates on the aggregate impacts and knowledge of the portfolio, one can then obtain projected number of beneficiaries benefiting above a 20 per cent threshold.
21. In summary, projected beneficiaries impacted are obtained by randomly drawing a normal distribution of impacts with means and standard errors centred to the ones empirically estimated from aggregate impact distributions, thereby assuming that benefits are randomly and normally distributed and are above a specific threshold.

¹² The corporate impacts were estimated using response ratios (RR), the meta-analytic effect size metric. RRs are interpretable as percentage changes over the comparison group.

¹³ The universe of 107 projects includes eight projects that have completion dates that belong to either IFAD9 or IFAD11. Hence, some of these were also impact assessments carried over from IFAD9.

¹⁴ Estimates of actual beneficiaries have been extracted from two main systems: the Operational Results Management System (ORMS), which is the new system that contains only the projects migrated from the old system and validated by Operational Policy and Results Division (49 projects); and the old Results and Impact Management System, from which the remaining estimates have been extracted.

Lessons learned on the IFAD10 impact assessment process

1. A number of lessons and challenges have emerged from the IFAD impact assessment initiative that pertain to the overall approach and process. The most notable challenges encountered relate to: the impact assessment timeline, project-level information, ex ante impact assessment planning, buy-in and agreement of project teams and financial resources.
2. At the outset, a number of challenges were met in selecting projects to undergo impact assessments, particularly for ex post impact assessments. Generally, project completion reports (PCRs) must be submitted within six months after the project completion date. The timeline for conducting ex post impact assessments is on average 8-12 months, depending on the agricultural season of the country. As the selection of the ex post impact assessments for IFAD10 did not always take into account these two conflicting timelines, the projects to be considered as candidates for future ex post impact assessments should be selected at least 1 to 1.5 years before the completion date. This is mainly to ensure that the findings from impact assessments can be incorporated into PCRs for validation of results with the country teams and project staff, and to inform future project design and implementation.
3. Second, stakeholder buy-in – i.e. involvement of country directors and support from the project management unit (PMU) throughout the impact assessment cycle – is critical. Whereas IFAD tries to conduct impact assessment with minimum additional work required from country directors, their support, particularly in the interaction with the PMU is of crucial importance both to ensure that the right questions are asked in the impact assessment and that an impact assessment plan can be properly designed. Buy-in is needed for timely responses and collaboration and to obtain secondary data and information, as well as to set up and conduct impact assessment activities starting from the sampling and followed by the identification of potential firms for data collection and identification of focal points at country level to collect the data.
4. Third, insufficient and imprecise information about project components or interventions in terms of both documentation and existing project M&E data creates difficulty in designing impact assessments. While the details about the project components or interventions in project design reports are comprehensive, some project components or interventions might be implemented in vastly different ways (or in some instances are even dropped) after the projects entered into force. Insufficient and inconsistent monitoring and evaluation data and documentation to record these changes render the design of impact assessments extremely challenging. Notwithstanding these challenges, during the IFAD10 IAs additional data collection was put in place to gather more project-level data to inform the design of the impact assessment when relevant and required. This additional data collection was a comprehensive mapping exercise to identify exact project locations, obtain lists of beneficiary households and communities, obtain the actual project roll out schedule, figure out the exact project targeting strategy, and understand the types of activities implemented or delivered in each project location. This activity added an additional two to three months to the normal impact assessment production cycle. Alternatively, a solution would be to engage actively with country teams and project staff in order to be notified of possible changes in project implementation details with respect to inception.
5. Fourth, regarding ex ante impact assessments of IFAD projects, whereas there has been a clear added value in providing inputs for the development of the theory of change and help design a strong targeting strategy, the design of treatment and control groups proved difficult, as did planning the data collection schedule. The challenges were linked to: (i) unclear identification of project beneficiaries; (ii) the

difficulty in maintaining the proposed impact assessment identification strategy throughout project implementation; (iii) lack of focus on key results when projects are too complex; and (iv) a project implementation schedule without a fully-fledged project roll out and implementation timeline. Slow disbursement rates also pose challenges for project start-up although baselines could be delayed accordingly. When ex ante impact assessments are selected, IFAD has been engaging with the country teams and project staff to communicate the specificities of ex ante impact assessments to ensure that baseline and follow-up surveys are feasible given the project timeline.

Summary of IFAD10 impact assessments on individual countries

1. In Bangladesh, the Coastal Climate-Resilient Infrastructure Project (CCRIP) aimed at improving the connectivity of remote, poor households in the south-west of the country 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. Positive impact was found on total household income and on income from crop sales in both the dry and the monsoon seasons. Results show that although beneficiaries' agricultural productivity 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, thus on-farm income increased. 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. The project 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.
2. The Guangxi Integrated Agricultural Development Project (GIADP) aimed to increase rural household income for smallholder farmers in China through community infrastructure improvements, agricultural production and marketing support. The impact assessment found that yields and the value of their fruit crop production rose by 19 per cent and 29 per cent, respectively. Project beneficiaries also had 40 per cent higher savings than non-beneficiaries, and improved asset ownership. Impacts were particularly strong among households that benefited from agricultural production and marketing support along with improved infrastructure.
3. The High-Value Agriculture Project in Hill and Mountain Areas (HVAP) in Nepal had the primary objective of reducing rural poverty and improving food security through enhanced value chains for high-value agricultural commodities in the hilly and mountainous areas of Nepal. Results show how HVAP was successful in increasing the economic mobility of its beneficiaries. Specifically, beneficiary households witnessed an increase in annual income of more than 37 per cent in the 12 months preceding the time of data collection, which is equivalent to an increase of approximately US\$500 a year. This was driven mainly by increases in crop income and livestock income of 50 per cent and 93 per cent. Beneficiary households also increased ownership of durable assets, productive assets and livestock by 10 per cent, 7 per cent and 9 per cent, respectively. The project improved market access, with beneficiaries 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.
4. In the Philippines, the Irrigated Rice Production Enhancement Project (IRPEP) 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 the capacity of the irrigators' associations that manage the CISs; improved market information; encouraged the collective sale of rice; provided rice-based FFSs; and enhanced emergency rice seed buffer stocks. 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 owing to the damage

caused in the region by super typhoon Haiyan. 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 mid-stream parcels. The IRPEP improved beneficiaries' economic mobility by increasing household income by 11 per cent overall. Surprisingly, this impact was greater in Region VI than in Region X. The difference was caused by a narrowing of the livelihood focus to rice production in Region X and a large increase in livestock-related income in Region VI. In terms of nutritional impacts, beneficiary households' dietary diversity increased significantly, as did their consumption of meat and eggs, which may be linked to the significant increase in livestock ownership.

5. In Ethiopia, the Participatory Small-scale Irrigation Development Programme (PASIDP) aimed at improving food security and increasing incomes of beneficiaries by providing access to small-scale irrigation infrastructure systems. This impact assessment used a novel data collection system and collected seasonal data over the period of one year to capture impacts over the dry season and the short and long rainy seasons. Across all seasons, programme beneficiaries were more likely to be resilient than were non-beneficiaries – particularly in the dry season (with a 110 per cent increased probability of being resilient to the drought shock), and more likely to move out of poverty and stay above the poverty line. Household incomes increased by 55 to 105 per cent through the various seasons, and farmers experienced gains in productive assets ranging from 10 per cent in the long rainy season to 22 per cent in the dry season. These results highlighted the transformative and sustainable impacts that small-scale irrigation projects can generate in terms of building resilience for farmers.
6. In Kenya, the Smallholder Dairy Commercialization Programme (SDCP) was designed to address constraints in the smallholder milk sector in Kenya by increasing smallholders' production, productivity and participation in dairy markets. These objectives were pursued by training dairy groups, offering technical support for household dairy production and developing milk marketing chains. Results show positive effects on milk production and sales with beneficiary farmers having a 37 per cent higher total milk production and 58 per cent higher milk production at calving compared with non-beneficiaries. In terms of market access, SDCP farmers who sold to the market obtained a selling price 31 per cent higher than that received by non-beneficiaries, suggesting that 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 – obtained by SDCP farming households was 43 per cent higher than the value obtained by control groups. In terms of nutritional impacts, the evidence suggested higher levels of dietary diversity for beneficiaries, with higher levels of animal and vegetable proteins (such as red meat, milk products and legumes) and lower levels of tubers and fruits.
7. The Project to Support Development in the Menabe and Melaky Regions (AD2M) in Madagascar 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. Overall, the impact assessment found meaningful improvements to project beneficiaries' agricultural productivity, as well as to other household welfare indicators. Annualized rice yields were estimated to be about 27 per cent higher for beneficiary than for non-beneficiary households, whereas annualized total value of crop production per hectare was estimated to be about 24 per cent higher for beneficiaries than for non-beneficiaries. Qualitative evidence from interviews with farmers and project implementers suggested that impacts on economic mobility (e.g. increased incomes) occurred as result of the farming practices and irrigation schemes introduced or improved by AD2M. Quantitative data appear to support this

- finding by showing that beneficiary households owned 25 per cent more durable assets than non-beneficiary households.
8. The Project for Rural Income through Exports in Rwanda (PRICE) helped farmers access rural financial services and increase the production and quality of their cash crops. The project focused on supporting coffee cooperatives as well as horticulture, tea and silk value chains. The impact assessment showed significant improvements. Coffee farmers saw a 32 per cent increase in income and a 71 per cent increase in coffee harvest. This led to a 10 per cent reduction in poverty among the farmers and made them more resilient to shocks, especially droughts. Horticulture farmers experienced up to a fivefold increase in harvests and sales, and some saw a 100 per cent increase in their income. With better incomes, they were able to hire labour and create new jobs, and many farmers invested in other enterprises such as local shops, processing facilities and transport businesses.
 9. The Agricultural Services Support Programme (ASSP) and Agricultural Sector Development Programme – Livestock (ASDP-L) in Zanzibar, United Republic of Tanzania, were designed with the aim of developing the agricultural production systems, and empowering livestock keepers and farmers in Zanzibar through the provision of capacity-building and training activities offered in the form of farmer field schools (FFSs). The programmes supported about 57 different types of FFS, with the impact assessment focused on the most prevalent ones, i.e. those with curricula focused on specific crops (bananas, vegetables, rice and cassava) and livestock (cows, goats and chickens). Results were strong and positive as far as improvements in livestock production and productivity; FFS beneficiaries exhibited higher returns on livestock revenue both from livestock assets (a 65 per cent increase) and products (39 per cent) than comparison farmers – such returns are much larger for high adopters of FFS practices. While the study found lower returns for total crop income for the whole sample of beneficiaries, possibly justifiable on grounds of the heterogeneity in the crop portfolio between beneficiaries and non-beneficiaries groups, consistently higher positive and significant livestock income was experienced by beneficiaries across all subsamples. This was particularly substantial for high adopters of FFS practices, where livestock income increased by 141 per cent. Relative to IFAD strategic objective 2 (SO2), and market access indicators such as value of crop sales, high adopters of FFS practices increased their total crop revenue of 111 per cent. Higher adopters of FFS practices also exhibited better food security, increasing their dietary diversity score by 8.5 per cent; they also registered an 11 per cent increase in crop diversification compared to their control counterparts. The study also analysed empowerment outcomes across multiple domains. FFS female primary decision-makers' ownership of land and other assets increased by 6 per cent compared to the non-beneficiary farmers. They also were 42 per cent more likely to belong to a group and to have memberships in influential groups, which highlights the collective value of FFS participation. Positive effects on a broad range of empowerment indicators for women-decision makers with high adoption rates of FFS practices were also observed, notably in the domains of input in productive decisions, access to and decisions on credit, control over the use of income, mobility and group membership.
 10. In the Plurinational State of Bolivia, the 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 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 community-based productive investments (PICs), and to municipalities for the realization of production infrastructure projects. Overall, Plan VIDA-PEEP showed some

significant impacts in terms of asset wealth and agricultural income, as well as other important domains of household well-being. These positive impacts are particularly significant for those benefiting from livestock-specific community investments, which constituted about 85 per cent of all the PICs implemented. Overall, 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 PICs 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. Nutritional impact was only seen for the livestock 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 by-products (eggs, milk, and milk products).

11. The Community-based Forestry Development Project in Southern States (Campeche, Chiapas and Oaxaca) in the southern states of Mexico (DECOFOS) aimed at addressing problems linked to deforestation and forest degradation in rural communities of marginalized forest areas. The project focused on promoting micro-business development for the sustainable use of forest natural resources and the adoption of good environmental practices for climate change mitigation and adaptation. The impact assessment showed significant improvements in household wealth as 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, which is characterized by large community-owned forested areas, beneficiaries were 37 per cent more likely to sustainably exploit natural resources from common land compared to non-beneficiaries, increasing their income from selling these products. In Chiapas, where livelihood diversification opportunities are higher, beneficiaries were 120 per cent more likely to enter into new business activities compared to much lower percentages in the other states, with a significant increase in off-farm income. Reforestation activities promoted by the project also produced environmental benefits with project areas exhibiting a 3 per cent increase in the normalized difference vegetation index compared to non-project areas, and beneficiaries being 16 per cent more resilient to drought shocks than non-beneficiaries.
12. The Livestock and Pasture Development Project in Tajikistan (LPDP) was designed to increase the nutritional status and incomes of poor rural households in the Khatlon region by boosting livestock productivity through improved productive capacity of pastures and breeding and mating techniques, combined with easier access to water. 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). 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 (dairy is not part of the Tajik diet). 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.

13. The Rural Development Support Programme in Guéra (PADER-G) 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. PADER-G increased food security by at least 37 per cent while increasing dietary diversity by 23 per cent among beneficiary households. These improvements were on the back of an increase in production and yields of major grains and oilseeds (sorghum, millet, berebere, groundnuts and sesame). Quantities of sorghum and groundnuts stored increased by 77 per cent and 110 per cent, respectively. As a result of PADER-G cereal banks, household consumption of sorghum and groundnuts increased by 34 per cent and 54 per cent, respectively. In terms of economic mobility, 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 while durable assets increased by about 9 per cent for those households that benefited from PADER-G cereal banks. In addition, PADER-G beneficiaries were more resilient to incidents of violence or civil unrest taking place in their communities.
14. The Participatory Smallholder Agriculture and Artisanal Fisheries Development Programme (PAPAFPA) and the Smallholder Commercial Agriculture Project (PAPAC) are two complementary operations designed to improve smallholders' livelihoods in Sao Tome and Principe. The primary objective was to develop family plantations in sustainable and niche value chains: organic and quality cacao, coffee and pepper. The operations contributed to an increase in the extent of organic certification among beneficiaries. Harvests and productivity for the value chains directly targeted by the interventions also generally increased: cacao (whose productivity increased on average by 31.1 per cent for beneficiaries as compared to non-beneficiary households), coffee (35.1 per cent) and pepper (15.5 per cent). Beneficiary households achieved increased revenue from sales of these crops: 34.2 per cent higher sales revenue from cacao, 44.7 per cent from coffee and 28.7 per cent from pepper than non-beneficiary households. In terms of economic mobility, 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), lower food insecurity (by 13 per cent) and higher resilience (by 13 per cent).
15. In Senegal, the Agricultural Value Chains Support Project (PAFA) was designed with the goal to improve the livelihoods of smallholder farmers in Senegal's "groundnut basin". The main intervention was implemented via producers' organizations (POs) and consisted of a comprehensive package of agricultural inputs, machinery, technical advice and commercialization contracts established with market operators. The impact assessment focused on the market access subproject (MASP), 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 POs and market operators. Results were extremely positive and showed a larger crop harvest for MASP 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, niebe and bissap. In terms of economic mobility, PAFA resulted in higher crop, livestock and overall gross income, 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 and self-employment. In terms of SO2 (market access), PAFA beneficiaries were more likely to sell crops and market larger quantities across all crops. PAFA farmers were also more likely to sell to a market operator, which provided more guarantee of output sale and reduced price uncertainty.