

# HOW TO DO NOTE

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## Knowledge Gap Mapping

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**LIFAD**

Investing in rural people



How To Do Notes provide practical suggestions and guidelines to country programme managers, project design teams and implementing partners to help them design and implement programmes and projects. The notes include best practices and case studies that can be used as models in their particular thematic areas.

How To Do Notes also provide tools for project design and implementation based on best practices collected at the field level. They guide teams on how to implement specific recommendations of IFAD's operational policies, standard project requirements and financing tools.

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### Acronyms

<b>CLE</b>	Corporate Level Evaluation
<b>CPE</b>	Country Programme Evaluation
<b>ECG</b>	Environment, Climate, Gender and Social Inclusion Division
<b>EGM</b>	Evidence Gap Map
<b>FSA</b>	Financial Service Association
<b>GRIPS</b>	Grants and Investment Project System
<b>IFAD</b>	International Fund for Agricultural Development
<b>IOE</b>	Independent Office of Evaluation
<b>KGM</b>	Knowledge Gap Map
<b>LIC</b>	Low-income country
<b>LMIC</b>	Low- and Middle-income country
<b>PAR</b>	Project at Risk
<b>PCR</b>	Project Completion Report
<b>PMD</b>	Programme Management Department
<b>PMI</b>	Sustainable Production, Markets, and Institutions Division
<b>PO</b>	Producer Organization
<b>PPE</b>	Project Performance Evaluation
<b>RIA</b>	Research and Impact Assessment Division
<b>ToC</b>	Theory of Change
<b>WCA</b>	West and Central Africa Division
<b>3ie</b>	International Initiative for Impact Evaluation

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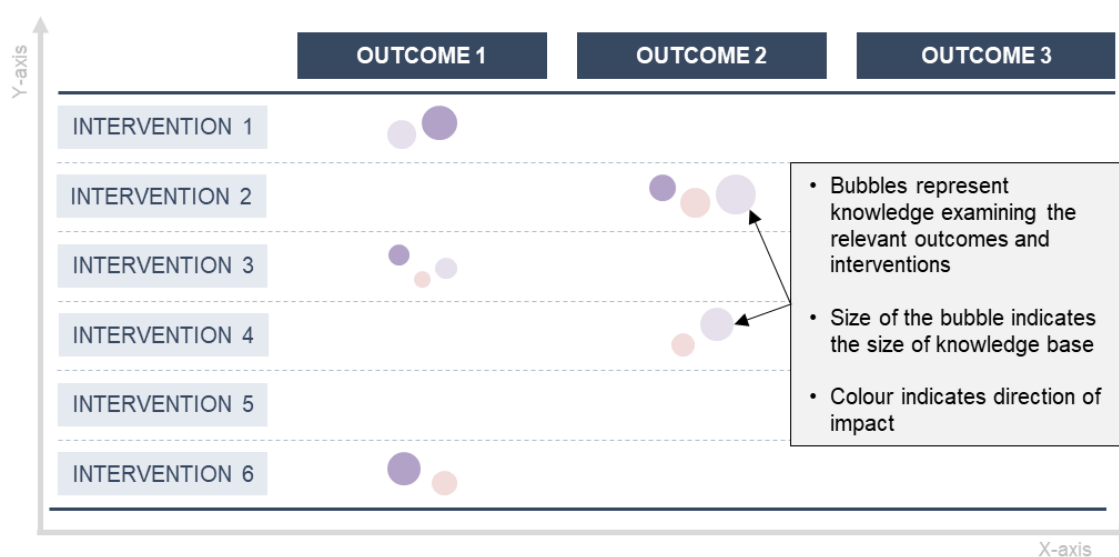
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## 1. Overview

Learning is one of the two cross-cutting areas emphasized by IFAD’s updated Development Effectiveness Framework (DEF 2.0), calling for the adoption of incentives, tools, mechanisms, and approaches to foster a culture of learning across the institution. Central to having a strong learning function is the knowledge IFAD produces at the project level through project supervision and completion reports and at the institutional level through a wide range of products (e.g., impact assessments, studies, and IOE products). However, the assessments and evaluations IFAD conducts are not all-encompassing and do not cover all areas where knowledge is needed for IFAD to be effective. Recognizing its importance, IFAD’s Knowledge Management (KM) strategy (2019-2021) included a pilot for identifying and addressing knowledge gaps and priorities at the regional, country, and global levels. This report aims to guide IFAD on developing ‘Knowledge Gap Maps (KGM)’ and presents the results of the KGM pilot conducted in the West and Central Africa (WCA) division.

**What is IFAD’s KGM?** Inspired from Evidence Gap Maps (EGM)<sup>1</sup>, the IFAD’s KGM is a knowledge management tool to signal both research and operational units where internal knowledge might be incomplete or missing (i.e., the ‘gap’). KGMs provide an overview of existing studies and reviews for particular interventions and outcome nexuses. The knowledge products to be collected, therefore, are heavily focused on how selected interventions are effective for or associated with achieving selected outcomes (as opposed to exploratory or descriptive studies). The areas where there is a knowledge gap should thus be prioritized for knowledge generation.

**Figure 1 – Illustration of a Knowledge Gap Map (KGM)**



<sup>1</sup> The International Initiative for Impact Evaluation (3ie), an international NGO promoting evidence-based development policies and programmes, is a leader in producing Evidence Gap Maps (EGMs). The 3ie recognized that development interventions that do not consider available evidence of what works, risk being ineffective or doing harm, and that research funding is wasted if not accessed and utilized (3ie 2017). The 3ie produces EGMs, thematic collections of information about impact evaluations and systematic reviews that evaluate the effects of international development programmes (3ie 2020). The evidence from these sources is then mapped into a matrix, highlighting the gaps where few or no evidence exists and can be used by decision-makers involved in the development, looking for what evidence exists to constitute policies and programmes.

### About this HTDN

This How-to-do note (HTDN) outlines how an internal knowledge gap mapping exercise can be put together to derive meaningful inferences. The HTDN provides an overview of KGMs, its importance, and the lessons learned from the KGM pilot in WCA. At the same time, the report also presents the results of the 'Knowledge Gap Mapping' pilot conducted in WCA, listing specific steps that can help the reader comprehend how the KGM exercise is undertaken step-by-step.

### Objectives of the study



There are three primary objectives of this KGM:

**01** **The first objective of the KGM is to identify, map and understand where existing IFAD internal knowledge of different intervention-outcome relationships is concentrated (Knowledge bulge) and where is lacking (Knowledge gap).** In other words, the KGM consolidates existing IFAD knowledge on the effectiveness of interventions on selected outcomes, and in the process, compares areas with more and less knowledge *within* the areas that IFAD already invests. By identifying IFAD investment areas with more or less knowledge *vis-à-vis* investment levels, the KGM provides important inputs for future internal (RIA/IOE) or project-level knowledge generation agendas. Note that the scope of the KGM is much more narrowed than that of an EGM and serves primarily for internal purposes. Moreover, even when internal gaps are identified, knowledge generation units would have to complement this information with external reviews to further prioritize internal research or knowledge agendas.

**02** **The second objective of this KGM is to create a clearinghouse mechanism to match knowledge gaps with projects or research units with the potential to generate relevant knowledge.** The KGM operates as an online repository<sup>2</sup>, linking users to existing IFAD knowledge for specific interventions and outcomes as well as highlighting areas in need of more research. The KGM itself does not provide recommendations but provides links to resources that can inform decision-making. **The clearinghouse mechanism builds on the KGM by tracking knowledge products in the pipeline and identifying ongoing projects with the potential of addressing the knowledge gaps.**

<sup>2</sup> This online platform on IFAD xdesk makes available the knowledge base developed and shows the knowledge gaps. The online platform connects users directly (through hyperlinks) to the studies and/or evaluations identified. It also categorizes knowledge by region, country, target population, income group, outcome metrics, year published and direction of impact (positive, no impact, or mixed). It is updated continuously to inform new and ongoing projects on knowledge gaps and identify areas for further research.

03

**The third objective is to raise knowledge and results-driven investment warnings.** Identifying areas where IFAD knowledge is abundant and scarce will help for knowledge-based investment decision-making. For instance, the analysis will suggest continued or increased investment in areas with more knowledge and good results as well as addressing implementation challenges of ongoing projects that generate ample knowledge but have shown poor results. The analysis will also propose knowledge generation units to prioritise knowledge production in areas with high investment levels and good results, albeit with limited knowledge.

**Exhibit 2 | Contribution to Agenda 2030**



The KGM is intended to be part of IFAD's toolbox to foster a culture of learning and evidence-based decision-making. Doubling and deepening IFAD's impact towards achieving SGD1 and SGD2 must be grounded on strong learning feedback loops, nurtured by a knowledge generation agenda that is agile and efficient to respond to ever evolving development challenges and feed into more relevant, effective, and sustainable interventions. The KGM can also support a more knowledge-informed routine process for optimal resource allocation into rural development areas (linked to SDG1 and SGD2) where there is enough evidence of effective interventions to improve rural people's livelihoods.

## 2. Lessons Learned

The following section presents the lessons learned from the KGM exercise. These lessons, which cover a broad set of learnings inferred from various stages of the exercise, can form the basis of significant improvements for future KGM exercises:

- 
- **It is critical to get the knowledge space right** – The most important stage of developing the KGM is defining the knowledge space (i.e., outcome and intervention nexuses), best achieved through a consultative process with key stakeholders, including thematic experts. The knowledge space depends on the scope of the exercise and the specific interests of the team conducting the KGM. For the case of this pilot, the knowledge space defined was relevant for IFAD's ongoing portfolio in West and Central Africa (which doesn't preclude the knowledge space from being relevant for other geographic areas or institutions) and built heavily on the theories of change already embedded in the portfolio. It is also critical to ensure that the set of interventions and outcomes nexuses do not overlap with one another (i.e., remain mutually exclusive).
  - **Live knowledge gap mapping should be accessible to all, especially project teams** – The online clearinghouse platform informs about the intervention and outcome links where there is a gap and tracks the ongoing projects developing new knowledge products that can help address these gaps. However, for this to be successful, the communication on the existing gaps must be common knowledge and accessible to all, especially project teams, so that it informs their KM plans. The current platform is hosted in xdesk, and therefore, is only accessible to IFAD staff.
  - **KGM can be leveraged for smarter and targeted financing** – In the coming years, as IFAD evolves in releasing a more sophisticated version of the KGM, this management tool can also be leveraged as a guide to move towards results and knowledge-based lending operations to facilitate investment in areas where there is a certainty of knowledge and results. It also can significantly help control investment levels in areas with insufficient knowledge and unsatisfactory results. Another crucial aspect included in the report is the need to improve project level and in-house M&E capacity, translated into a poor measurement of outcomes.
  - **Complement KGM with external research and advanced search tools** – The current KGM pilot only uses IFAD knowledge as a reference. Therefore, complementing the KGM with external research will enable IFAD to be more comprehensive and inclusive. Access to external subscription-based services must be made available to an extensive range of the organisation's personnel, so that in-house research capacity can also benefit. Besides, as the exercise involves a manual search of documents which is a time-consuming and human resource-intensive process, it is also recommended to invest in machine learning tools to make the initial screening process as straightforward as possible, after which a manual review can be implemented to filter the final sample of knowledge products.
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### 3. How to do guidance

The following section discusses the step-by-step guide on collating a KGM, taking the pilot exercise carried out in WCA as an example. The current illustration of the WCA's KGM will help readers understand the course of action involved in producing a map. The KGM is also accompanied by a descriptive report providing an overview of KGM's results.

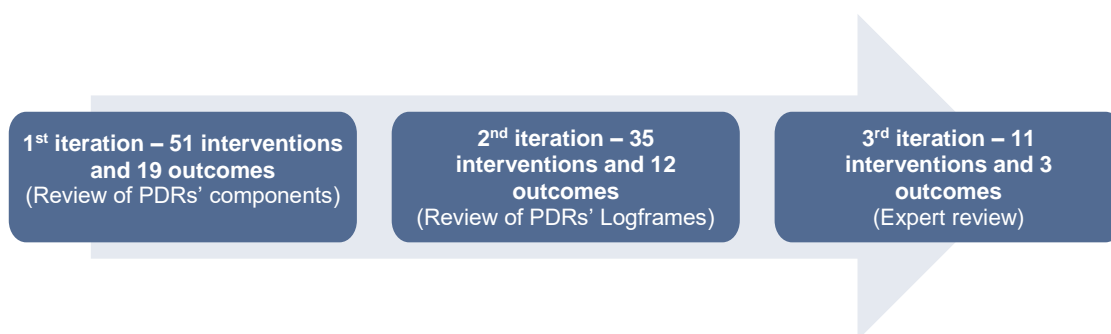
#### Methodology

The KGM is a matrix of intervention (rows) and outcome (column) categories. The development of the KGM corresponds to the method from Campbell Collaboration<sup>3</sup>, featuring the following steps:

##### a. Develop Scope

Most repeated intervention-outcome pairs captured in the theories of change from ongoing projects in WCA classified as Projects at Risk (PAR) from November 2018 to October 2019 were selected for constructing the KGM matrix. The KGM matrix builds on PAR from six WCA countries (eight projects in total<sup>4</sup>). The knowledge space was narrowed down to the most commonly repeated 11 intervention and 3 outcome combinations in PAR. Not all 33 combinations are binding; just 13 show frequent pairing. Annex 1 includes detailed definitions of these interventions and outcomes.

#### Iteration process to arrive at final KGM matrix



The study primarily focuses on PAR because, by definition, their at-risk status is suggestive of potential implementation challenges, which could be linked to limited or lack of IFAD knowledge supporting the underlying theory of change behind their intervention-outcome pairings, and therefore could benefit from increased research about those pathways. However, the resulting knowledge and gaps are also relevant to projects and countries beyond the identified PAR projects as the chosen interventions and outcomes nexuses are widely present in WCA's and IFAD's project portfolios as a whole and resonate closely with IFAD's strategic objectives. Note that all the identified knowledge bulges and gaps are relative to the above-specified space, so it is not intended to draw conclusions related to intervention-outcome nexuses where IFAD is not investing<sup>5</sup>.

<sup>3</sup> <https://campbellcollaboration.org/evidence-gap-maps.html>

<sup>4</sup> Eight WCA Projects at Risk (PAR) examined for the creation of the matrix are: PADMAR (Benin); PAFA-E (Senegal); CASP (Nigeria); GASIP (Ghana); PROPACOM/West (Côte d'Ivoire); PROPACOM (Côte d'Ivoire); PAPSFRA (Benin); and PNPFR (Togo)

<sup>5</sup> Otherwise, knowledge gaps would be easily partly explained by the lack of IFAD investments in a particular intervention-outcome nexus corresponding to a broader framework. The KGM also compares intervention-outcome nexuses within the specified space taking into account investment levels within IFAD's portfolio so that the identified gaps are not purely driven by investment levels.

Knowledge Gap Map			
INTERVENTION/OUTCOME	 Enhanced productivity	 Financial Inclusion	 Climate change resilience
 Producer Organizations			
 Financial education			
 Storage facilities			
 Agricultural extension Service			
 Rangeland management Techniques			
 Irrigation systems			
 Provision of agricultural inputs			
 Market information			
 Community infrastructure			
 Financial Service Associations			
 CC resilience production techniques			

**b. Set Inclusion Criteria**

Once the matrix had been sufficiently narrowed, extensive research for IFAD knowledge products was conducted. The sources evaluated were from the past ten years, i.e., from 2010 to 2020. The inclusion criteria for this search were primarily WCA and low-income (LICs) and lower-middle-income countries (LMICs)<sup>6</sup>, particularly in Africa and Asia. The study focuses on IFAD literature covering countries with significant rural poverty levels, aiming strategically on agricultural and value chain development. The search also includes countries where rural transformation is still lagging, and institutions are not yet conducive to support sound economic growth and social equity. Annex 2 includes the full list of these countries.

**c. Search for relevant studies**

Because the KGM is proposed to be a *management tool*, the intention is to be pragmatic in categorizing knowledge sources. IFAD’s knowledge from all sources is included to make the KGM matrix as robust and comprehensive as possible. Findings recorded from quantitative (and in some cases causal finding) analysis (e.g., IAs, IEs) are stronger than qualitative or descriptive results (i.e., CPEs, PPEs), but qualitative sources provide significantly more insights into operational aspects. Table 1 presents the breakdown of knowledge sources.

Table 1 – Breakdown of IFAD knowledge products (number)	
Country Programme Evaluations	33
Impact Assessments	16
Project Completion Reports	15
Project Impact Evaluations	9
Project Programme Evaluations	9
Research Series	6
Evaluation Synthesis	5
Advantage Series	4
Results Series	3
Lessons Learned	1
Corporate Level Evaluation	1
<b>Total</b>	<b>102</b>

**d. Screening-Assess for Inclusion**

Among documents reviewed, only documents where knowledge statements were explicit about the intervention and its impact were included. Careful consideration was taken to avoid double counting of knowledge products.

<sup>6</sup> World Bank 2019 income classification

### e. Data Extraction or Coding for Impact



















Each piece of knowledge is coded according to the direction of impact in three ways: Positive Impact, No Impact (which also includes negative impact) and Mixed Impact (i.e., knowledge comprises both positive and negative or no impact of the intervention). For each intervention-outcome combination, the knowledge paragraph in the document is provided, along with the interpreted (as many of these knowledge products are not quantitative) direction of its impact (for example, in a project that introduces irrigation systems is found to have a positive impact on productivity for the project's beneficiaries, the direction of impact would read 'Positive'). Each study is also coded according to year, IFAD region, country, target population, income group, study design and outcome metric.

### f. Presentation and Analysis

Through an efficient and user-friendly online platform at IFAD xdesk, the KGM provides the knowledge base along with the knowledge gap areas. The online platform directly connects users to the knowledge products pertaining to relevant intervention-outcome relationships. In order to track upcoming reports and evaluations that will fill the identified knowledge 'gaps', the online platform also includes a pipeline feature, wherein the forthcoming knowledge is categorized by the stage of the production process - Concept Approved, Research, or In Review.

**Limitations** Despite the attempt to be thorough in this exercise, certain limitations exist:

1. The KGM is IFAD-centric. The intervention-outcome nexuses chosen for the study covers only investment areas where IFAD invests in, and the knowledge collected is only limited to knowledge products that IFAD produces.
2. Due to limitations of the manual search method, the study could have missed some knowledge products that included relevant intervention–outcome linkages. For instance, limited interpretations of outcome metrics; that is, when the report searches knowledge for 'Enhanced production', the outcome metric considered only included results pertaining to production, productivity, and yields. Other relevant references to production outcomes may have been missed. This implies that the study has a sample bias, which is also valid for other outcomes, including financial inclusion and climate change resilience.
3. The analysis does not assess the validity or rigor of sources. Rather, it highlights the study design and direction of impact.
4. Project Performance Evaluations (PPEs) and Project Completion Reports (PCRs) published since 2010 were assessed only for WCA countries. Approximately half of all knowledge products collected are from the WCA region, which could have had an effect on the results of the KGM exercise.

WCA's first edition of the Knowledge Gap Map			
INTERVENTION/OUTCOME	 Enhanced productivity	 Financial Inclusion	 Climate change resilience
 Producer Organizations			
 Financial education		 	
 Storage facilities	  		
 Agricultural extension Service	  		
 Rangeland management Techniques	 		
 Irrigation systems	  		 
 Provision of agricultural inputs	  		
 Market information	 		
 Community infrastructure	 		
 Financial Service Associations		  	
 CC resilience production techniques			 

 Positive  Mixed  No impact

Note: Bubbles shown in the illustrations of the KGM in the report are not drawn to scale.

WCA's first edition of Knowledge Gap Map

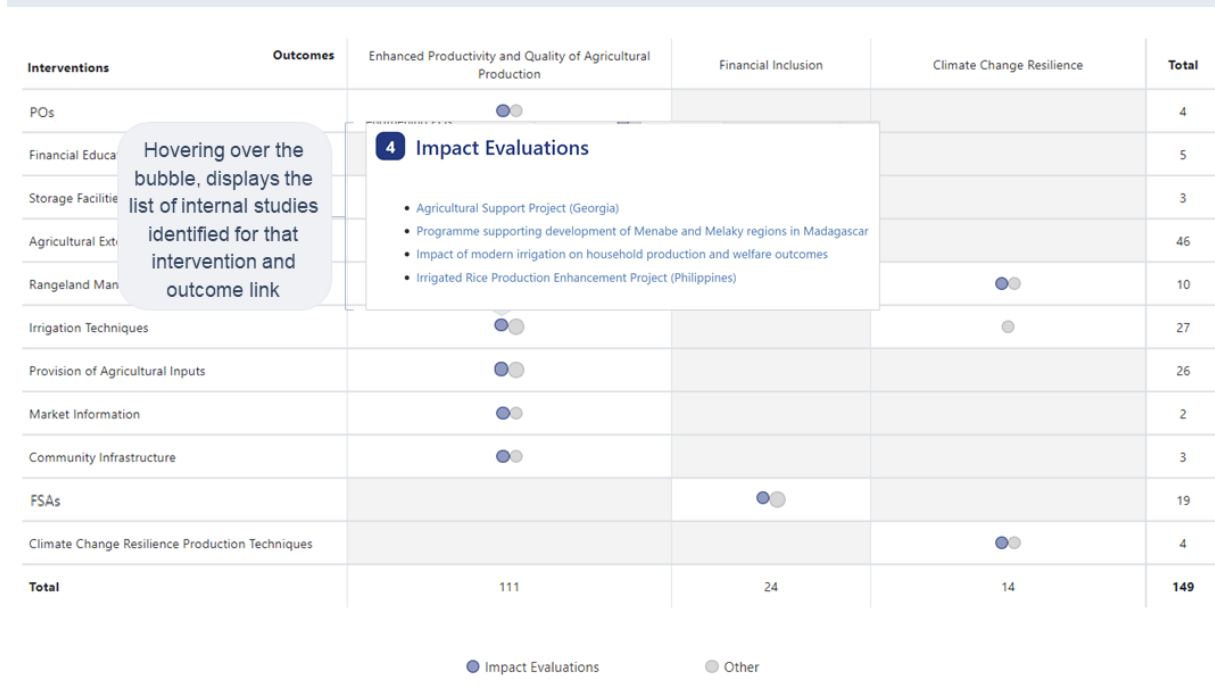
View – Direction of impact

Filter Projects ▾ Filter Regions ▾ Filter Countries ▾ Filter Study Type ▾ Select View ▾

Allows filter by region (APR, WCA, ESA, NEN and LAC), study type (impact evaluations, or other) Knowledge Gap Map



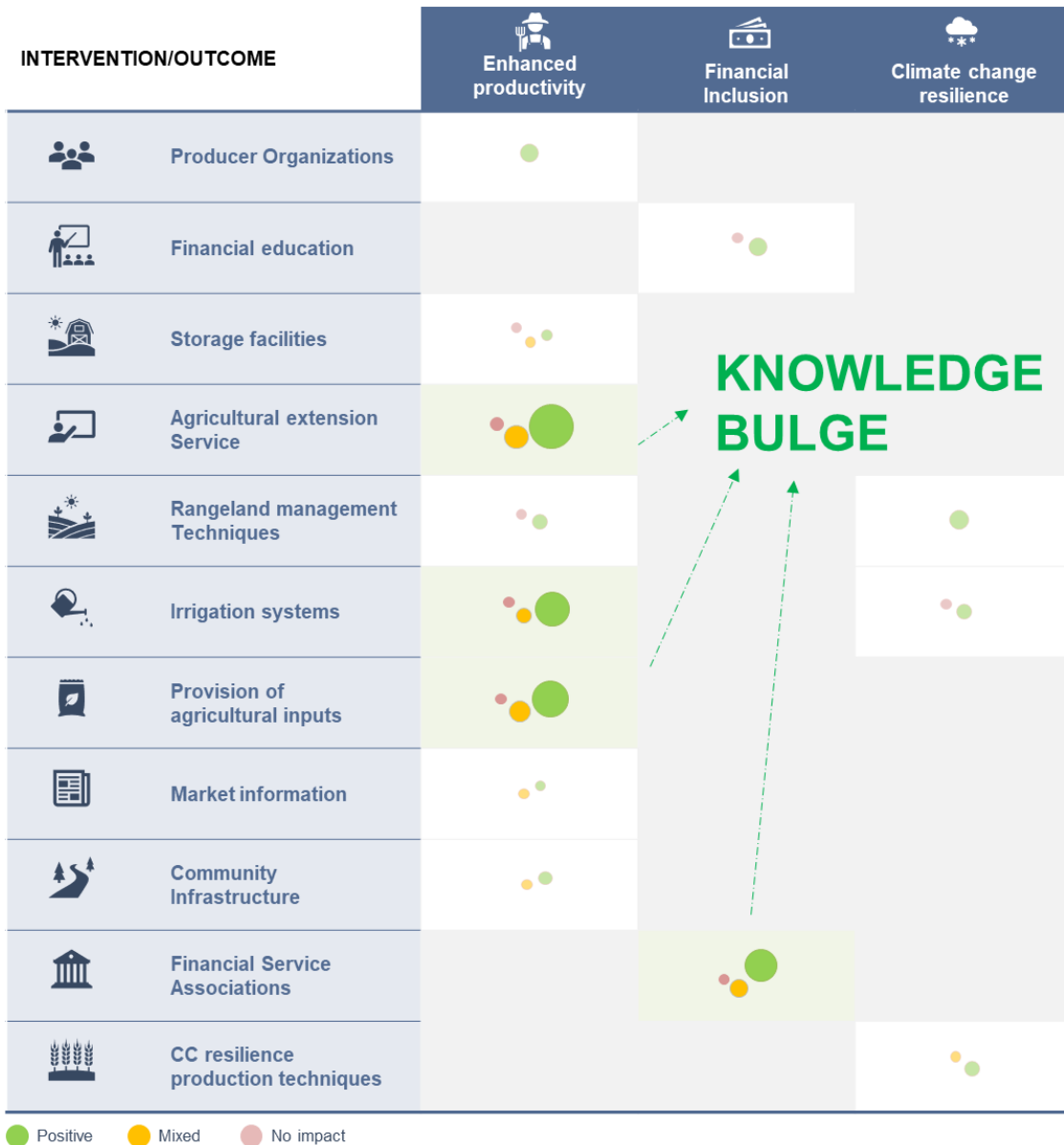
View – Study type



## Results and discussion

The first two sections provide a deep-dive on areas with more and less knowledge vis-à-vis investment levels for interventions-outcome pairings of the KGM (i.e., *Knowledge Bulge* and *Knowledge Gap*). By identifying areas with missing knowledge, the KGM provides significant inputs to research and operation units for identifying future knowledge generation priorities. Building on this, the third section introduces a clearinghouse approach for generating potential knowledge products from the ongoing WCA portfolio as a response to the knowledge gaps. Finally, four knowledge and results-driven investment warnings are presented in the fourth section, paving the way for better informed decision-making in WCA and IFAD.

### a. Knowledge bulge



One of IFAD’s knowledge bulges emerges around ‘Enhanced productivity and quality of agricultural production’, where 74% of the knowledge in the KGM is available yet 46% of WCA’s investments are channelled. It makes sense that much of the knowledge – vis-à-vis investment levels - are concentrated here, as the primary mission of IFAD and its peer institutions is to enhance food production and food security. Over 38% of the knowledge comes from ten countries – Niger, Ghana, India, Kenya, Bangladesh,

Cameroon, Rwanda, Sierra Leone, Mozambique, and Mali. The positive association on improving farm yields is shown for 78% of all agriculture-related interventions. Moreover, 25% of knowledge identified in the KGM belongs to ten fragile and conflict-affected countries<sup>7</sup> in WCA; these countries also comprise 50% of WCA’s investments directed towards KGM’s intervention-outcome nexuses.

Enhanced Productivity and quality of agricultural production	111 (74%)
Financial Inclusion	24 (16%)
Climate Change Resilience	14 (9%)
<b>Total</b>	<b>149 (100%)</b>

There are three primary interventions, ‘Irrigation systems’, ‘Agricultural extension services’ and ‘Provision of agricultural inputs’ with maximum knowledge available in the IFAD-KGM for the outcome ‘Enhanced Productivity and quality of agricultural production’. As shown in Table 3, 42% of WCA’s investments in KGM is directed towards these three intervention-outcome nexuses. Among the three, **the study finds the highest relative knowledge bulge for the impact of irrigation techniques on enhancing productivity, with this link possessing 15% of knowledge included in the KGM, while WCA’s investment contribution stood at only 5%.** Irrigation systems are associated with improved yields as the positive impact on improving farm yields is the highest for that intervention (83%); that is, the set up of irrigation systems are expected to produce higher and more stable yields, leading to improved food security and income.

Intervention and outcome pairings	Total knowledge	WCA investment
Irrigation systems – Enhanced Productivity	15% (23)	5% (\$44M)
Agricultural extension services – Enhanced Productivity	31% (46)	26% (\$206M)
Provision of agricultural inputs – Enhanced Productivity	17% (26)	11% (\$92M)
FSAs – Financial Inclusion	13% (19)	10% (\$80M)

The other two interventions possessing a high knowledge share relative to investment levels are agricultural extension services followed by the provision of agricultural inputs. The knowledge on agricultural extension covers farmer field schools, workshops, field demonstrations and technical and advisory services. It is reasonable that agricultural extension has a high amount of knowledge, provided its large history of being part of the donor-funded ‘policy intervention menu’ in agriculture-based countries. Agricultural inputs include provisions for seeds and machines (e.g., tractors, drillers), which were provided to smallholder farmers to support their agricultural production.

**Most of the knowledge gathered on increasing agricultural productivity included rice as one of the key targeted crops, followed by maize, root and tuber (cassava and potato) and wheat, signifying the commonly targeted crops of IFAD interventions.** Rice is crucial for IFAD’s efforts to ensure food security and eliminate hunger. It is the dietary staple for almost half the world (including most of the world’s 1.4 billion poorest citizens) and forms the basis for a healthy, nutritious, and sustainable diet.

Financial inclusion covers a wide range of initiatives to help rural communities gain access to and make use of financial services. However, only two such initiatives are included for this KGM exercise – Financial education and Financial Service Associations (FSAs). **The knowledge base for the impact of**

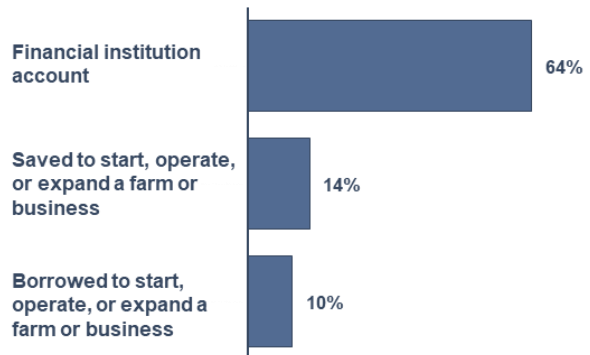
<sup>7</sup> World Bank classification of fragile and conflict-affected situations (2020)



**strengthening FSAs on financial inclusion encompasses a high share in the KGM (13%) vis-à-vis investment levels in WCA (10%).**

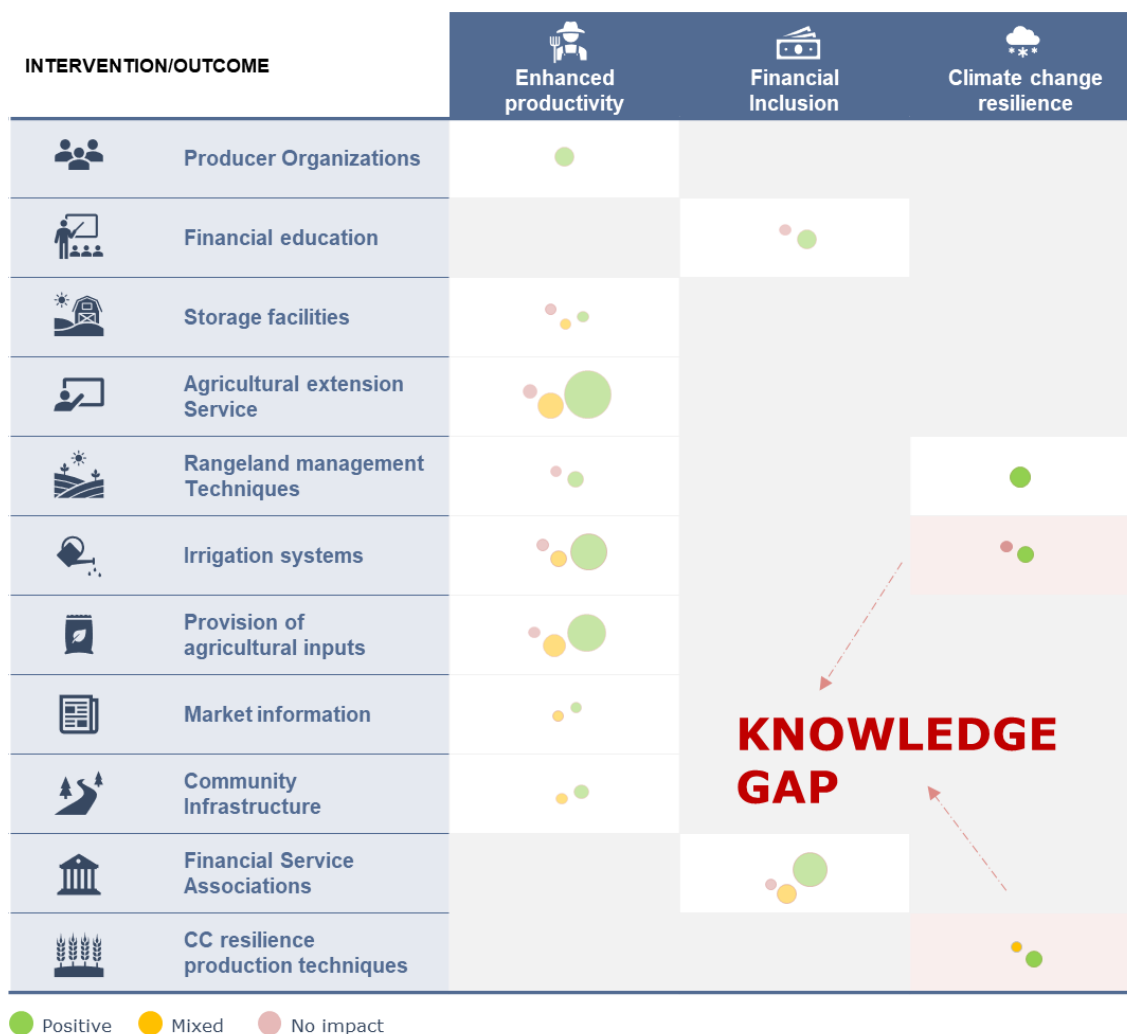
The knowledge is available in terms of members, loans, new products, and improved investment capacity. The number of members and loans granted are the standard metrics observed to assess financial inclusion across knowledge gathered for both financial education and FSAs. Therefore, the available research and knowledge in IFAD focuses more on access to financial services (members) rather than utilization (e.g., loans, savings) as an outcome of financial inclusion. The World Bank’s Global Findex Report shows that while there is an increase in the rural population holding bank accounts, the percentage of rural communities availing its services is still bleak (i.e., in 2017, 64% of the rural population had a financial account, whereas only 10% and 14% of the rural population borrowed from and saved at a financial institution, respectively). More attention is needed to better understand the structural and behavioral barriers of rural producers not only to access but also to actively use financial services.

Figure 4 – Global Findex indicators (2017, % rural)



Source – WBG Findex report

**b. Knowledge gap**



Limited knowledge has been identified around the impact of climate change resilient production techniques, and irrigation systems on climate change resilience, despite climate change being a priority for IFAD. **Only 10% of IFAD knowledge included in this KGM exercise is for climate change resilience, whereas this outcome receives 42% of WCA’s investment in the KGM space<sup>8</sup>.**

Intervention and outcome pairings	Total knowledge	WCA investment
Climate change resilience techniques – Climate Change Resilience	3% (4)	33% (\$266M)
Irrigation systems – Climate Change Resilience	3% (4)	8% (\$67M)

Given the increasing demand for climate change resilient production techniques and climate-sensitive development in general, knowledge showing the effects of these programmes is needed. There have been significant improvements in ASAP results, as shown in Figures 2 and 3, along with SECAP ratings for IFAD. Climate financing has also observed a considerable upsurge, especially in WCA during IFAD11. As results and quality have seen significant improvements, along with consistent financing, ensuring that IFAD

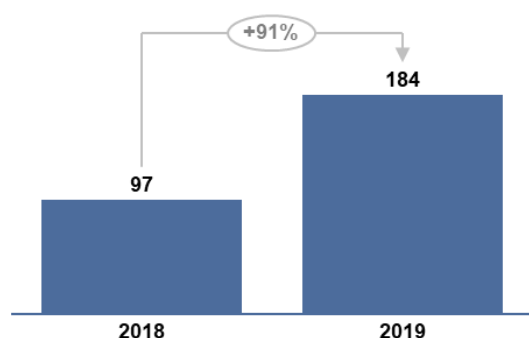
Source - ORMS

<sup>8</sup> Including rangeland management techniques.

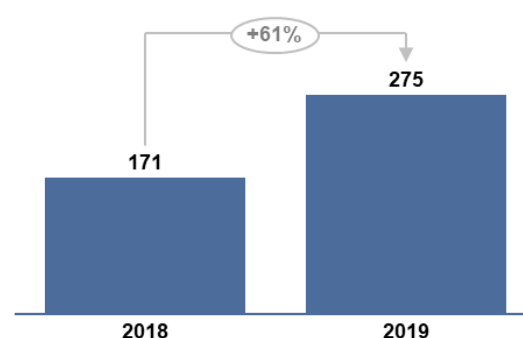
activities will impact climate change resilience of the rural communities has become one of the foremost priorities.

If climate change resilience is a priority in IFAD projects – receiving considerable investment portions, this also needs to be reflected in the knowledge/research agenda. However, tangible outcome measurement of climate change resilience efforts is not an easy task, as there is still a large debate on how climate change resilience should be measured, or how climate change resilience can be linked with specific interventions, and the length of time before impact can be evaluated.

**Figure 2 – Land under climate resilient practices**  
(‘000s, Ha, ASAP indicator, WCA)



**Figure 3 – Poor SH HH members supported in coping with the effects of CC**  
(‘000s, ASAP indicator, WCA)



Climate change resilience can be measured in different ways. There is a lack of wide-reaching consensus on which indicator to use. IFAD has three climate-related CORE outcome indicators (COIs) – *Number of tons of greenhouse gas emissions (CO2) avoided and/or sequestered*; *Percentage of persons/HHs reporting adoption of environmentally sustainable and climate-resilient technologies and practices*; and *Percentage of persons/HHs reporting a significant reduction in the time spent for collecting water or fuel*.

The KGM is intended primarily to help identify internal knowledge ‘gaps’ vis-à-vis investment levels. The KGM analysis indicates that, while IFAD has significant information about the impact of various interventions on ‘Enhanced productivity and quality of agricultural production’, we have relatively little in terms of the impact on ‘Climate change resilience’<sup>9</sup>. However, it must also be considered that this outcome has fewer matching squares in the KGM, as not all interventions would experience matching with all three outcomes squares. Only 13 of the squares show frequent intervention-outcome pairing. Out of the 13, only three interventions were directed at climate change resilience. It also implies that the number of IFAD activities for rural communities related to climate resilience so far are rather limited compared to enhancing their agricultural productivity.

<sup>9</sup> This does not mean, however, that there might be abundant external evidence on these topics. The natural next step, therefore, is to understand the causes of this relatively reduced internal knowledge base and decide to integrate external knowledge and / or prioritize an internal research or knowledge agenda on these topics.

**Exhibit 3 | How were Knowledge Bulges and Knowledge Gaps identified?**

The report identifies key 'gaps' where limited or no knowledge is available relative to its ongoing investment levels; for instance, when trying to find out existing knowledge products pertaining to interventions to build climate change resilience of smallholder farmers in rural areas through irrigation techniques, only a handful of primary studies were found yet high investment levels are present for this link. After conducting this assessment through an objective approach of comparing knowledge products relative to investment levels, the gaps were identified, representing the need to delve deeper into the subject and conduct more studies. Similarly, the knowledge' bulge' was identified when the assessment inferred an adequate number of usable studies and/or knowledge products existed with respect to investments levels.

**c. The Clearinghouse – Knowledge gaps and knowledge generation potential**

The KGM consolidates IFAD knowledge of selected intervention-outcome nexuses and identifies areas with knowledge gaps. The clearinghouse approach builds on the KGM and looks for a pipeline of knowledge products responding to these gaps. This pipeline can be created from on-going projects, internal IFAD research/evaluation units and/or even external partners (e.g., think tanks). An effective knowledge clearing house mechanism, therefore, creates coordination spaces to inform IFAD-funded projects knowledge management plans (which will be updated to reflect knowledge products addressing the gaps) and RIA/IOE's (or external partners) knowledge generation agendas. To track clearinghouse activities, a pipeline feature is included in the online KGM tool, wherein the forthcoming knowledge is categorized by the stage of the production process - Concept Approved, Research, or In Review.

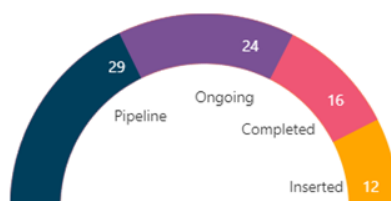
In consultation with Country Directors, WCA recognized 22 ongoing projects with the potential to address the knowledge gaps identified in the study. Table 5 provides the full list. In line with this, WCA is also coordinating with IOE on their upcoming thematic evaluation of *IFAD's contribution to Smallholder Adaptation to Climate Change* to address the climate resilience knowledge gap. The evaluation will include five ongoing WCA projects operational in countries with high vulnerability to climate change – PARSAT (Chad), LIFE-ND (Nigeria), Neer-tamba (Burkina Faso), PRODAF-DIFFA (Niger) and POSER (Cabo Verde).

**Table 5 – Ongoing WCA projects with potential to address knowledge gaps**

Table 5 – Validated projects for clearing house	
Intervention and outcome pairings with knowledge gap	Ongoing WCA Projects
<b>Irrigation systems – Climate Change Resilience</b>	PRECIS (Niger), ProDAF-DIF (Niger) and RePER (Chad), AGRIFARM (Guinea), ROOTS (Gambia)
<b>Climate change resilience production techniques – Climate Change Resilience</b>	PADMAR (Benin), Neer-tamba (Burkina Faso), PAPFA (Burkina Faso), PAFA 4R (Burkina Faso), PADFA II (Cameroon), POSER (Cape Verde), PADFA (Côte d'Ivoire), GASIP (Ghana), AGRIFARM (Guinea), REDE (Guinea Bissau), TCEP (Liberia), TCEP II (Liberia), MERIT (Mali), PRODAF (Niger), COMPRAN (Sao Tome and Principe), AVDP (Sierra Leone), PARSAT (Chad) and PROGRES (Mauritania)

**Snapshot of WCA’s online knowledge product tracker**

Knowledge Products Tracker



Knowledge Product	Intervention / Outcome	Status	Region	Originator
TBD-1	Climate change resilience production techniques – Climate change resilience	Pipeline	WCA	AGRIFARM (Guinea)
TBD-2	Irrigation systems – Climate change resilience	Pipeline	WCA	ROOTS (Gambia)
TBD-3	Climate change resilience production techniques – Climate change resilience	Pipeline	WCA	POSER (Cabo Verde)
TBD-4	Climate change resilience production techniques – Climate change resilience	Pipeline	WCA	PROGRES (Mauritania)
TBD-5	Climate change resilience production techniques – Climate change resilience	Pipeline	WCA	REDE (Guinea Bissau)
TBD-6	Climate change resilience production techniques – Climate change resilience	Pipeline	WCA	MERIT (Mali)
TBD-8	Irrigation systems – Climate change resilience	Pipeline	WCA	AGRIFARM (Guinea)

*\*The information displayed in the tracker is only for illustrative purposes*

**d. Connecting the dots – Knowledge, financing, and results**

As an IFI, IFAD focuses not only on the collection and effective use of knowledge but also on the direct relationship of available knowledge with its investments and development results. To explore this, the KGM is further expanded with a knowledge-budget-results framework. Mapping financing into the KGM will help IFAD to reflect on whether the Fund is conducting knowledge and results-driven investments. This section links results performance (as measured by CORE outcome indicators) for different KGM intervention and outcomes pairs. Mapping results into the KGM allows to analyse whether knowledge flows are enough or are being effectively mainstreamed into operations. This framework will ultimately help to raise knowledge-driven warning flags and lay the foundation for smarter decision-making.

**Warning flags!**

This exercise compares knowledge, financing, and results to identify warning flags. Proportions of internal knowledge mapped into the KGM were weighed against the investments and the results of the ongoing WCA projects having the same intervention-outcome nexuses of the KGM. The study observes some findings have investment-based decision implications while others have knowledge-based implications.

1. Warnings with investment decision implications –

The warnings presented below are for those intervention-outcome links for which the share of internal knowledge is observed to be substantially large in relation to WCA investment levels. The study also indicates good results for these links as they transform the lives of millions of smallholders in line with IFAD’s strategic objective. Given this beneficial impact, the investments should continue or be increased in these areas as knowledge is being adequately mainstreamed and utilised.

A. *Know a lot relative to investment levels, Good results, High investment levels: **Keep doing this*** – WCA invests a considerable portion in the provision of agricultural inputs for increasing productivity and strengthening FSAs for financial inclusion. These investments are crucial for safeguarding the long-term development of beneficiaries, in line with IFAD’s strategic framework. IFAD has also produced substantial knowledge on these links, relative to WCA’s investment levels. The analysis recommends that these investments continue, given that resources are directed to key areas with a high amount of knowledge and results.

<i>Know a lot relative to investment levels, Good results, High investment levels</i>		
<b>a. Provision of agricultural inputs for Enhanced productivity</b>		
Knowledge	17% (26)	High
Investment	11% (\$92 M)	High
Results (HHs reporting adoption of new/improved inputs)	100%	Good
<b>b. FSAs for financial inclusion</b>		
Knowledge	13% (19)	High
Investment	10% (\$80 M)	High
Results (HHs reporting using rural financial services)	Over 100%	Good

B. *Know a lot relative to investment levels, Good results, Low investment levels: **Reorient resources*** – Investments in irrigation systems for increasing productivity were relatively low, yet such investments have reported promising results; knowledge available relative to its investment level in IFAD’s literature on its effectiveness is also high. This essentially represents a lost investment opportunity. Increasing investment into areas where knowledge indicates a potential for impact can help achieve higher development effectiveness. The study suggests WCA should invest more in irrigation activities aimed at increasing productivity.

<i>Know a lot relative to investment levels, Good results, Low investment levels</i>		
<b>c. Irrigation systems for <i>Enhanced productivity</i></b>		
Knowledge	15% (23)	High
Investment	5% (\$44 M)	Low
Results (HHs reporting increase in production)	Over 100%	Good

2. Warnings with knowledge decision implications –

The warnings presented below are for those intervention-outcome links for which significant WCA investment is observed; however, the results appear mixed. Since the investment is high, and the results are mixed, the suggestion is to invest in producing knowledge and applying adaptive management as the areas are critical for IFAD to achieve its strategic objectives for improving farmers' livelihood.

- A. *Know a lot relative to investment levels, Poor results: **Apply adaptive management / Implementation research*** – WCA invests highly in agricultural extension services for improving farm yields, and knowledge on the effect of the same in the IFAD literature is available abundantly and is proportionately high with respect to the investment level of the ongoing WCA projects mapped into the KGM. However, the results of WCA are not up to par for projects with agricultural extension services, signalling implementation challenges. Extension programmes have a central role in disseminating farm technologies, developing skills, and building human capital, and therefore, it's critical to improve implementation quality and development results. This calls for robust monitoring and evaluation systems that use knowledge for adaptive management, taking inspiration from other successful programmes to derive extension results.

<i>Know a lot relative to investment levels, Poor results</i>		
<b>d. Agricultural extension services for <i>Enhanced productivity</i></b>		
Knowledge	31% (46)	High
Investment	26% (\$206 M)	High
Results (HHs reporting increase in production)	43%	Poor

- B. *Know little relative to investment level, Good results: **Understand success better and report back*** – Stronger resilience to climate change imply better food security, higher incomes, less migration, and more stability; WCA invests 33% of its KGM-related budget in this link, and the results are also encouraging. However, there is limited knowledge of the impact of climate change resilience techniques on building resilience. Given the high investment case for this particular intervention-outcome nexus by WCA, the study suggests developing more knowledge products on climate change resilience that can demonstrate and explain the success of the projects transparently.

<i>Know little relative to investment levels, Good results</i>		
<b>e. Climate Change resilience techniques for <i>Climate Change resilience</i></b>		
Knowledge	3% (4)	Low
Investment	33% (\$266 M)	High
Results (HHs reporting adoption of environmentally sustainable and climate-resilient technologies)	Over 100%	Good

**Conclusions**

- 1) **IFAD knowledge is heavily concentrated on ‘enhanced productivity and quality of agriculture production’.** Within enhanced productivity, the knowledge with respect to investment levels is significantly skewed towards looking at how effective irrigation systems are towards increasing productivity. This is followed by agricultural extension services and provision of agricultural inputs. Rice is the principal crop for which productivity knowledge is available. Knowledge on the impact of FSAs on financial inclusion relative to its investment levels is also high.
- 2) **There are relatively few studies / evaluations on ‘climate change resilience’ despite high investment levels.** This is the key knowledge gap highlighted in the study, and therefore, requires knowledge generation at the project and corporate level as a significant amount of IFAD investments are being channelled to this area.
- 3) **The clearinghouse approach can be very helpful to look systematically for a pipeline of knowledge products (for RIA/IOE, projects or external partners) to respond to the knowledge gaps identified in the KGM analysis.** For example, WCA has coordinated with IOE to address the climate change resilience knowledge gap in their upcoming thematic evaluation, which will include the impact of five-ongoing WCA projects in building rural communities’ climate resilience. The knowledge gaps will be continuously updated in ad-hoc basis using the on-line tool. This platform also constitutes a very well-organized micro knowledge database, from which project teams (through the regional or ICO teams) can retrieve knowledge very quickly and according to specific design and/or implementation knowledge needs.

**Investment warnings**

- 4) Connecting the dots among IFAD knowledge, financing, and results produced four knowledge-driven investment warnings.

**Knowledge-driven investment warning flags –**

Knowledge v/s investment	Investment	Results	Area	Action
High	High	Good	Provision of agricultural inputs for increased productivity and FSAs for financial inclusion	<i>Keep doing this</i>
High	High	Poor	Agricultural extension services for increased productivity	<i>Apply adaptive management</i>
High	Low	Good	Irrigation systems for increased productivity	<i>Reorient resources</i>
Low	High	Good	Climate change resilience techniques for building climate change resilience	<i>Understand success better &amp; report back</i>



### Way forward

KGMs can be vital to influence future project designs, research, and evaluations as well as work around for knowledge-based decision-making on investments. The HTDN presents the WCA-KGM pilot and provides inputs to guide future KGMs in IFAD. A by-product of the analysis is the online platform, available on xdesk, that features the micro knowledge base developed around the WCA-KGM and highlights the knowledge 'gap' along with the upcoming knowledge products responding to these gaps. KGMs becomes dated as newer knowledge becomes available on a regular basis. Therefore, WCA will issue an in-depth study biennially incorporating new research and further expanding KGM to reflect other vital intervention-outcome relationships. WCA also plans to regularly take stock of its investment portfolio and its COI results to revise its knowledge-driven investment warnings to inform future project designs and implementation.

## References

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- [3] Evidence gap maps – International Initiative for Impact Evaluation (3ie). <https://www.3ieimpact.org/evidence-hub/evidence-gap-maps>
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## Annex 1 – Interventions and Outcomes

Table 6 – Definitions of intervention and outcomes

A. Outcomes	
<b>Enhanced productivity and quality of agricultural production</b>	Agricultural productivity is measured as the ratio of agricultural outputs to agricultural inputs, while agricultural production is the net produce or output of a crop from farm. Improving both agricultural productivity and production plays a crucial role in improving the living conditions of rural communities where agriculture often employs the most considerable portion of the population. As farms become more productive, farm income increases and food prices fall, leading to rural development.
<b>Financial inclusion</b>	The process of ensuring access to useful and quality financial products and services, with timely and adequate credit, whenever needed by vulnerable and weaker sections such as low-income groups at an affordable cost is termed as Financial Inclusion. Access to financial services boosts rural household welfare by allowing rural people to manage their household earnings, start new agricultural activities as well as set up small businesses. When rural people have higher incomes and safe ways to save their money, they can pay for healthcare and education, as well as improve their resilience to unforeseen circumstances.
<b>Climate change resilience</b>	Extreme weather events such as floods, droughts and storms, but also lower-intensity phenomena such as soil erosion, land degradation, heat and water stress, affect food production. The effects of these changes are felt by the vulnerable rural population that lack the physical and socioeconomic infrastructure to strengthen their resilience. Climate change resilience is the ability to anticipate, prepare for and respond to these changes. This includes holistic mechanisms to address and cope up with climate change risks without compromising on present development challenges.
B. Interventions	
<b>Producer Organizations</b>	Formation and strengthening of grassroots organizations that could help smallholder farmers to improve the added value and marketability of their produce. It is achieved through capacity building of these organizations in terms of improved agricultural practices, negotiation techniques, long-term strategic planning, advanced accounting, among others. The intervention also captures partnerships between these organizations and private sector enterprises (e.g., contract farming). These arrangements are beneficial for farmers' associations as they help them get reasonable prices for their products. Grassroot organisations include producer organizations, farmer organizations, water management associations and community-based organizations (e.g., self-help groups, village development committees and natural resource management committees).
<b>Financial education</b>	Financial education is key for the inclusion of rural populations into the formal financial sector. Financial education includes training of rural people to improve personal financial management skills and increase knowledge and uptake of financial products. This will help reduce their vulnerability and transform them into responsible, profitable clients as well as improve their capacity to engage in income-generating activities.
<b>Storage facilities</b>	Constructing and equipping of handling facilities (warehouses, smokehouses, cereal banks, and satellite collection centres) for storing farmers' produce to reduce their postharvest losses and thus, bringing farmers to a step closer to becoming more efficient.

<p><b>Provision of agricultural inputs</b></p>	<p>Facilitating sufficient access to quantities of high-quality seeds and planting materials (such as fertilizers and pesticides) of preferred crop varieties to smallholder farmers as their uptake improves the productivity and, therefore, the quality and volume of production. It also includes provision of agricultural machinery and equipment to support crop production and expansion of areas under cultivation for farmers. These new additions will mechanize farms for promoting farm development. Examples of some of the necessary equipment include hulling machines, mini hatcheries, tractors, ploughs, harrows, and threshers. The intervention also includes seeds certification as well as partnerships with private suppliers of agricultural inputs.</p>
<p><b>Agricultural extension services</b></p>	<p>Capacity building of beneficiaries to impart basic technical skills and facilitate the transfer of agricultural production techniques and technologies (such as the choice of seeds, seeding practices, removing weeds, the dosage of fertilizers, integrated pest and soil fertility management practices, improved animal feeding, health checking, ensuring timely vaccination and deworming). Workshops, farmer field schools, collective demonstration fields, exchange visits, farmer information advice centres and farmer-to-farmer learning enable beneficiaries to gain a decent understanding of the effects of using more intensive technical itineraries and generate substantial yield.</p>
<p><b>Rangeland management techniques</b></p>	<p>This includes interventions constituting rangeland rehabilitation, animal health initiatives, and planting forests, that enhance the pastoral potential by addressing the recurring problem of animal feed and improving the productivity of an agro-pastoral system. This also includes the introduction of new breeds, improved fodder, and vaccination campaigns, all of which lead to a marked increase in the production, better animal health, and as a result, increased profits. The activities related to rehabilitation of forested areas also hold climate change mitigation potential, as they contribute to a decrease in forest degradation and emissions of carbon dioxide equivalents.</p>
<p><b>Irrigation systems</b></p>	<p>Construction and rehabilitation of irrigation systems (such as drip irrigation, pressurized closed pipes etc.) to improve water supply for smallholder farmers in the intervention areas. This enables farmers to cultivate in larger or newer regions, thus increasing their production and income. The intervention also includes constructing canals, water tanks, water reservoirs, wells, underground dams, along with the provision of irrigation equipment (e.g., irrigation pumps). Such interventions give farmers a greater sense of water security and contribute significantly to increased productivity as well as better availability of food during the dry season. Irrigation schemes also strengthen the resilience of farmers against the risks of climate hazards and changes (for instance, protecting producers against the risk of drought).</p>
<p><b>Market information</b></p>	<p>Dissemination of information related to market prices, weather conditions, and extension messages regularly via means such as community radios to improve the market knowledge and linkages of producers and traders. The dissemination of information is also achieved through billboards and online platforms.</p>
<p><b>Community infrastructure</b></p>	<p>Construction and rehabilitation of community infrastructure (such as feeder roads, market outlets) in the intervention areas. Interventions such as access to rural roads make a significant contribution in facilitating access to markets, reducing transportation costs, and allowing more substantial use of local markets by wholesalers in urban centres along with the possibility of selling products at incentive prices. This results in increased productivity and earnings.</p>

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<p><b>Financial Service Associations</b></p>	<p>Establishing and strengthening the capacity of micro-finance institutions (MFIs) and their affiliations (such as credit unions, village savings and credit groups etc.) in terms of service and outreach in rural areas. The intervention also targets financial associations, rural and community banks. The intervention includes the implementation of numerous activities that contribute to increased membership and savings, thus providing increment in access to financial services for the rural population. The activities are focused on capacity development (e.g., training sessions on group dynamics, record keeping, financial management, gender, and business/enterprise development) and provide technical assistance to attract new rural members. It also leads to increased capacity among financial institutions to become involved in rural banking operations and to integrate rural producers and enterprises into the mainstream banking system.</p>
<p><b>Climate Change Resilience Production Techniques</b></p>	<p>Interventions supporting climate change adaptation and mitigation such as the construction of climate-resilient micro watersheds, and sustainable land management for enhancing the climate resilience of rural population (it excludes activities related to irrigation systems).</p>

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**Annex 2 – List of WCA and non-WCA countries where knowledge is examined**

Countries in WCA	Countries outside of WCA		
<b>Benin</b>	Afghanistan	Haiti	Peru
<b>Burkina Faso</b>	Albania	India	Philippines
<b>Cabo Verde</b>	Algeria	Indonesia	Romania
<b>Cameroon</b>	Angola	Iran	Rwanda
<b>CAR</b>	Argentina	Iraq	Saint Lucia
<b>Chad</b>	Armenia	Jamaica	Samoa
<b>Congo, DR</b>	Azerbaijan	Jordan	Serbia
<b>Congo</b>	Bangladesh	Kiribati	Seychelles
<b>Côte d'Ivoire</b>	Belize	Kazakhstan	Solomon Islands Somalia
<b>Equatorial Guinea</b>	Bhutan	Kyrgyzstan	South Africa
<b>Gabon</b>	Bolivia	Kosovo	South Sudan
<b>Gambia</b>	Bosnia and Herzegovina	Laos	Sri Lanka
<b>Ghana</b>	Botswana	Lebanon	St Vincent and the Grenadines
<b>Guinea</b>	Brazil	Lesotho	Sudan
<b>Guinea Bissau</b>	Burundi	Libya	Suriname
<b>Liberia</b>	Cambodia	Madagascar	Syrian Arab Republic
<b>Mali</b>	Cameroon	Malawi	Tajikistan
<b>Mauritania</b>	Chile	Malaysia	Tanzania
<b>Niger</b>	China	Maldives	Timor-Leste
<b>Nigeria</b>	Colombia	Marshall Islands	Thailand
<b>Sao Tome and Principe</b>	Comoros	Mauritius	Tongo
<b>Senegal</b>	Costa Rica	Mexico	Tunisia
<b>Sierra Leone</b>	Cuba	Micronesia	Turkey
<b>Togo</b>	Djibouti	Moldova, Republic of	Turkmenistan
	Dominica	Mongolia	Tuvalu
	Dominican Republic	Montenegro	Ukraine
	Ecuador	Morocco	Uganda
	Egypt	Mozambique	Uruguay
	El Salvador	Myanmar	Uzbekistan
	Eritrea	Namibia	Vanuatu
	Eswatini	Nauru	Venezuela
	Ethiopia	Nepal	Viet Nam
	Fiji	Nicaragua	West Bank and Gaza
	Georgia	North Korea	Yemen
	Grenada	Pakistan	Zambia
	Guatemala	Palestinian Territory	Zimbabwe
	Guyana	Panama	
	Honduras	Papua New Guinea	
		Paraguay	

### Annex 3 – IFAD knowledge products examined

**Table 7 – List of knowledge products**

1.	Country Programme Evaluation - Angola
2.	Country Programme Evaluation - Argentina
3.	Country Programme Evaluation - Bangladesh
4.	Country Programme Evaluation - Bolivia
5.	Country Programme Evaluation - Brazil
6.	Country Programme Evaluation - Burkina Faso
7.	Country Programme Evaluation - Cambodia
8.	Country Programme Evaluation - Cameroon
9.	Country Programme Evaluation - China
10.	Country Programme Evaluation - Egypt
11.	Country Programme Evaluation - Ethiopia
12.	Country Programme Evaluation - Gambia
13.	Country Programme Evaluation - Ghana
14.	Country Programme Evaluation - Georgia
15.	Country Programme Evaluation - India
16.	Country Programme Evaluation - Jordan
17.	Country Programme Evaluation - Kenya
18.	Country Programme Evaluation - Mexico
19.	Country Programme Evaluation - Mozambique
20.	Country Programme Evaluation - Nepal
21.	Country Programme Evaluation - Niger
22.	Country Programme Evaluation - Philippines
23.	Country Programme Evaluation - Rwanda
24.	Country Programme Evaluation - Sierra Leone
25.	Country Programme Evaluation - Sri Lanka
26.	Country Programme Evaluation - Sudan
27.	Country Programme Evaluation - Tanzania
28.	Country Programme Evaluation - Tunisia
29.	Country Programme Evaluation - Turkey
30.	Country Programme Evaluation - Uganda
31.	Country Programme Evaluation - Vietnam
32.	Country Programme Evaluation - Yemen
33.	Country Programme Evaluation - Zambia
34.	PCR - Agricultural recovery program in the province of Ecuador (PRAPE, Congo DR)
35.	PCR - Agricultural Sector Development Support Project (PADFA) Cameroon

36. PCR - Agricultural Value Chains Support Development Programme (PADEF) Congo
37. PCR - Emergency Project in Support of Food Security and the rural development (Niger)
38. PCR - Integrated Development Program for the Kidal Region (Mali)
39. PCR - Livestock and Horticulture Development Project (LHDP) (Gambia)
40. PCR - Participatory Support Programme for Family Farming and Artisanal Fishing (PAPAFPA) (STP)
41. PCR - Project to increase agricultural productivity in Mali (PAPAM)
42. PCR - Rural Development Support Programme (PADER, Benin)
43. PCR - Rural finance institution building programme (RUFIN) (Nigeria)
44. PCR - Rural Finance Project (RFP) (Gambia)
45. PCR - Rural Microfinance Programme (RMP, Mali)
46. PCR - Smallholder Commercial Agriculture Project (PAPAC) Sao Tome and Principe
47. PCR - Smallholder Commercialization Programme (SCP, Sierra Leone)
48. PCR - Small-scale irrigation project in the regions of Maradi, Tahoua and Zinder (RUWANMU, Niger)
49. Project Impact Evaluation - Agricultural Support Project (Georgia)
50. Project Impact Evaluation - Dry Zone Livelihood Support and Partnership Programme (Sri Lanka)
51. Project Impact Evaluation - Food Security and Development Support Project in the Maradi region (Niger)
52. Project Impact Evaluation - Impact evaluation of the smallholder dairy commercialization programme (Kenya)
53. Project Impact Evaluation - Jharkhand-Chhattisgarh Tribal Development Programme (India)
54. Project Impact Evaluation - Root and Tuber Crop Development Program (Benin)
55. Project Impact Evaluation - Rural Enterprises Project (Ghana)
56. Project Impact Evaluation - Smallholder Horticulture Marketing Programme (Kenya)
57. Project Impact Evaluation - Sofala Bank Artisanal Fisheries Project (Mozambique)
58. Impact Assessment - Agricultural Sector Development Programme – Livestock (ASDP-L) and the Agriculture Service Support Programme (ASSP)
59. Impact Assessment - Agricultural Sectors Support Project (Senegal)
60. Impact Assessment - Coastal Climate Resilient Infrastructure Project (CCRIP)
61. Impact Assessment - Coastal Community Development Project (CCDP) (Indonesia)
62. Impact Assessment - Community-based Forestry Development Project (Mexico)
63. Impact Assessment - Gente de Valor – Rural Communities Development Project in the Poorest Areas of the State of Bahia
64. Impact Assessment - Guangxi Integrated Agricultural Development Project
65. Impact Assessment - How the adoption of drought-tolerant rice varieties impacts households in a non-drought year (Nepal)
66. Impact Assessment - Irrigated Rice Production Enhancement Project (IRPEP)
67. Impact Assessment - Livestock and Pasture Development Project (Tajikistan)
68. Impact Assessment - Participatory Small Irrigation Development Programme I (PASIDP I)
69. Impact Assessment - Plan VIDA-PEEP to Eradicate Extreme Poverty – Phase I (Bolivia)



70. Impact Assessment - Project for Rural Income Through Exports (Rwanda)
  71. Impact Assessment - Rural Development Support Program in Guéra (PADER-G)
  72. Impact Assessment - Smallholder Commercial Agriculture Project (PAPAC) and Participatory Smallholder Agriculture and Artisanal Fisheries Development Programme (PAPAFPA)
  73. Impact Assessment -Programme supporting development of Menabe and Melaky regions in Madagascar
  74. PPE - Agricultural Rehabilitation and Poverty Reduction Project (PRAREP) (Cote d'Ivoire)
  75. PPE - Agricultural rehabilitation program in the district of Tshopo Province Orientale (Congo DR)
  76. PPE - Community-Based Agricultural and Rural Development Programme (Nigeria)
  77. PPE - Pastoral hydraulics project in the Sahelian zone (Chad)
  78. PPE - Rehabilitation and Community-Based Poverty Reduction Project (Sierra Leone)
  79. PPE - Root and Tuber Improvement and Marketing Programme (Ghana)
  80. PPE - Rural Financial Services Project (Ghana)
  81. PPE - Rural microfinance development support project (PADMIR, Cameroon)
  82. PPE - Smallholder Tree Crop Revitalization Support Project (Liberia)
  83. Research series - Inclusive finance and rural youth
  84. Research series - Impact of modern irrigation on household production and welfare outcomes
  85. Research series - Information and communication technologies and rural youth
  86. Research series - Investing in rural youth in the Near East, North Africa, Europe, and Central Asia
  87. Research series - The impact of the adoption of CGIAR's improved varieties on poverty and welfare outcomes
  88. Research series - Understanding the dynamics of adoption decisions and their poverty impacts
  89. Advantage series - Family farming – a critical success factor for resilient food security and nutrition
  90. Advantage series - Fostering food security and nutrition, increasing incomes and empowerment
  91. Advantage series - Mobilizing private sector-led climate actions in agriculture
  92. Advantage series - Protecting the environment, empowering people
  93. Evaluation Synthesis - IFAD's support to livelihoods involving aquatic resources from small-scale fisheries, small-scale aquaculture, and coastal zones
  94. Evaluation Synthesis - Inclusive financial services for the rural poor
  95. Evaluation Synthesis - Result-based Country Strategic Opportunities Programmes
  96. Evaluation Synthesis - Technical Innovations for Rural Poverty Reduction
  97. Evaluation Synthesis - Water Conservation and Management
  98. Results Series - IFAD Results Series Issue 1
  99. Results Series - IFAD Results Series Issue 2
  100. Results Series - IFAD Results Series Issue 3
  101. Corporate level evaluation - IFAD's Engagement in Pro-poor Value Chain Development
  102. Lessons Learned - Integrated homestead food production
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## Annex 4 – Linking GRIPS with KGM

In November 2019, OPR and ICT launched an update to GRIPS, which included a reference to the budget for each subcomponent type. The exercise was carried out to support greater granularity of information being captured at both the country and project level in improving the accuracy and relevance of IFAD reports. The GRIPS platform maps each subcomponent of a project with a subcomponent type (68), category name (15), and a macro name (7). This report links these investments for each project subcomponent with intervention-outcome nexuses of KGM. It allows WCA to identify its relative investment going into a particular intervention of KGM for a certain outcome.

### Mapping approach

PDRs of each project were reviewed to identify whether the projects' subcomponent aims at any of the three KGM outcomes. Only those subcomponents were considered that explicitly stated that they are targeting KGM outcomes. The interventions of such subcomponents were then reviewed and only those subcomponents' that include KGM intervention-outcome pair (one or more) were chosen for the exercise.

Table 8 – Summary of budget mapping	
Time-period considered for analysis	WCA portfolio as of 5 <sup>th</sup> June 2020 <sup>10</sup>
Projects sample	55 projects
Total WCA investment (excluding PMC)	\$ 1.79 bn
Projects with KGM intervention-outcome pair	46
Total WCA investment in KGM interventions	\$ 610 mn
Percentage of WCA investment in KGM interventions	34%

To in line KGM and GRIPS categorization framework, the subcomponent type classification of GRIPS was used to select the KGM intervention type. For instance, the subcomponent of a project is 'Intensification and diversification for resilient agropastoral family production systems'. It includes three interventions – Agricultural extension services, Provision of agricultural inputs and Market information, and its outcome is 'Enhanced productivity and quality of agricultural production'. The GRIPS assigns this subcomponent to the Crop Advisory Services subcomponent type. Since crop advisory services are comparable to agricultural extension services, the intervention was included as Agricultural extension services. The complete mapping<sup>11</sup> is as following –

- **Agricultural extension services** - Crop advisory services, Crop Technology development, Land Tenure Capacity Building, Fisheries production, and market technologies
- **Provision of agricultural inputs** - Input supply; Seed Fertilizer Pesticide use
- **Irrigation systems** - Irrigation/Drainage Infrastructure; Irrigation/Drainage management
- **Producer organizations** - Farmer's org development; Asset users group development; NRM group development; Market Linkages
- **Climate change resilience production techniques** - Climate change adaptation
- **Rangeland management techniques** - Livestock advisory services; Livestock post-harvest; Sustainable Forest management and Land access
- **Financial education** - Inclusive Finance: Customers

<sup>10</sup> Projects ranging between EB approval and within 12 months of completion

<sup>11</sup> There were two projects with KGM interventions and outcomes but classified as Value Addition (crops) and Business Development Services for subcomponent type. Hence, due to unclarity on specific activity – they were not included.

- **Financial service association** - Inclusive Finance: Ecosystems; Inclusive Finance: Providers; Inclusive Finance: Infrastructure

**Limitations** Since the approach took only those subcomponents that explicitly stated hitting the KGM outcome, three KGM interventions - Market information, Community Infrastructure and Storage facilities missed out. This is because the objective of most subcomponents having these interventions was access to markets. When the objective was production, these interventions were one of the many interventions (not specific). Also, for cases when one intervention was hitting two KGM outcomes (Enhanced productivity and quality of agricultural production and Climate change resilience), the budget was included for both. This leads to double-counting, but the study aims to look at relative investment in each intervention-outcome pair instead of absolute investment.

Table 9 provides a detailed investment breakdown. Investments in KGM are heavily concentrated on 'Enhanced productivity and quality of agriculture production'. 26% investment in KGM is for agricultural extension services for increasing productivity, followed by the provision of agricultural inputs (11%). Climate change is another priority area for WCA. Investments in climate change resilient production techniques (33%) are the key investment areas for building climate change resilience. FSAs for financial inclusion is also vital investment for WCA (10%).

Intervention/Outcome	Enhanced productivity and quality of agricultural production	Financial Inclusion	Climate Change resilience
Producer organizations	3% (\$26M)		
Financial education		2% (\$13M)	
Storage facilities	–		
Agricultural extension services	26% (\$206M)		
Rangeland management	0.4% (\$3M)		1% (\$9M)
Irrigation systems	5% (\$44M)		8% (\$67M)
Provision of agricultural inputs	11% (\$92M)		
Market information	–		
Community infrastructure	–		
Financial service associations		10% (\$80M)	
Climate change resilience production techniques			33% (\$266M)

Table 10 provides a detailed knowledge breakdown. The numbers shown in the table represent the percentage (number) of knowledge documents found for that particular outcome. Highest knowledge is available for effectiveness of agriculture extension services on improving yields (31%). It is followed by irrigation systems (15%) and provision of agricultural inputs (17%). Significant knowledge is also available on FSAs for financial inclusion (13%).

Table 10 – Knowledge found for KGM			
Intervention/Outcome	Enhanced productivity and quality of agricultural production	Financial Inclusion	Climate Change resilience
Producer organizations	3% (4)		
Financial education		3% (5)	
Storage facilities	2% (3)		
Agricultural extension services	31% (46)		
Rangeland management	3% (4)		4% (6)
Irrigation systems	15% (23)		3% (4)
Provision of agricultural inputs	17% (26)		
Market information	1% (2)		
Community infrastructure	2% (3)		
Financial service associations		13% (19)	
Climate change resilience production techniques			3% (4)

The study further links these buckets with results of CORE outcome indicators (COIs) for that particular intervention-outcome pair. Matching the identified KGM interventions and outcomes to the COIs allows WCA to track performance of the financing towards different outcomes. The CORE indicator results were measured only for projects that had completed mid-term review (MTR) or were within 12-months of completion. MTR target was taken for projects with completion date after IFAD11 (December 2021) and end target for projects with completion date during IFAD11. The results were calculated for projects corresponding to each knowledge-investment pair<sup>12</sup>.

<sup>12</sup> Since CORE indicators were introduced in 2019, so only few projects had results by 2020. Therefore, result section is based on limited sample of projects.

**Table 11 – Progress tracked for six CORE Outcome Indicators**

**OUTCOME – Enhanced productivity and quality of agricultural production**

1.2.2 Percentage of persons/HHs reporting adoption of new/improved inputs, technologies, or practices

1.2.4 Percentage of persons/HHs reporting an increase in production

1.2.3 Percentage of persons/HHs reporting reduced water shortage vis-à-vis production needs  
(Only for Irrigation systems)

**OUTCOME – Financial inclusion**

1.2.5 Percentage of persons/HHs reporting using rural financial services

**OUTCOME – Climate change resilience**

3.2.2 Percentage of persons/HHs reporting adoption of environmentally sustainable and climate resilient technologies and practices

3.2.3 Percentage of persons/HHs reporting a significant reduction in the time spent for collecting water or fuel

Table 12 presents knowledge, budget, and result mapping.

**Table 12 – Knowledge, Investment and Result coordinates**

Intervention/Outcome	Enhanced productivity and quality of agricultural production	Financial Inclusion	Climate Change resilience
Producer organizations	(3%, 3%, -)		
Financial education		(3%, 2%, -)	
Storage facilities	(2%, -, -)		
Agricultural extension services	(31%, 26%, poor results)		
Rangeland management	(3%, 0.4%, -)		(4%, 1%, -)
Irrigation systems	(15%, 5%, high results)		(3%, 8%, -)
Provision of agricultural inputs	(17%, 11%, high results)		
Market information	(1%, -, -)		
Community infrastructure	(2%, -, -)		
Financial service associations		(13%, 10%, high results)	
Climate change resilience production techniques			(3%, 33%, high results)

Approach Section 3.d of the study presents four warnings, of which the first two are based on investment-based decision implications, and the other two are based on knowledge-based decision implications. The study assessed three fields – knowledge, investments, and results to arrive at these warnings. Since KGM was a narrowed exercise primarily meant for internal purposes, the study weighs the share of IFAD literature mapped into each of KGM intervention-outcome nexuses with the investment level of ongoing WCA projects (with the same KGM intervention-outcome link) to assess whether there is ample knowledge relative to investments. Consequently, the analysis examined whether the evaluated nexus had a high or low investment share. For this consideration, the average investment share of intervention-outcome linkages in KGM was calculated. The following were then inferred,

- If the intervention’s investment share was less than the average – the intervention was categorised as ‘*Low investment level*’.
- If the intervention’s investment share was greater than the average – the intervention was categorised as ‘*High investment level*’.

Similarly, to state good or poor results for these intervention-outcome linkages of the KGM –

- When the results of the project with the KGM intervention outcome were 100% achieved or exceeded the proposed targets, the study labelled it as a ‘*Good*’ result, and
- If a project achieved 50% or less than its proposed targets, it was labelled as ‘*Poor*’ results.

The above assessment allows in identification of four important knowledge and result-driven investment warnings and their corresponding action plan.

Knowledge v/s investment	Investment	Results	Area	Action
High	High	Good	Provision of agricultural inputs for increased productivity and FSAs for financial inclusion	<b><i>Keep doing this</i></b>
High	High	Poor	Agricultural extension services for increased productivity	<b><i>Apply adaptive management</i></b>
High	Low	Good	Irrigation systems for increased productivity	<b><i>Reorient resources</i></b>
Low	High	Good	Climate change resilience techniques for building climate change resilience	<b><i>Understand success better &amp; report back</i></b>



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