Monitoring and Evaluation Plan

Use of Conservation Agriculture in Crop-Livestock Systems (CLCA) in the Drylands for Enhanced Water Use and Soil Fertility in NEN and LAC Countries

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Project

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A manual is any type of technical documentation that describes handling, functionality and architecture of a technical product or a product under development or use. Source: COAR

About CLCA

The project has been designed to combine an adaptive research program, including integrated capacity development, with the active development of a delivery mechanism for CLCA systems to serve as impact accelerators in both targeted regions. The adaptive research component includes a subcomponent, which involves extensive socioeconomic and market data collection to be used for optimizing adapted CLCA packages for different agroecologies and socioeconomic contexts. (IFAD ID# 2000001630)

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We provide innovative, science-based solutions to improve the livelihoods and resilience of resource-poor smallholder farmers. We do this through strategic partnerships, linking research to development, and capacity development, and by taking into account gender equality and the role of youth in transforming the non-tropical dry areas.

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Acronyms

ASC	Action Site Coordinator
CCT	Cross-Cutting Theme
CRP	CGIAR Research Program
CRP	CGIAR Research Program
DO	Development Outcome
FC	Flagship Coordinator
HH	Household
ICARDA	International Center for Agricultural Research in the Dry Areas
ICT	Information and Communication Technologies
IF	Impact Factor
ISO	Intermediate Strategic Objective
ISO	International Organization for Standardization
KM	Knowledge Management
KP	Knowledge Platform
KS	Knowledge Sharing
LAC	Latin American Countries
MEL	Monitoring, Evaluation, & Learning
NA	North Africa
NARES	National Agricultural Research and Extension Services
NEN	Near-East and North Africa
OA-OD	Open Access Open Data
PMU	Project Management Unit
POWB	Plan of Work and Budget
R4D	Research for Development
RMC	Research Management Committee
RMP	Risk Management Plan
RO	Research Outcome
RPC	Research Program Coordinator
SO	Strategic Objective
ToC	Theory of Change

Table of Contents

1. Introduction

This document provides an overview of the monitoring, evaluation, and learning (MEL) plan for the project, "Conservation Agriculture in Crop-Livestock Systems (CLCA) in the Drylands for Enhanced Water Use and Soil Fertility in Near-East North Africa (NEN) and Latin American Countries (LAC)." Implementation of MEL in research for development projects ensures that the results are accurately analyzed, shared, and reported. This process is essential for donor reporting and accountability. Yet, it equally works to ensure that the investment translates into sound research outcomes and shared learning. This process will ensure that the CLCA project generates results-based evidence to ensure that the project is on track to achieve it's outcomes.

1.1. CLCA Project Overview

1.1.1. Project Goals and Objectives

The project, "Use of Conservation Agriculture in Crop-Livestock Systems (CLCA) in the Drylands for Enhanced Water Use Efficiency, Soil Fertility and Productivity in NEN and LAC Countries" is in its second phase and runs from January 2018 to June 2022. It is funded by the International Fund for Agricultural Development (IFAD) and implemented by ICARDA and CIMMYT.

The project has been designed to combine an adaptive research program, including integrated capacity development, with the active development of a delivery mechanism for CLCA systems to serve as impact accelerators in North East, North Africa (NEN) and Latin America and the Caribbean (LAC). The adaptive research component includes a subcomponent, which involves extensive socioeconomic and market data collection to be used for optimizing adapted CLCA packages for different agroecological and socioeconomic contexts.

Goal
To sustainably increase production and enhance the resilience of smallholder crop-livestock production systems to climate variability in drylands in NEN and LAC countries.

Objectives
To develop in participation with smallholder crop-livestock producers contextually relevant and gender sensitive processes for enhancing the broad uptake of CA within integrated crop-livestock systems in drylands in LAC and NEN regions.

> 1. The development of contextually relevant soil conservation and water use efficiency practices;
> 2. The introduction of more productive forage crops and enhanced practices for biomass management and livestock management;
> 3. Linking with and leveraging existing or upcoming IFAD projects (reference to investment projects) within the countries of engagement as well as developmental programs being undertaken by national governments or multilateral and international organizations.

1.1.2. Project Components

The project consists of two components:

Component 1. Participatory adaptive research with the integrated capacity development of farmers and other key partners to fully implement and evaluate CLCA systems.

> **Subcomponent 1.1.** CLCA system optimization (filling research gaps and full implementation and integration of technologies developed supported by both centers for the two regions);
> **Subcomponent 1.2.** Appropriate system development methodology, including evaluations of costs, benefits and market viability, to support wider adoption and decision-making.

Component 2. Accelerated adoption through the development of a delivery system/participatory farmer-led extension systems and inform the development of contextually relevant CLCA technologies and practices.

Each component and subcomponent have corresponding outputs, activities, and indicators (see supplementary file "Indicator Matrix" for the complete logical framework).

1.1.3. Project Management Structure

The proposed work is undertaken by a technical committee, which meets annually to assess progress and to draft the workplan, IFAD representatives (PTA and CPMs from the participating countries) may be included as observers. The Chair and Co-chair serve as the focal point persons for the partners in NEN and LAC respectively.

The steering committee (SC) is responsible, year-on-year, to support the preparation of project work and implementation, technical and financial monitoring and evaluation. Every end-of-year, the Steering Committee meets to reflect on the previous years' work and realign project work as required.

Table 1: Project management and tentative work plan

Program Management	2018				2019				2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Steering Committee Formation and 1st Year Work plan and Budget SC Meeting		x																		
Regional Inception Workshop		x								x										
Second Year Work plan and Budget SC Meeting					x															
Third Year Work plan and Budget SC Meeting									x											
Fourth Year Work plan and Budget SC Meeting													x		x					
Yearly Reports, M&E										x				x			x			
Final Project Report																			x	
Analysis of program adoption and impacts conducted and reported																			x	

1.2.   Purpose of the Project MEL Plan

The goal of a MEL plan is to bridge the logical framework of the project to the implementation of the monitoring and evaluation system. The plan expounds on the project indicators and corresponding data collection methods in relation to the project's goals, objectives, outcomes, and activities. The MEL plan further outlines the steps to translate the initial logical framework into project results and reporting; and delineates responsibilities and timeliness for the implementation of MEL.

2.   CLCA Project Results Framework

This section outlines the logical and theoretical frameworks of the CLCA project. The logical framework (section 2.1) outlines project indicators in relation to project objectives and results, and the theory of change (section 2.2) describes how research outputs can lead to larger development outcomes and. This section also analyses the CLCA project outcomes' alignment with the strategic results frameworks from IFAD, ICARDA, and CGIAR.

2.1.   Project Logical Framework

The logical framework establishes a hierarchy of goals, objectives, outputs, and activities, along with corresponding sets of progress indicators, means of verification, and assumptions. The complete logical framework can be found in supplementary file "Indicator Matrix" and a summary of project outcomes by component are listed below.

The CLCA project has three main outcomes as part of the two components:

Component 1: Interaction and participatory research with integrated capacity development of key partners to fully implement and evaluate CLCA systems (mainly linked to outcomes 1 & 2)
Outcome 1: 3,000 smallholder farmers reached (at least 40% women and 20% youth below 35 years) and 2,100 have directly adopted CLCA farming systems (in 4 target countries) with increased production and improved cost-benefits that are optimized by filling research and development gaps;
Outcome 2: At least 6 NARES, in addition to decision makers, NGO's and IFAD loan project partners in the 4 target countries have adopted tools and methodologies for reliable decision making and guide investments on contextually appropriate CLCA systems.
Component 2: Development of a delivery system/participatory farmer-led extension system for accelerating of adoption (mainly linked to outcome 3)
Outcome 3: At least 4 effective agricultural innovation systems - 1 in each implementation area of the 4 target countries - are coalesced in order to foster broad uptake of conservation agriculture practices within integrated dryland crop-livestock production systems

Figure 1: Conceptual framework for CLCA systems analysis and dissemination
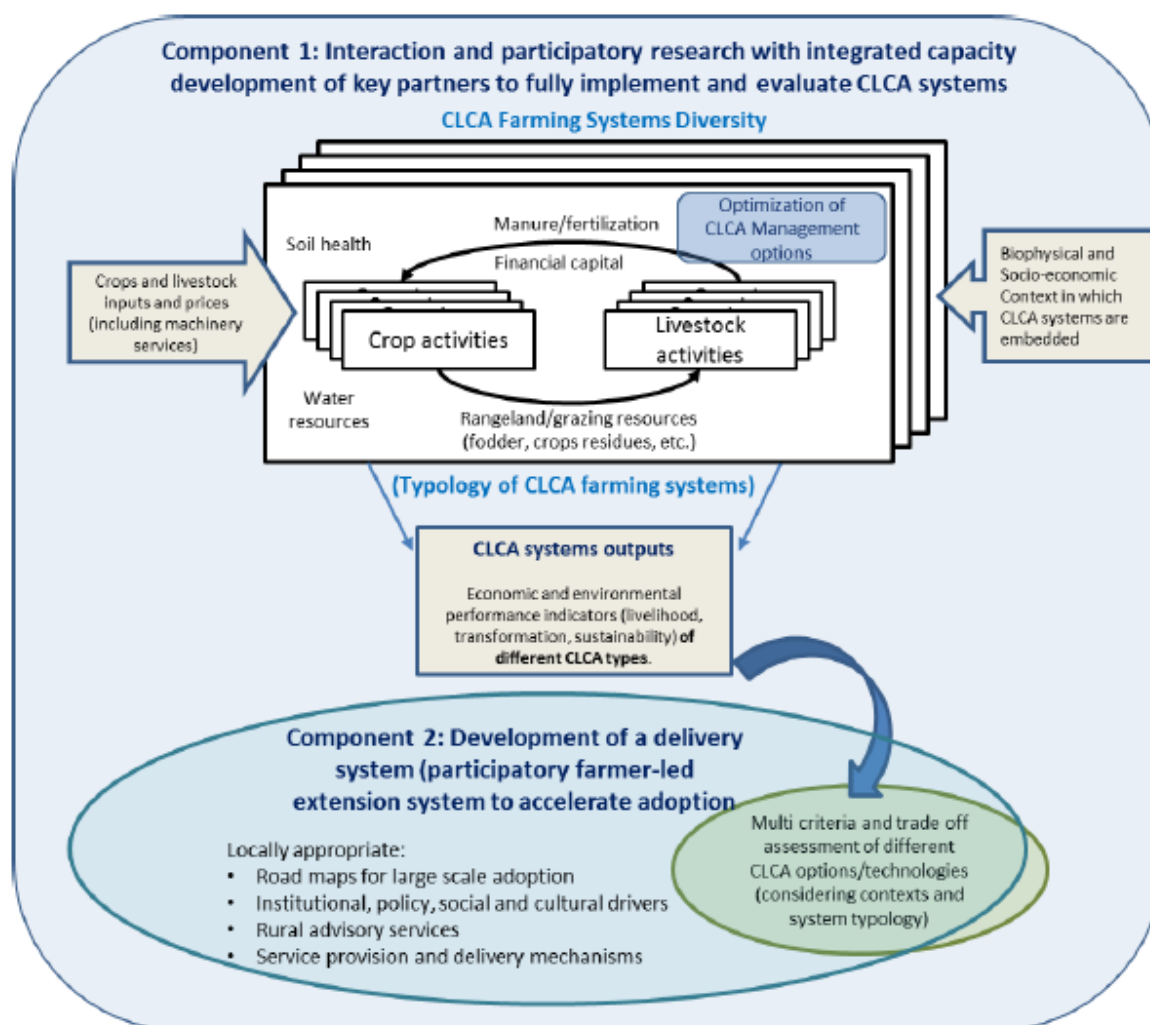
2.2.   CLCA Theory of Change

Impact Pathway:

This CLCA systems project model creates a feedback loop between Components 1 and 2. The activities and outputs in Component 1 focus on CLCA farming systems, which work to inform and lay the foundation for the activities in Component 2. Once a delivery system is achieved in Component 2, more work can be done to continue to evaluate CLCA systems, leading to a cycle of increased uptake and scaling up of CLCA. The description below outlines the linkages between the thematic groups of activities, outputs, and outcomes. The risks, explanatory factors, and unintended effects are also discussed.

Figure 2: CLCA Impact linkages between research outputs, research outcomes (RO), and development outcomes (DO)

Ac. 1.1.1. Engage stakeholders and conduct rapid appraisal

Ac. 1.1.2. Develop integrated improved crop management system

Ac. 1.1.3. Fine-tune crop residue use in different geographies and socioeconomic environments

Ac. 1.1.4. Advocate alternative feeding systems and livestock enterprises

Ac. 1.1.5. Develop financially viable business models for no-till service provision enterprises

①

Ac. 1.2.1. Reduce irrigated water use in CLCA systems; optimizing in-situ water use in rain fed systems

Ac. 1.2.2. Reduce erosion in soils with steep slopes

Ac. 1.3.1. Develop and apply comprehensive trade-off models and tools to assess the technical feasibility, economic viability and environmental performance of integrated CLCA farming systems.

Ac.1.3.2. Analyse costs and benefits as well as the market viability of the proposed CLCA practices

Ac.1.3.3. Discuss results from farm level trade off models with local partners and simplification of models for wider use.

Ac. 1.4.1. Establish appropriate monitoring and evaluation frameworks

Ac. 2.1.1. Develop and implement a road map –based on previous CLCA initiatives by ICARDA and CIMMYT– for large-scale adoption of CA within dryland crop livestock environments.

Ac. 2.2.1 Develop and test a framework for effective rural advisory and service provision for machinery, agronomic and livestock services with special emphasis on young rural

Ac. 2.2.2 To fine-tune and implement a gender/youth sensitive KM strategy of the project by developing a network of on-field, multiscale testing and validation sites, and multi-level capacities to manage interventions from field to food through the integration of scaling partners.

② ③ ④ ⑤

Component 1:Interaction and participatory research with integrated capacity development of key partners to fully implement and evaluate CLCA systems

Output 1.1. An extended technical CLCA framework - to include crop production, stubble management, forage production, livestock and manure management resilient to shocks is developed and applied, taking into consideration farming systems and agro-ecological specificities as well as farmers' needs for sustainable livelihood development

Output 1.2: Increased water use efficiency in rain fed and irrigated systems reduction of erosion in soils with steep slopes.

Output 1.3: Comprehensive trade-off models between competing uses for crop residue biomass developed and simplified for wider use

Output 1.4: Appropriate monitoring and evaluation frameworks are established

Component 2: Development of a delivery system/participatory farmer-led extension system for accelerating of adoption

Output 2.1: Contextually relevant processes for enhancing broad uptake of conservation agriculture – different from traditional (linear) processes of technology transfer - are refined in Tunisia (from a previous engagement), adapted and fine-tuned in both Algeria and Latin America (Bolivia and Nicaragua), through participatory processes

Output 2.2: Effective delivery systems for machinery, agronomic and livestock services through facilitation of access to finance, private investment and public-private partnerships.

DO

RO

RO

Outcome 1: Fill research and development gaps

Outcome 1: Increased production and improved cost-benefit for the farmers that adopt CLCA systems

Outcome 1: 2,100 smallholder farmers have adopted CLCA farming systems

Outcome 1: 3,000 smallholder farmers reached

Outcome 2: NARES, NGOs, and IFAD project partners have adopted tools and methodologies for CLCA decision-making and investment

Outcome 2: Contextually appropriate CLCA systems across the four target areas

Outcome 3: At least 4 effective agricultural innovation systems are coalesced

Outcome 3: Broad uptake of conservation agriculture practices within integrated dryland crop-livestock production systems
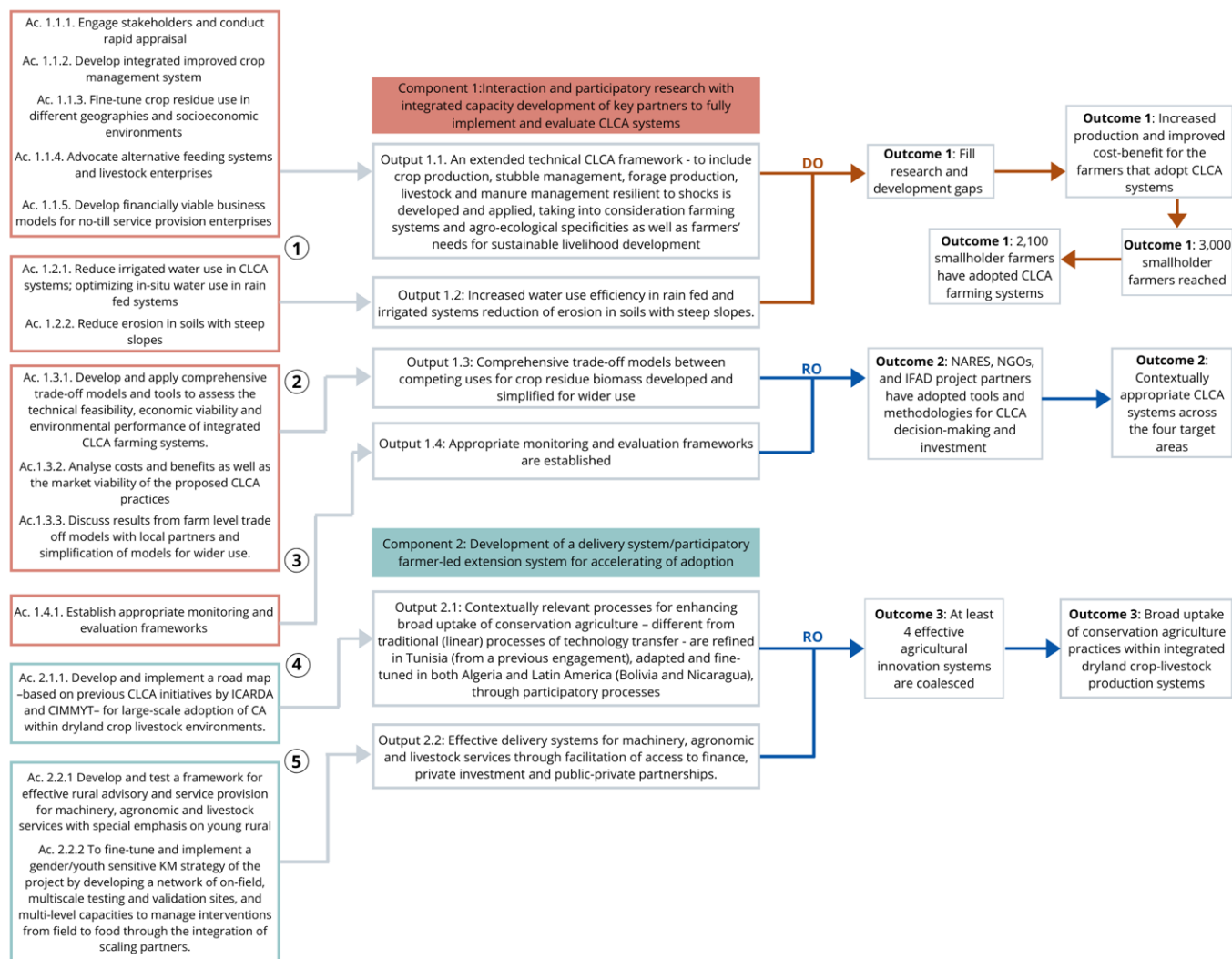
Table 2: Project activities, outputs, and outcomes under Component 1 (Interaction and participatory research with integrated capacity development of key partners to fully implement and evaluate CLCA systems)

Activities	Outputs	Outcomes
Ac. 1.1.1. Engage stakeholders and conduct rapid appraisal	Output 1.1: An extended technical CLCA framework (including crop production, stubble management, forage production, livestock and manure management resilient to shocks) is developed and applied, taking into consideration farming systems and agro-ecological specificities as well as farmers' needs for sustainable livelihood development.	Outcome 1: 3,000 smallholder farmers reached (at least 40% women and 20% youth below 35 years) and 2100 have directly adopted CLCA farming systems (in 4 target countries) with increased production and improved cost-benefits that are optimized by filling research and development gaps;
Ac.1.1.2. Develop integrated improved crop management system		
Ac.1.1.3. Fine-tune crop residue use in different geographies and socioeconomic environments		
Ac.1.1.4. Advocate alternative feeding systems and livestock enterprises		
Ac.1.1.5. Develop financially viable business models for no-till service provision enterprises		
Ac.1.2.1. Reduce irrigated water use in CLCA systems; optimizing in-situ water use in rain fed systems	Output 1.2: Increased water use efficiency in rainfed and irrigated systems and reduction of erosion in soils with steep slopes.	
Ac.1.2.2. Reduce erosion in soils with steep slopes		
Ac.1.3.1. Develop and apply comprehensive trade-off models and tools to assess the technical feasibility, economic viability and environmental performance of integrated CLCA farming systems.	Output 1.3: Comprehensive trade-off models between competing uses for crop residue biomass developed and simplified for wider use	Outcome 2: At least 6 NARES, in addition to decision makers, NGO's and IFAD loan project partners in the 4 target countries have adopted tools and methodologies for reliable decision making and guide investments on contextually appropriate CLCA systems.
Ac.1.3.2. Analyze costs and benefits as well as the market viability of the proposed CLCA practices		
Ac.1.3.3. Discuss results from farm level trade off models with local partners and simplification of models for wider use.		
Ac. 1.4.1. Establish appropriate monitoring and evaluation frameworks	Output 1.4: Appropriate monitoring and evaluation frameworks are established	

① Link between activities and Outputs 1.1 and 1.2

The activities and outputs that connect to Outcome 1 must all be implemented at the beginning of the project, especially the formative research and rapid appraisal activities. Engaging stakeholders and quickly identifying research and development gaps will lay the foundation for outreach to farmers, extensionists, and scaling up. After the initial appraisals and engagement occur, research to test production outcomes in CLCA systems, across diverse agroecologies, will help inform the trade-off models as part of Outcome 2.

Outcome 1 consists of four parts. Smallholder farmers should be included as stakeholders from the beginning (Activity 1.1.1.) to inform the research and development gaps. Once those are fulfilled as research outputs, smallholder farmers will be reached and given the proper tools to adopt the CLCA systems. By observing Figure

2, it is clear that Outputs 1 and 2 and Outcome 1 consist of the most activities and components in the entire project. Therefore, careful attention must be paid to these action steps.

- **Evidence to support linkages:** Careful reporting and attention must be given to the rapid appraisals for geographical crop management systems (including optimal feeding systems, crop residue, and business models for no-till seeders) because there is essential knowledge and stakeholders in these steps which will lay the groundwork for future project activities. Therefore, knowledge products must be carefully disseminated and constantly updated. Utilizing lived experience from farmers in the various geographies will also be essential and must be reported.
- **Assumptions:** Targeted farmers are open to innovate in land and livestock management and to collaborate with the project team for on-farm trials and data collection. Public institutions welcome extension of integrated CLCA systems into the cereal livestock systems of NA and LAC. At least 2 average rainfall years to achieve meaningful measures.
- **Risks if assumptions are not held:** Data from on-farm trials may not be reliable given variability across geographies and climate change. Lack of communication with farmers or reliable data may lead to less openness for innovation and transition to CLCA systems. Similarly, certain types of farmers (e.g. smallholder, young, women, indigenous, geographically isolated, etc.) may be left out of the intended benefits.
- **Proposed risk mitigation measures:** Meaningful and equitable engagement and open communication with diverse farmers from the beginning to enhance investment and willingness to innovate. The more meaningful the rapid appraisal (i.e. creating strong frameworks to allow for proper tools and resources), the better the results for farmers.

② Link between activities and Outputs 1.2 and 1.3

The research and development output in 1.1. and 1.2. inform the trade-off models described in Output 1.3. These models are then used to create a monitoring and evaluation system in each target country. This M&E system will utilize tools created in Output 1.1., such as stakeholder engagement and research findings regarding water-use, productivity, and soil erosion under CLCA systems in order to then put the research into practice by applying practicality and cost trade-offs.

- **Evidence to support linkages:** Databases and related narrative reports and findings from on-farm trials to identify a suite of soil and water conservation practices and the corresponding trade-offs of cost/benefits.
- **Assumptions:** Findings are reliable. Institutional will within NARES and collaborators to embark in integrated assessment of CLCA and robust MEL strategies.
- **Risks if assumptions are not held:** It will be difficult to provide resources and information for farmers to transition to CLCA systems without reliable information on trade-offs.
- **Proposed risk mitigation measures:** Include NARES, farmers, and collaborators in every step in order to enhance buy-in and create data grounded in lived experience and realities.

③ Link between activities and Outputs 1.3 and 1.4

The outputs and outcomes up to 1.3. will all build into the M&E structure in Output 1.4. There should be consistency across each target country yet be adapted to the setting where necessary.

- **Evidence to support linkages:** Reporting, data, and lesson-learned from trade-off and business model findings in Output 1.3. M&E plan and annual M&E reporting.
- **Assumptions:** Groups have the capacity to implement reporting and dissemination of outputs from 1.3 and M&E activities in output 1.4.
- **Risks if assumptions are not held:** Both outputs will not be optimal; data, progress, and impact will therefore falter.
- **Proposed risk mitigation measures:** Collect feedback from farmers on the trade-off models and include all necessary parties in the M&E development and training to ensure that all is plausible.

④ Link between activities and Outputs 1.4 and 2.1

This step is the bridge between Component 1 and Component 2; or the link between participatory research and the development of a sound delivery system for CLCA extension and adoption. Specifically, the first step involves making a road map for broad uptake of CLCA, which includes contextually relevant processes. This lays the groundwork for the innovation system mentioned in Output 3.

- **Evidence to support linkages:** MEL reports, reporting from the participatory research projects, initial findings from learning centers.
- **Assumptions:** Local manufacturers willing to collaborate in the design of alternative mechanization and business models for broad uptake of CLCA practices and technologies; political will to allow local manufacturers and service providers to perform their business; local institutional infrastructure and willingness to host knowledge repositories on CLCA.
- **Risks if assumptions are not held:** Learning centers will not be as strong with the local support and infrastructure needed to complete the outputs.
- **Proposed risk mitigation measures:** Create mechanisms to facilitate local collaboration and infrastructure support.

Table 3: Project activities, outputs, and outcomes under Component 1 (Interaction and participatory research with integrated capacity development of key partners to fully implement and evaluate CLCA systems)

Ac.2.1.1. Develop and implement a road map –based on previous CLCA initiatives by ICARDA and CIMMYT– for large-scale adoption of CA within dryland crop livestock environments.	Output 2.1: Contextually relevant processes for enhancing broad uptake of conservation agriculture – different from traditional (linear) processes of technology transfer - are refined in Tunisia (from a previous engagement), adapted and fine-tuned in both Algeria and Latin America (Bolivia and Nicaragua), through participatory processes	Outcome 3: At least 4 effective agricultural innovation systems - 1 in each implementation area of the 4 target countries - are coalesced in order to foster broad uptake of conservation agriculture practices within integrated dryland crop-livestock production systems
Ac.2.2.1 Develop and test a framework for effective rural advisory and service provision for machinery, agronomic and livestock services with special emphasis on young rural	Output 2.2: Effective delivery systems for machinery, agronomic and livestock services through facilitation of access to finance, private investment and public-private partnerships.	
Ac.2.2.2 To fine-tune and implement a gender/youth sensitive KM strategy of the project by developing a network of on-field, multiscale testing and validation sites, and multi-level capacities to manage interventions from field to food through the integration of scaling partners.		

⑤ **Link between activities and Outputs 2.1 and 2.2**
Both parts of Component 2 must be implemented simultaneously because the impact from Output 2.2 will impact the broad uptake of CLCA through effective delivery systems of tools and technologies. As stated in the risks for Link 4, lack of proper finance, extension, and tools, may lead to lost investments or negative impacts for the farmers. The validation sites and CLCA infrastructure developed through these steps will eventually feed back into further fill research and development gaps (Outcome 1) and complete the feedback loop for strong CLCA systems in NA and LAC.

1. **Evidence to support linkages:** Database and related narrative reports, project documents, survey tools, training reports, and policy briefs.
2. **Assumptions:** Processes for broad uptake of CLCA are contextually relevant (Output 2.1.); learning centers are functional; training is useful and relevant.
3. **Risks if assumptions are not held:** Without relevant tools, broad uptake will not be possible, and farmers will not be properly supported.

4. **Proposed risk mitigation measures:** Clear reporting of contextually and geographically relevant findings, collaboration across learning centers, NARES, and farmers.

2.3. Project Alignment to IFAD, ICARDA, and CGIAR Strategic Frameworks

The three CLCA outcomes compare closely to IFAD strategic outcomes (from the IFAD Strategic Framework 2016-2025), as well as with the CGIAR strategic-level outcomes (SLOs), intermediate development outcomes (IDOs) and sub-IDOs (from the CGIAR Strategy and Results Framework 2016-2030), and the ICARDA Strategic Research Priorities (SRPs) (from the ICARDA Strategic Plan 2017-2026).

The three IFAD strategic outcomes overlap well with the three CLCA outcomes (see Figure 3). IFAD strategic objective 1 describes increasing "poor rural people's productive capacity" through thematic areas such as, access to agricultural technologies and production services. This relates to the CLCA outcome 1, which says that 2,100 rural peoples will have adopted CLCA farming systems for increased production and optimized cost-benefits. Similarly, CLCA outcome 2 states that local and national partners will adopt tools to better guide investments on contextually appropriate CLCA systems. This closely ties to the IFAD outcome 2 for "increased investment in the rural sector" through thematic areas such as, rural infrastructure and diversified rural enterprise opportunities (such as CLCA). The CLCA outcome 3 describes the implementation of effective agricultural innovation systems "in order to foster broad uptake of conservation agriculture practices within integrated dryland crop-livestock production systems", which correlates well with the IFAD strategic objective 3 to "strengthen the environmental sustainability and climate resilience of poor rural people's economic activities."

Essentially, this pathway to increase rural people's productive capacity and sustainability (IFAD Objective 1) will be achieved through enhanced rural infrastructure, investment, and local and country-level capacity through policy and program development.

Figure 3: Linkage between CLCA project outcomes and IFAD thematic areas and strategic outcomes.
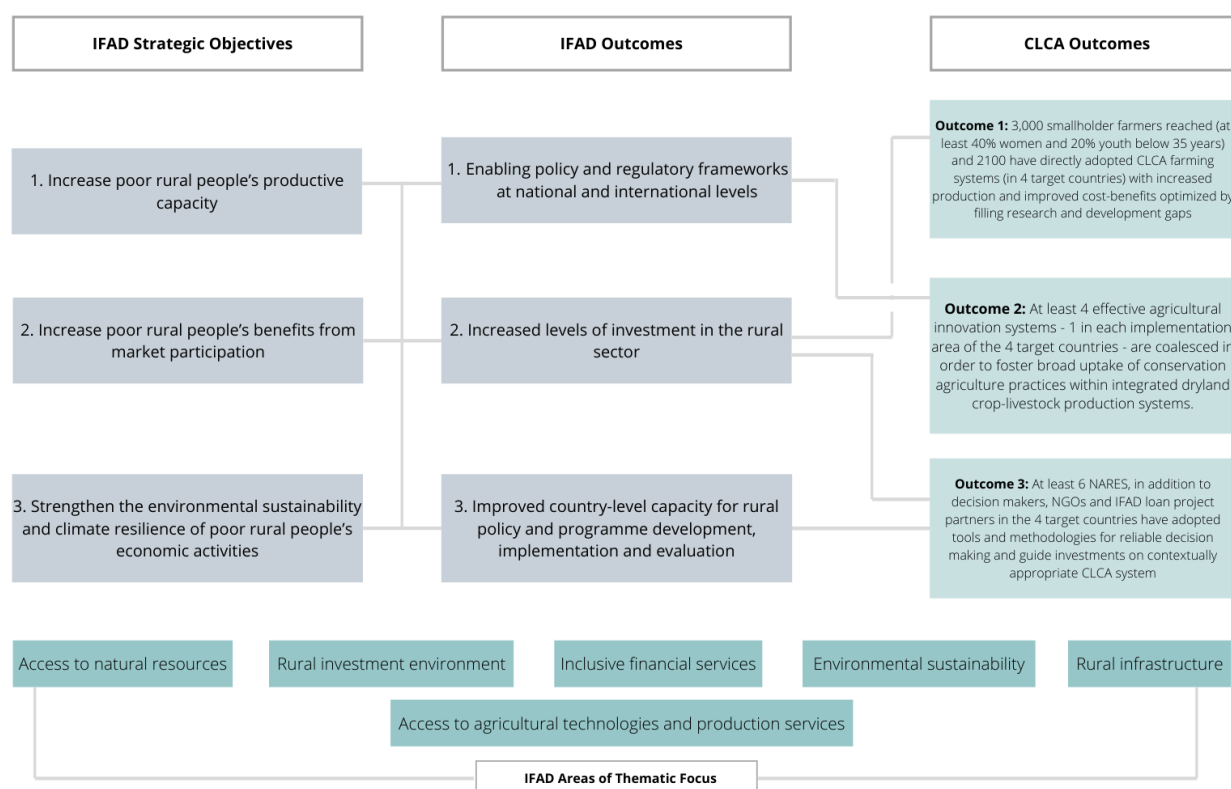
The CLCA outcomes are also closely aligned with both ICARDA and CGIAR strategic frameworks. ICARDA emphasizes the CGIAR IDOs for increased productivity and resilience of the rural poor, which relates to CLCA outcome 3 for increased production from the increased uptake of CLCA systems. CLCA outcome 1 for improved production and livelihoods through CLCA.

The relevant IDOs listed in the initial project proposal and the MEL configuration are: 1.3. Increased incomes and employment, 3.2. Enhanced benefit from ecosystem services, and 7.1. National partners and beneficiaries enabled. Through a coordinated effort to study benefits and trade-offs in production, WUE, soil erosion, cost, and machinery under CLCA systems, farmers can have improved livelihoods, which then feeds into the institutional capacity for decision-making and investment. This aligns well with the theory of change discussed in Section 2.2.

Figure 4: Linkage between CLCA project outcomes and the CGIAR strategic framework System Level Outcomes (SLOs), Intermediate Development Outcomes (IDOs), and sub-IDOs. Green indicates overlap with ICARDA, bold indicates other relevant Sub-IDOs, others are left in for context.
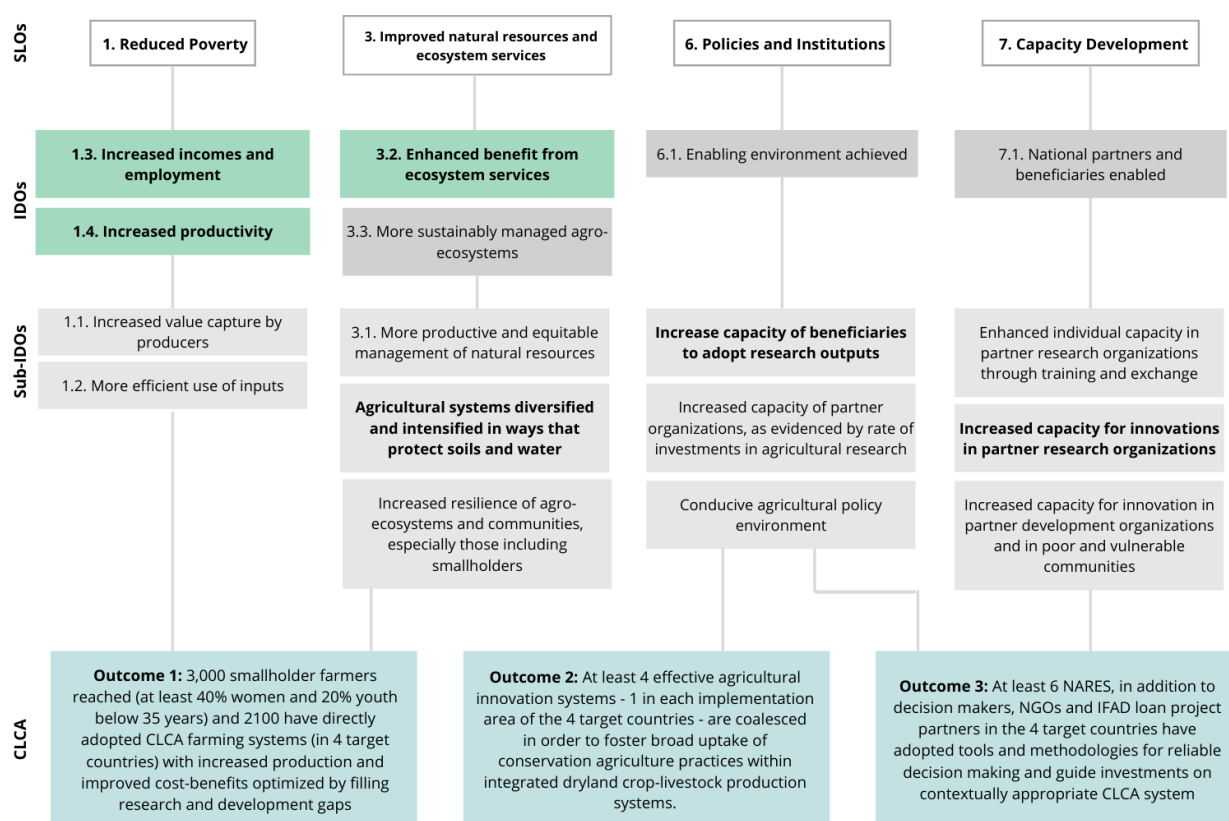
Below is a comparison between ICARDA Strategic Research Priorities (SRPs), Cross-Cutting Themes (CCTs), and CLCA Project Outcomes. The project aligns with SRP 5, "Support sustainable use and management of water and land resources in drylands." It is apparent from the evaluation indicators (Section 3.2.2.) that each of the five CCTs relates to the three project outcomes. The project proposal emphasizes SRP 3.1. regarding water storage in rainfed agriculture. This relates closely to research and development gaps and the need for trade-off models.

Figure 5: Linkage between CLCA project outcomes and the CGIAR strategic framework System Level Outcomes (SLOs), Intermediate Development Outcomes (IDOs), and sub-IDOs associated with the CRP Wheat Flagship 4: Sustainable intensification.
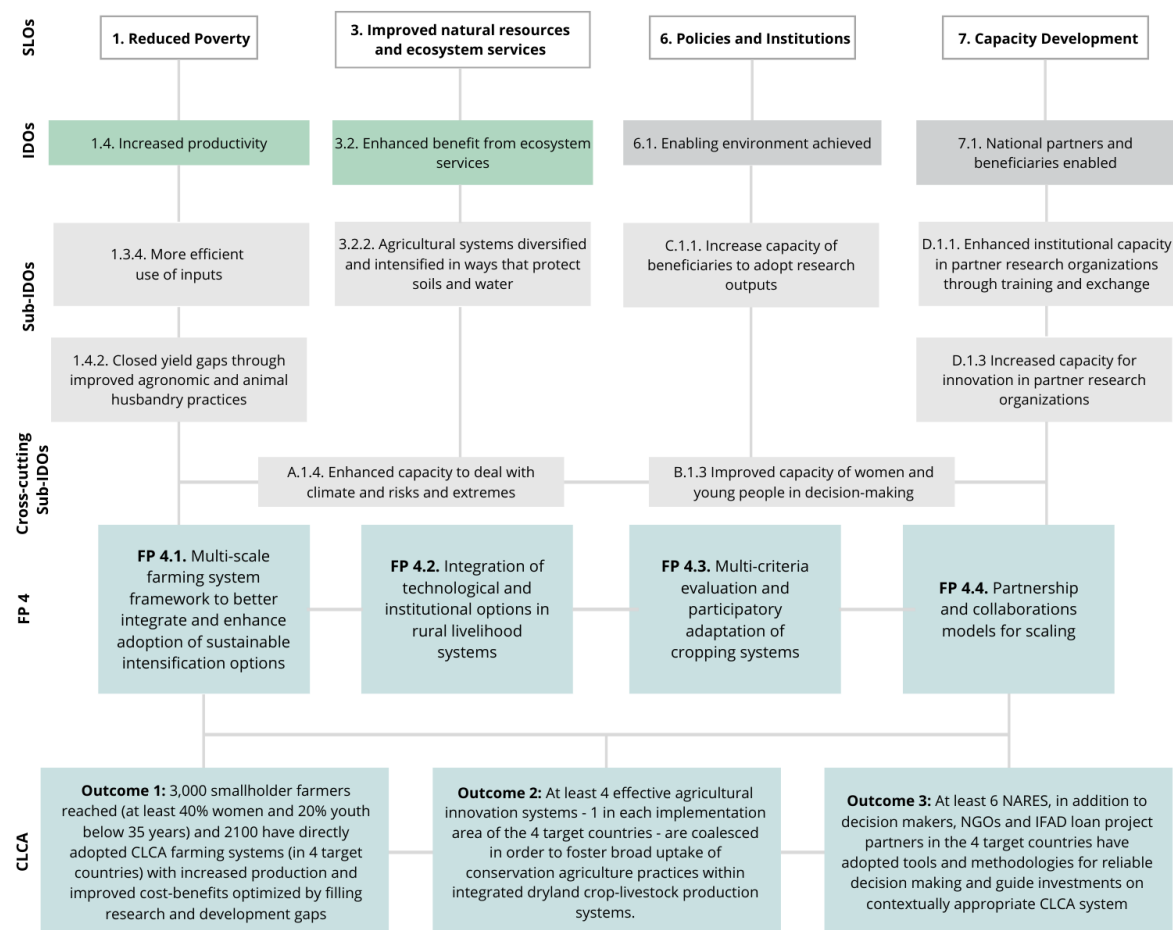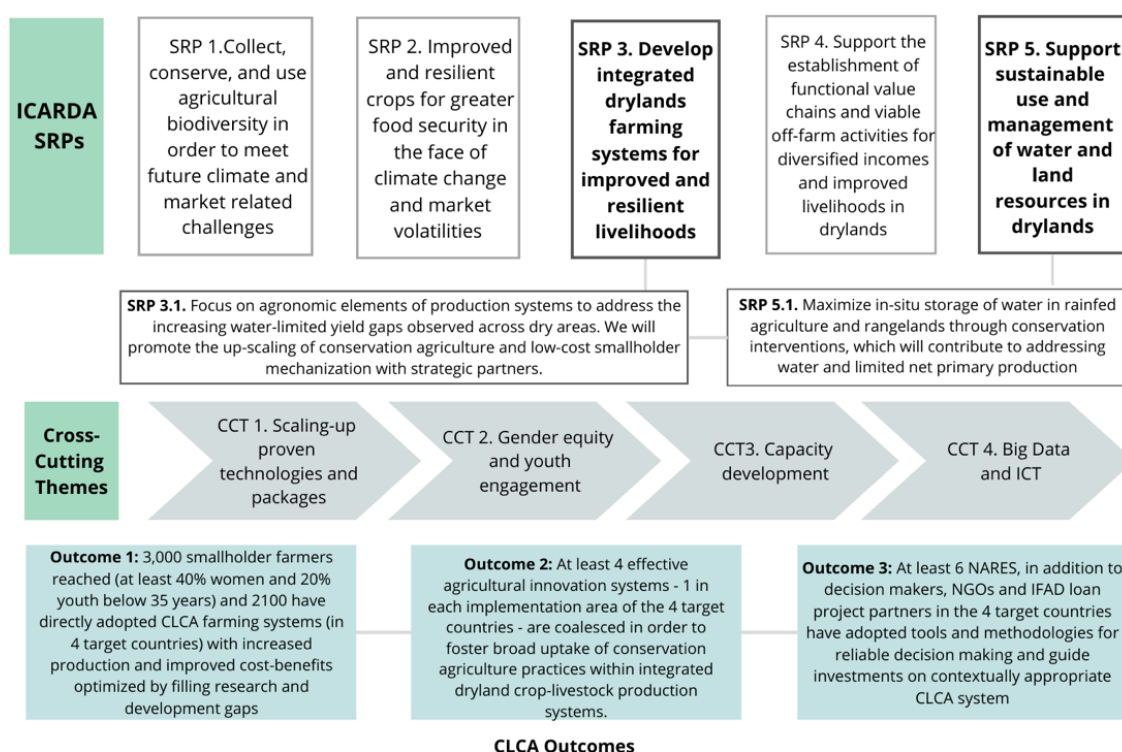
SLOs

| 1. Reduced Poverty | 3. Improved natural resources and ecosystem services | 6. Policies and Institutions | 7. Capacity Development |

IDOs

| 1.4. Increased productivity | 3.2. Enhanced benefit from ecosystem services | 6.1. Enabling environment achieved | 7.1. National partners and beneficiaries enabled |

Sub-IDOs

| 1.3.4. More efficient use of inputs | 3.2.2. Agricultural systems diversified and intensified in ways that protect soils and water | C.1.1. Increase capacity of beneficiaries to adopt research outputs | D.1.1. Enhanced institutional capacity in partner research organizations through training and exchange |

| 1.4.2. Closed yield gaps through improved agronomic and animal husbandry practices | | | D.1.3 Increased capacity for innovation in partner research organizations |

Cross-cutting Sub-IDOs

| A.1.4. Enhanced capacity to deal with climate and risks and extremes | B.1.3 Improved capacity of women and young people in decision-making |

FP 4

| **FP 4.1.** Multi-scale farming system framework to better integrate and enhance adoption of sustainable intensification options | **FP 4.2.** Integration of technological and institutional options in rural livelihood systems | **FP 4.3.** Multi-criteria evaluation and participatory adaptation of cropping systems | **FP 4.4.** Partnership and collaborations models for scaling |

CLCA

| **Outcome 1:** 3,000 smallholder farmers reached (at least 40% women and 20% youth below 35 years) and 2100 have directly adopted CLCA farming systems (in 4 target countries) with increased production and improved cost-benefits optimized by filling research and development gaps | **Outcome 2:** At least 4 effective agricultural innovation systems - 1 in each implementation area of the 4 target countries - are coalesced in order to foster broad uptake of conservation agriculture practices within integrated dryland crop-livestock production systems. | **Outcome 3:** At least 6 NARES, in addition to decision makers, NGOs and IFAD loan project partners in the 4 target countries have adopted tools and methodologies for reliable decision making and guide investments on contextually appropriate CLCA system |

Figure 6: Linkage between CLCA project outcomes and the ICARDA strategic framework (SRFs) and cross-cutting themes (CCTs).SRP 3 and 5 coincide with CLCA; SRP 3 is also the domain for ICARDA's work on livestock.

3. Performance Monitoring System

The project performance monitoring and evaluation system includes both routine monitoring and periodic evaluation. The following sections will include information regarding these indicators and means for data collection and verification. Note that the original indicators in the proposal were aggregated, therefore the indicators in this plan support the same overall aim, but are broken down in order to facilitate internal understanding. Below, Table 4 shows the full list of indicators and a detailed log frame may be found in supplementary file "Indicator Matrix". Section 3.1 shows details for all routine indicators, and section 3.2 shows details for all periodic indicators.

Table 4: Project indicators

Count	Indicator
1	1.1 Change in yield gaps of wheat and barley among CLCA farms in Tunisia and Algeria
2	1.2 Change in weaned lambs among CLCA farms in Tunisia and Algeria
3	1.3 Change in total yield of cereals and legumes among CLCA farms in Bolivia and Mexico
4	1.4 Change in liveweight livestock among CLCA farms in Bolivia and Mexico
5	2. Number of KM models produced that include formative research, tools, and products.
6	3. Number of evidence-based policy briefs that have been produced.
7	4. Number of national innovation systems which have led to uptake of CLCA technologies
8	5.1 Change in soil organic matter on CLCA farms
9	5.2 Change in water use efficiency on CLCA farms
10	6.1 Change in body condition score among livestock on CLCA farms in Tunisia and Algeria
11	6.2 Change in average daily gain among livestock on CLCA farms in Tunisia and Algeria

12	7.1 Change in wheat production cost on CLCA farms in Tunisia and Algeria
13	7.2 Change in fuel cost for wheat production on CLCA farms in Tunisia, Algeria, Bolivia, and Mexico
14	8.1 Number of farmers that have been exposed to the CLCA farmer-led extension system
15	8.2 Number of farmers that have adopted CLCA farming systems
16	9.1 Change in barley and wheat yields among CLCA farms in Tunisia and Algeria
17	9.2 Change in forage biomass among CLCA farms in Tunisia and Algeria
18	10.1 Number of livestock impacted by CLCA practices in Tunisia and Algeria
19	10.2 Change in fecundity rate among sheep on CLCA farms in Tunisia and Algeria
20	11.1 Amount of dry matter (DM) fodder produced in Mexico
21	12. Number of beneficiaries who have participated in knowledge sharing on CLCA practice management.
22	13. Area where soil and water conservation practice is applied
23	14. Number of partners that have adopted CLCA tools and methodologies for reliable decision-making.
24	15. Number of analyses generated on costs, benefits, and market viability of CLCA options.
25	16. Number of farm-level models developed that include multi-criteria assessment and trade off analysis for different farm types and agroecologies.
26	17. Number of simulation tools of optimized CLCA systems produced.
27	18. Number of ICT-based M&E tools developed that include algorithms for data storage and analysis.
28	19. Number of participatory evaluations conducted in CLCA intervention countries.
29	20. Number of surveys conducted to gather feedback from decision-makers and private market actors.
30	21. Number of local innovation systems developed
31	22. Number of knowledge and learning structures within which IFAD's toolkits on HHMs are tested for proof of concept and adaptation.
32	23. Number of CLCA intervention countries in which there is provision of efficient and effective support by extension/advisory services to beneficiaries.
33	24. Number of CLCA guidelines for extension and advisory services developed with partner organizations.
34	25. Number of private machinery service providers supported by CLCA.
35	26. Number of individuals participating in CLCA courses, workshops, or field days.
36	27. Number of groups using CLCA-generated methodologies and knowledge.
37	28. Number of research questions formulated that feed back to component 1

3.1.   Routine Monitoring

The following indicators are collected on a routine basis, including real-time or annual data collection. Periodic indicators collected only at baseline and endline are listed in the next section 3.2.

Table 5: CLCA Indicator Guide

1.1 Change in yield gaps of wheat and barley among CLCA farms in Tunisia and Algeria
Description
Definition: The yield gap (Yg) is the difference between Yp (irrigated crops), Yw (rainfed crops) or Ypi (partially- irrigated crops) and actual yield (Ya). Yg is based on Yp, Yw or Ypi simulated using optimal agronomic management as input (i.e. cultivar maturity, sowing date and planting density).   **Unit of Measure:** Yg (%)

Method of calculation: The crop yield gap is estimated as the difference between average simulated yield potential (Yp, crop production without water stress) or water-limited yield potential (Yw, rainfed crop production with water stress) minus the average on-farm actual yield.
Disaggregated by: Crop type (wheat; barley) and system (rainfed; irrigated)
Baseline: 60-80% under rainfed system; 40-60% under irrigated system
Target: 36-48% under rainfed system; 24-36% under irrigated system
Rationale: To assess improved production and efficiency of crop systems.

Data Collection and Analysis

Data Sources: Database. Project generated data and reports; results of the IFAD loans and government programs; national statistics.
Data collection method: Within buffer zones, data are collected for the most prominent soil type[1] x cropping systems combinations for a given water-regime—either rainfed, irrigated, or both if there are significant areas under both types of water regime. For a given buffer zone, Yp and/or Yw are estimated by simulation using the weather data and information about soil types and cropping systems as input to a crop model. Finally, this indicator should be reported in MEL.
Timing/Frequency of data collection and report: Annual data collection, published in final project evaluation report

Data collection responsibility: The data will be provided by CLCA Project Coordinating Institutions (INRAT/Tunisia, ITGC/Algeria) jointly analyzed and generated by NARES and CLCA-ICARDA Socio-Economic Scientists based on the ongoing surveys.

Comments and limitations: This target assumes normal weather patterns and absence of calamities along the duration of project. For LAC there was no available information on potential yield during September 2020 reporting. Therefore it was not possible to calculate yield gap and current yields were presented only.

1.2 Change in weaned lambs among CLCA farms in Tunisia and Algeria

Description

Definition: This indicator looks at the percentage of weaned lambs per 100 female sheep on CLCA farms.
Unit of Measure: %
Method of calculation: Calculating the percent of weaned lambs by dividing number of weaned lambs by 100 females
Disaggregated by: Country (Tunisia, Algeria)
Baseline: 30-40%
Target: 18-24%
Rationale: Measures an output of improved livestock production systems.

Data Collection and Analysis

Data Sources: Database. Project generated data and reports
Data collection method: To be reported in MEL.
Timing/Frequency of data collection and report: Annual
Data collection responsibility: Baseline surveys are ongoing in both North African countries. The data will be provided by CLCA project coordinating institutions (INRAT/Tunisia, ITGC/Algeria). The information will be jointly analyzed and generated by NARES-Animal Production & Nutrition teams and CLCA-ICARDA Livestock Scientist.
Comments and limitations: NA

1.3 Change in total yield of cereals and legumes among CLCA farms in Bolivia and Mexico

Description

Definition: Total yield measures the tons per hectare per year of the given crop within a year.
Unit of Measure: %
Method of calculation: Percent change in total yield of cereals and legumes will be measured by dividing the yield of a given year by the yield of the previous year.
Disaggregated by: Country (Bolivia, Mexico)

Baseline: 0.5 t/ha/year in Bolivia; 1.1 t/ha/year in Mexico
Target: 50% increase in yield
Rationale: Measures an important outcome (yield) of improved cropping systems.

Data Collection and Analysis

Data Sources: Database. Project generated data and reports
Data collection method: To be reported in MEL.
Timing/Frequency of data collection and report: Annual
Data collection responsibility: The information will be provided by NARES (Bolivia, Mexico) Agronomy team, analyzed and generated by CLCA Socio-Economic CIMMYT team.
Comments and limitations: NA

1.4 Change in liveweight livestock among CLCA farms in Bolivia and Mexico

Description

Definition: This indicator measures the percent change in kg liveweight llama (Bolivia) and sheep (Mexico).
Unit of Measure: %
Method of calculation: The average kg liveweight for llama (Bolivia) or sheep (Mexico) from the current year will be divided by the average kg liveweight for the given animal from the previous year in order to calculate the percent change.
Disaggregated by: Country (Bolivia, Mexico); animal (llama, sheep)
Baseline: 55 kg llama (Bolivia); 35 kg sheep (Mexico)
Target: 15% increase in kg liveweight for both animals.
Rationale: Measures an important outcome (weight of animal) of improved livestock production systems.

Data Collection and Analysis

Data Sources: Database. Project generated data and reports
Data collection method: To be reported in MEL.
Timing/Frequency of data collection and report: Annual
Data collection responsibility: The information will be provided by NARES (Bolivia, Mexico) team and jointly analyzed and generated by NARES-Animal Production & Nutrition teams and CLCA-CIMMYT Livestock Scientist.
Comments and limitations: NA

2. Number of KM models produced that include formative research, tools, and products.

Description

Definition: This indicator measures the number of knowledge management (KM models) that are produced. These models will include the following components: (1) formative research, (2) tools, (3) products.
Unit of Measure: #
Method of calculation: Counting the number of KM models that include the aforementioned components.
Disaggregated by: Country (Tunisia, Algeria, Bolivia, Mexico)
Baseline: 0
Target: 4 (1 per country)
Rationale: It is important to track the production of KM models as this supports exposure and application of interactive KM models by beneficiaries of existing and new IFAD as well as other government initiatives.

Data Collection and Analysis

Data Sources: Project documents, journal articles, key informants, Agreements
Data collection method: To be reported in MEL
Timing/Frequency of data collection and report: Annual
Data collection responsibility: The information will be provided by NARES team in each country.
Comments and limitations: In Tunisia, formative research has already had a positive impact; one private seed company changed investment in forage mixtures as a result of research.

3. Number of evidence-based policy briefs that have been produced

Description

Definition: This indicator counts the number of evidence-based policy briefs that have been produced.
Unit of Measure: Count
Method of calculation: Summation of count
Disaggregated by: Country
Baseline: 0
Targets: 4 policy briefs (1 per country)
Rationale: This indicator helps measure one of the inputs needed for "regulatory systems and policies in four countries have been informed on newly gained knowledge via evidence based policy briefs and bottom-up information flow"

Data Collection and Analysis

Data Sources: National policies and strategic plans, investment plans, journal articles, regional statistic reports, research generated by CLCA.
Data collection method: Review of and count of evidence-based policy briefs produced, then report in MEL.
Timing/Frequency of data collection and report: Annual
Data collection responsibility: CLCA Project Coordinating Institutions and National partners in North African countries and CIMMYT in LAC countries. The information will be jointly analyzed and generated by NARES and ICARDA staff for NEN and CIMMYT for LAC.
Comments and limitations: NA

4. Number of national innovation systems which have led to uptake of CLCA technologies

Description

Definition: This indicator counts the number of innovation systems implemented in each country at national-level that demonstrate the following signs of "engagement": (i) establishing and following up on the network infrastructure; (ii) training extension agents and farmers; and (iii) creating, promoting and strengthening local innovation systems.
Unit of Measure: Count and qualitative assessment of the above 3 criteria.
Method of calculation: Summation of count.
Disaggregated by: Country
Baseline: 0
Target: 4
Rationale: This indicator is an important pre-cursor for improving the enabling institutional and economic environment to facilitate uptake of CLCA technologies.

Data Collection and Analysis

Data Sources: A report, based on document review and internal consultations, surveys.
Data collection method: To be entered in MEL.
Timing/Frequency of data collection and report: To be reported in year 3.
Data collection responsibility: NARES and Scaling Specialists including CLCA Socio-Economic teams in both centers (ICARDA, CIMMYT).
Comments and limitations: NA

5.1 Change in soil organic matter on CLCA farms

Description

Definition: This indicator measures the percent change of soil organic matter.
Unit of Measure: %
Method of calculation: Comparing levels of soil organic matter efficiency against baseline to calculate the percent change.

Disaggregated by: Country (Tunisia, Algeria, Bolivia, Mexico)
Baseline: Tunisia 1.5%, Algeria 1.5%, Bolivia: 0.4%, Mexico: 1.3%
Target: 3-5% increase of soil organic matter increase in each country.
Rationale: This indicator helps measure the result of improved agronomic and biomass management practices.

Data Collection and Analysis

Data Sources: CLCA data on soil organic matter collected in each country.
Data collection method: To be reported in MEL.
Timing/Frequency of data collection and report: End of project in year 4.
Data collection responsibility: The information will be provided by NARES Agronomy team in each country, jointly analyzed and generated by NARES in each country and Agronomists in Both Centers (ICARDA/NEN, CIMMYT/LAC).
Comments and limitations: CIMMYT staff has noted that there are highly variable conditions in both LAC sites. Consensus values with collaborators and based on previous studies.

5.2 Change in water use efficiency on CLCA farms

Description

Definition: This indicator measures how efficiently water is used on CLCA farms by measuring the kilograms of water used per hectare.
Unit of Measure: Percent change in Kg/ha/mm
Method of calculation: Comparing levels of water use efficiency against baseline to calculate the percent increase.
Disaggregated by: Country (Tunisia, Algeria, Bolivia, Mexico) ; system type (rainfed, irrigated)
Baseline:
Tunisia rainfed system: 6 – 12 Kg/ha/mm, irrigated system: 10 – 15 Kg/ha/mm.
Algeria rainfed system: 5,5 – 12 Kg/ha/mm, irrigated system: 10 – 15 Kg/ha/mm.
Bolivia 2.2 kg/ha/mm
Mexico 1.6 kg/ha/mm
Target: 10-20% increase in water use efficiency in each country
Rationale: This metric helps measure the result of improved agronomic and biomass management practices.

Data Collection and Analysis

Data Sources: CLCA data on water use efficiency collected in each country.
Data collection method: To be reported in MEL.
Timing/Frequency of data collection and report: End of project in year 4
Data collection responsibility: The information will be provided by NARES Agronomy team in each country, jointly analyzed and generated by NARES in each country and Agronomists in Both Centers (ICARDA/NEN, CIMMYT/LAC).**Evidence required:** data on soil organic matter and water use efficiency at baseline and endline for all countries
Comments and limitations: CIMMYT staff has noted that there are highly variable conditions in both LAC sites. Consensus values with collaborators and based on previous studies.

8.1 Number of farmers that have been exposed to the CLCA farmer-led extension system

Description

Definition: Measures the total number of farmers who have been reached (i.e. farmers that have been exposed to the CLCA farmer-led extension system)
Method of calculation: Summation of count
Disaggregated by: Country (Tunisia, Algeria, Bolivia, Mexico); Gender; Age ("young" farmers are under 35 years of age)
Baseline: 0
Target: Tunisia 1500; Algeria 500; Bolivia 300; Mexico 700.

Rationale: This indicator measures a project outcome on the number of farmers who have been exposed to the CLCA farming systems.

Data Collection and Analysis

Data Sources: Routine project reporting
Data collection method: Will be entered into MEL
Timing/Frequency of data collection and report: Annual
Data collection responsibility: CLCA ICARDA & CIMMYT Staffs: information will be provided by CLCA NARES teams.
Comments and limitations: Target values disaggregated by gender and age may be found in the logical framework in supplementary file "Indicator Matrix". In Tunisia and Algeria, age disaggregated data will be provided starting Year 3.

8.2 Number of farmers that have adopted CLCA farming systems

Description

Definition: Measures the total number of farmers who have adopted CLCA farming systems (i.e. farmers that are now implementing CLCA-promoted practices)
Method of calculation: Summation of count
Disaggregated by: Country (Tunisia, Algeria, Bolivia, Mexico); Gender; Age ("young" farmers are under 35 years of age)
Baseline: 0
Target: Tunisia 1000; Algeria 400; Bolivia 210; Mexico 490.
Rationale: This indicator follows the next step after exposure (previous indicator 8.1) to adoption, as it should not be assumed that all farmers exposed to CLCA practices will adopt.

Data Collection and Analysis

Data Sources: Routine project reporting
Data collection method: Will be entered into MEL
Timing/Frequency of data collection and report: Annual
Data collection responsibility: CLCA ICARDA & CIMMYT Staffs: information will be provided by CLCA NARES teams. **Comments and limitations:** Target values disaggregated by gender and age may be found in the indicator matrix in supplementary file "Indicator Matrix". In Tunisia and Algeria, age disaggregated data will be provided starting Year 3.

12. Number of beneficiaries who have participated in knowledge sharing on CLCA practice management.

Description

Definition: This indicator counts the number of individuals who have participated in knowledge sharing on CLCA practice management. Knowledge sharing activities include: participation in innovation hubs; focus group discussions; and receipt of research pieces with interactive KM models, tools, and products.
Unit of Measure: Count of individuals
Method of calculation: Summation of count
Disaggregated by: Country (Tunisia, Algeria, Bolivia, Mexico) ; type of beneficiary (farmer, extension staff, scientist)
Baseline: 0
Target: 2494 farmers, 1045 extension staff, and 698 scientists
Rationale: This indicator measures the spread of knowledge dissemination, an important precursor for uptake and capacity development.

Data Collection and Analysis

Data Sources: Databases and related narrative reports; Training reports and registration forms
Data collection method: Real-time recording in MEL
Timing/Frequency of data collection and report: Updated frequently in MEL and reported annually to IFAD

Data collection responsibility: CLCA ICARDA & CIMMYT Staffs: information will be provided by CLCA NARES teams.
Comments and limitations: This indicator assumes that beneficiaries will be interested and available for knowledge sharing activities. Disaggregated targets may be found in supplementary file "Indicator Matrix".

13. Area where soil and water conservation (SWC) practice is applied

Description

Definition: To measure the SWC that are implemented, assessment is conducted in Bolivia on (1) Ha where improved fallow is applied; (2) Ha where best quinoa management is applied; and (3) Ha where dual purpose wind barriers are applied. Assessment is conducted in Mexico on: (1) Ha where relay cropping systems are applied; (2) Ha where minimum tillage and best residue management is applied; and (3) Ha where improved fallow is applied.
Unit of Measure: Ha
Method of calculation: Summation of count
Disaggregated by: Country (Bolivia, Mexico); Type of SWC (improved fallow; best quinoa management; dual purpose wind barriers; relay cropping systems; minimum tillage and best residue management)
Baseline: 0
Target: 400 ha in Bolivia; 350 ha in Mexico
Rationale: Measures the scale of implementation of improved SWC practices.

Data Collection and Analysis

Data Sources: Databases and related narrative reports. Project data from on-farm trials and on-station trials.
Data collection method: Data will be entered into MEL
Timing/Frequency of data collection and report: Annual
Data collection responsibility: The information will be provided by NARES Agronomy team in both LAC countries, jointly analyzed and generated by NARES Agronomy team CLCA CIMMYT Agronomy staff including Socio-Economic staff.
Evidence required: Annual data on the select SWC practices in Bolivia and Mexico
Comments and limitations: Assumes that targeted farmers open to innovate in land and their flocks management under CLCA system and collaborate with the project team for on-farm trials and data collection.

14. Number of partners that have adopted CLCA tools and methodologies for reliable decision-making.

Description

Definition: Counts the number of NARES, NGOs, and IFAD LPPs that have adopted CLCA tools and methodologies for reliable decision-making. For this indicator, "adoption" is when the select organization has confirmed that they use CLCA tools and methodologies for general decision-making or investment decisions.
Unit of Measure: Count
Method of calculation: Summation of count
Disaggregated by: Country (Tunisia, Algeria, Bolivia, Mexico); Type of organization (NARES; NGO; IFAD LPP)
Baseline: 0
Target: Across all countries, 16 NARES, 12 NGOs, and 5 IFAD LPPs. Further disaggregation may be found in supplementary file "Indicator Matrix".
Rationale: This indicator measures uptake and use of the CLCA methodologies and tools.

Data Collection and Analysis

Data Sources: Project documents generated from consultations with the select organizations to understand if they are using the CLCA tools and methodologies for decision-making and investment decisions.
Data collection method: Data to be entered in MEL
Timing/Frequency of data collection and report: Continuous and annual reporting
Data collection responsibility: CLCA ICARDA and CIMMYT staffs: information will be provided by CLCA NARES teams.
Comments and limitations: There may be multiple levels of "adoption" (extent to which these tools and methodologies are used for decision-making and investment decisions), thus project staff may consider asking

further questions during consultations to collect specific examples of how these different organizations are using the CLCA tools and methodologies.

15. Number of analyses generated on costs, benefits, and market viability of CLCA options

Description

Definition: This indicator counts the number of analyses generated on costs, benefits, and market viability of CLCA options. In Tunisia, this includes a spatially explicit cost benefit analysis of CA adoption in year 2. In Algeria this includes: (a) Assessment of profitability threshold of no till (NT) Boudour seeder,
(b) Economic evaluation of the practice of CA in comparison with the conventional system under the crop-livestock system; (c) Economic valuation of the conservation agriculture technical package under crop-livestock system.
Unit of Measure: Count
Method of calculation: Summation of count
Disaggregated by: Country
Baseline: 0
Target: 4 (1 per country)
Rationale: This indicator measures the development of analyses which will help inform CLCA implementation and provide further evidence to promote CLCA in each country context.

Data Collection and Analysis

Data Sources: These analyses will source data from database, models, project generated data, national statistics, surveys
Data collection method: Document completion of country analyses in MEL.
Timing/Frequency of data collection and report: Annual reporting
Data collection responsibility: The information will be provided by CLCA NARES in each country, jointly analyzed and generated by NARES Socio-Economic teams and Socio-economic Scientists in both Centers (ICARDA, CIMMYT). **Comments and limitations:** Timing of these analyses should reflect project goals in implementation and roll-out of new technologies. For example, in Algeria if they want to promote the no till (NT) Boudour seeder in year 3, it makes sense that they have set the target to complete this analysis in year 2.

16. Number of farm-level models developed that include multi-criteria assessment and trade off analysis for different farm types and agroecologies.

Description

Definition: Counts the number of farm-level models developed that include multi-criteria assessment and trade off analysis for different farm types and agroecologies. FarmDESIGN model will be used for all countries.
Unit of Measure: Count
Method of calculation: Summation of count
Disaggregated by: Country
Baseline: 0
Target: 4 (1 per country)
Rationale: These models will allow decision-makers to assess the trade-offs for different farm types and agro-ecologies.

Data Collection and Analysis

Data Sources: CLCA farms typology and manuals for model calibration and use.
Data collection method: Will record completion of models in MEL.
Timing/Frequency of data collection and report: Continuous and annual reporting
Data collection responsibility: ICARDA and CIMMYT Socio-Economic Scientists.
Evidence required: Completed models
Comments and limitations: As it is planned for these models to be used by NARES, consultations and feedback from NARES should be sought during the development phase.

17. Number of simulation tools of optimized CLCA systems produced.

Description

Definition: Counts the number of simulation tools of optimized CLCA systems produced. In Tunisia, this includes: Feed production (IFAD-PROFITS; IFAD-PRODESUD), soil erosion (IFAD-PROFITS), forage crops (IFAD-PROFITS), stubble grazing tool (IFAD-PROFITS). In Algeria, this includes: Summer sheep feeding rations, subsidized Zero-tillage seeder, and best practices for weed control (reducing the glyphosate application rate): for local development partners (initiatives), as IFAD is not currently active in Algeria. In Bolivia this includes: Llama management (IFAD-ProCamelidos), Quinoa (IFAD-ProCamelidos), forest and community pasture for livestock production (IFAD-PRODEZSA).
Unit of Measure: Count
Method of calculation: Summation of count
Disaggregated by: Country (Tunisia, Algeria, Bolivia, Mexico)
Baseline: 0
Target: 4
Rationale: These tools aid in project and strategic planning and allow development partners to predict the potential inputs and impact of CLCA systems.

Data Collection and Analysis

Data Sources: Database and models. Project generated data, national statistics, CLCA farms typology and manuals for model calibration and use.
Data collection method: Development of simulation tools will be recorded in MEL
Timing/Frequency of data collection and report: Annual reporting
Data collection responsibility: CLCA ICARDA and CIMMYT Staffs: information will be provided by CLCA NARES teams.
Evidence required: The simulation tools produced
Comments and limitations: To promote uptake by IFAD and local development partners, project staff may consider requesting their inputs and feedback during the development phase.

18. Number of ICT-based M&E tools developed that include algorithms for data storage and analysis

Description

Definition: Counts the number of ICT-based M&E tools developed that include algorithms for data storage and analysis. ODK and FORMSTAK will be the M&E Tools.
Unit of Measure: Count
Method of calculation: Summation of count
Disaggregated by: Country
Baseline: 0
Target: 4 (1 per country)
Rationale: Supports improved monitoring and evaluation systems via data storage and analysis tools.

Data Collection and Analysis

Data Sources: The developed M&E tools
Data collection method: Recording completion of M&E tools in MEL.
Timing/Frequency of data collection and report: Annual
Data collection responsibility: CLCA ICARDA and CIMMYT Staffs: information will be provided by CLCA NARES teams.
Comments and limitations: As with the previous indicator, to promote uptake by NARES, project staff may consider requesting their inputs and feedback during the development phase.

19. Number of participatory evaluations conducted in CLCA intervention countries.

Description

Definition: Counts the number of participatory evaluations conducted, which involves the farmer beneficiaries and includes their feedback and insight.
Unit of Measure: Count
Method of calculation: Summation of count
Disaggregated by: Country
Baseline: 0
Target: 4 (1 per country)
Rationale: Creates important data regarding integrated improved crop management systems in various geographies.

Data Collection and Analysis

Data Sources: Evaluation reports
Data collection method: Reported in MEL
Timing/Frequency of data collection and report: Annual
Data collection responsibility: CLCA ICARDA and CIMMYT Staffs: information will be provided by CLCA NARES teams.
Comments and limitations: When designing the participatory evaluation, farmer's time should be taken into consideration (e.g. busy times of year) and the benefit to them should be outlined.

20. Number of surveys conducted to gather feedback from decision-makers and private market actors

18.1. Description

Definition: Measures the number of surveys conducted with the purpose of gathering feedback from decision-makers and private market actors.
Unit of Measure: Count
Method of calculation: Summation of count
Disaggregated by: Country
Baseline: 0
Target: 4 (1 per country)

18.2. Data Collection and Analysis

Data Sources: Program and project documents and staff
Data collection method: To report the completion of these surveys in MEL
Timing/Frequency of data collection and report: Annual reporting
Data collection responsibility: CLCA ICARDA and CIMMYT staffs: information will be provided by CLCA NARES teams.

Evidence required: Results from the conducted surveys
Comments and limitations: Guidance from the MEL team was recently released on conducting surveys that may be a helpful resource: ([link])

21. Number of local innovation systems developed

Description

Definition: In contrast with indicator #4 which counts national innovation systems, this indicator counts the number of local agricultural innovation systems, 1 in each implementation area of the 4 target countries. The purpose of these innovation systems are to foster broad uptake of conservation agriculture practices within integrated dryland crop-livestock production systems.
Unit of Measure: Count
Method of calculation: Summation of count
Disaggregated by: Country
Baseline: 0
Target: 4

Rationale: This indicator is an important pre-cursor for improving the enabling institutional and economic environment to facilitate uptake of CLCA technologies.

Data Collection and Analysis

Data Sources: A report, based on document review and internal consultations
Data collection method: To be entered in MEL
Timing/Frequency of data collection and report: Annual
Data collection responsibility: CLCA ICARDA and CIMMYT Staffs: information will be provided by CLCA NARES teams.

Comments and limitations: NA

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22. Number of knowledge and learning structures within which IFAD's toolkits on HHMs are tested for proof of concept and adaptation.

Description

Definition: Counts the number of knowledge and learning structures within which IFAD's toolkits on HHMs are tested for proof of concept and adaptation.
Unit of Measure: Count
Method of calculation: Summation of count
Disaggregated by: Country
Baseline: 0
Target: 8 (2 per country)
Rationale: Ensures that IFADs toolkits are being tested for proof of concept and therefore may be improved for broader use in the future

Data Collection and Analysis

Data Sources: Annual reports; confirmation by project staff; links to workshops in MEL
Data collection method: To be reported in MEL
Timing/Frequency of data collection and report: Annual
Data collection responsibility: CLCA ICARDA and CIMMYT Staffs: information will be provided by CLCA NARES teams.
Comments and limitations: NA

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23. Number of CLCA intervention countries in which there is provision of efficient and effective support by extension/advisory services to beneficiaries

Description

Definition: Counts the number of countries in which there is provision of efficient and effective support by extension/advisory services to beneficiaries. "Efficient and effective support" will be measured through the participatory evaluation mentioned in indicator # 19.
Unit of Measure: Count
Method of calculation: Summation of count
Disaggregated by: Country
Baseline: 0
Target: 4 (1 per country)
Rationale: Assesses the efficiency and effectiveness of the extension/advisory services in each country.

Data Collection and Analysis

Data Sources: Participatory evaluation.
Data collection method: To be assessed based off of participatory evaluation results and entered in MEL.
Timing/Frequency of data collection and report: Continuous and annual reporting
Data collection responsibility: CLCA ICARDA & CIMMYT Staffs: information will be provided by CLCA NARES teams.

Evidence required: Self-reported evidence, staff numbers
Comments and limitations:
1. This is a binary indicator (whether or not there is provision of efficient and effective support by extension/advisory services to beneficiaries), yet there are likely many important details and nuances to consider. Therefore, while this indicator only measures yes/no, project staff should consider the detailed results of the participatory evaluations to determine lessons learned and successes.
2. It is important to define how "efficient and effective support" will be measured and where to draw the line of "yes/no" before measuring this indicator to avoid bias.

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26. Number of individuals participating in CLCA courses, workshops, or field days.

Description

Definition: Counts the number of farmers, extension staff, scientists, and NGOs participating in courses, workshops, or field days.
Unit of Measure: Count
Method of calculation: Summation of count
Disaggregated by: Country, type of stakeholder (farmers, extension staff, scientists, NGOs, traders)
Baseline: 0
Target: 500 farmers, 50 extension staff, 20 scientists, 2 NGOs, 2 traders in each country
Rationale: Assesses the reach of capacity development activities.

Data Collection and Analysis

Data Sources: Training registration forms; project documents
Data collection method: Report in MEL
Timing/Frequency of data collection and report: Continuous and annual reporting
Data collection responsibility: CLCA ICARDA and CIMMYT Staffs: information will be provided by CLCA NARES teams.
Evidence required: Training, workshop, and field day reports; participant lists
Comments and limitations: NA

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27. Number of groups using CLCA-generated methodologies and knowledge

Description

Definition: Counts the number of training platforms, validation sites, and scaling partners using CLCA-generated methodologies and knowledge.
Unit of Measure: Count
Method of calculation: Summation of count
Disaggregated by: Country, type (training platform, validation site, scaling partner)
Baseline: 0
Target: 1 training platform, 10 validation sites, and 10 scaling partners per country
Rationale: Measures the uptake of CLCA methods and knowledge

Data Collection and Analysis

Data Sources: Survey on use of CLCA methodologies and knowledge
Data collection method: The number of platforms/sites/partners using CLCA methodologies and knowledge will be identified from the survey results and entered in MEL.
Timing/Frequency of data collection and report: Annual reporting
Data collection responsibility: CLCA ICARDA and CIMMYT Staffs: information will be provided by CLCA NARES teams.

Evidence required: Survey results
Comments and limitations: Before collecting data, project staff should determine which CLCA methodologies and knowledge to ask about in the survey, and at which level will be the cut off for "use". For example, if a validation site uses 1 of 5 CLCA methods and knowledge, does it count as "using" or not?

28. Number of research questions formulated that feed back to component 1
Description
Definition: Counts the number of research questions formulated that feed back to component 1 (Interaction and participatory research with integrated capacity development of key partners to fully implement and evaluate CLCA systems).   **Unit of Measure:** Count   **Method of calculation:** Summation of count   **Disaggregated by**: Country   **Baseline**: 0   **Target:** 9 (2 in all countries except Bolivia, for which the target is 3)   **Rationale:** Supports further understanding in order to effectively promote and implement CLCA in the 4 target countries.
Data Collection and Analysis
Data Sources: Program and project documents and staff   **Data collection method:** Recorded completion of research questions in MEL.   **Timing/Frequency of data collection and report:** To be reported in year 2   **Data collection responsibility:** CLCA ICARDA and CIMMYT staffs: information will be provided by CLCA NARES teams.   **Evidence required:** Research questions   **Comments and limitations:** NA

The log frame in supplementary file "Indicator Matrix" shows the percent progress made towards the logical framework indicators as of September 2020, along with qualitative descriptors of outputs mentioned in the report.

3.1.1 Reporting planned and unplanned deliverables

All planned project deliverables will be configured in MEL to facilitate reporting by project staff. This will make it easier to report on the planned deliverables assigned to respective project staff. There will also be the option for staff to report unplanned deliverables. Research-related deliverables will go through internal controls to ensure that they meet the required standards (i.e. compliance with science quality standards, ensuring proper metadata fields, proper licenses applied etc.). Once this is done, each deliverable will be published on DSpace (Publications) and Dataverse (data). It is recommended that project staff make deliverables Open Access, however, where there is reason to restrict access, staff will have the option to save deliverables internally and fix an embargo period if needed.

3.1.2 Data access and privacy

Apart from the need to use detailed key identification data for 1) data verification; 2) sampling beneficiaries for evaluation purposes; and 3) audit persons, the data collected will only be reported or made available to third parties in aggregates (sums and averages) and geo-referenced maps. No data will be handed to third parties with information that can be used to trace individual farmers e.g. names, and GPS coordinates. It will be the responsibility of the MEL focal point persons, and the project MEL Officers to rid the data of such information before sharing with third parties, or to compute statistics for sharing.

3.2 Periodic Evaluations

The CLCA project will conduct periodic evaluations through annual reports and evaluations at project baseline, mid-term, and endline to assess the overall project achievements and impact. The following sections describe the timeline of project periodic evaluation measures, suggested evaluation questions and definitions of relevant indicators. Periodic evaluation will consist of the following:

1) Annual technical reports: These are completed bi-annually to assess project progress and cover technical and financial aspects of the project;

2) Project evaluations: These will be completed at baseline, mid-term and endline to allow for baseline data and adaptation past the midpoint of the project. Key questions are described in Section 4.2.1.
3) Field site reports and farmer surveys: These will assess farmer satisfaction with the project's processes and impact.

3.2.1 Key evaluation questions

In line with the IFAD recommended criterion[1] and re-known DAC Criterion, the evaluation questions in Table 6 will be utilized for evaluating the project.

Table 6: Evaluation dimensions and questions

Evaluation dimension	Evaluation Question
Relevance	1. Was the project a good idea in terms of improving the situation at hand? 2. Did it deal with the priorities of the target groups? Why or why not?
Effectiveness	3. Were the plans (purposes, outputs and activities) achieved? 4. Was the intervention logic correct? Why or why not? 5. What was done was the best way to maximize impact?
Efficiency	6. Were the resources used in the best possible way? Why or why not? 7. What could have been done differently to improve implementation, and hence maximize impact, at an acceptable and sustainable cost?
Impact	8. To what extent did the project contribute towards the long-term goal? Why or why not? 9. What unanticipated positive or negative consequences did the project have? Why did they arise?
Sustainability	10. Will there be continued positive impacts as a result of the project after the project has closed? Why or why not?

Unlike the endline evaluations that solely examine the above questions in introspect, the mid-term evaluation, and especially the baseline evaluation shall recommend to the project management team measures that can be adopted to enhance the outcomes of the project along the dimensions mentioned above. Routinely, lessons learned will be captured and documented in a manner that enables their use for corrective action geared at enhancing the achievement of project results that are further within the dimensions mentioned above.

3.2.2 Indicators for periodic evaluation

Whereas the information measured through tracking the performance indicators may be combined with other pieces of information to make inference on the evaluation dimensions above, the information on indicators and their values will mainly be relied upon to make inference on the 'effectiveness' dimension. There are several periodic indicators that will only be collected at baseline and endline of the project, listed below.

Table 7: List of outcome indicators used for project evaluation

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[1] See: IFAD Guide for Project M&E

6.1 Change in body condition score among livestock on CLCA farms in Tunisia and Algeria

Description

Definition: Body condition score (BCS) is a physical assessment technique based on a 9-point scale, to be conducted on livestock in Tunisia and Algeria.
Unit of Measure: Percent change in BCS
Method of calculation: Physical and visual assessment of livestock on the 9-point BCS scale
Disaggregated by: Country (Tunisia, Algeria)
Baseline: 2.2-2.5 BCS
Target: 20% increase in BCS from baseline in Tunisia & Algeria
Rationale: This indicator helps measure livestock productivity

Data Collection and Analysis

Data Sources: Project data from on-farm trials and long-term on-station trials
Data collection method: Data will be entered into MEL
Timing/Frequency of data collection and report: Baseline and end of project in year 4
Data collection responsibility: The information will be provided by NARES-Animal Production and Nutrition teams, jointly analyzed and generated by NARES teams and ICARDA Livestock Scientist.

6.2 Change in average daily gain among livestock on CLCA farms in Tunisia and Algeria

Description

Definition: The average amount of weight an animal will gain each day during the feeding period.
Unit of Measure: Percent change in average daily gain
Method of calculation: grams/day/head
Disaggregated by: Country (Tunisia, Algeria)
Baseline: 130 grams/day/head
Target: 38% increase from baseline
Rationale: This indicator helps measure the result of adopted fodder, cover crops, and alternative feed resources.

Data Collection and Analysis

Data Sources: Project data from on-farm trials and long-term on-station trials
Data collection method: Data will be entered into MEL
Timing/Frequency of data collection and report: Baseline and end of project in year 4
Data collection responsibility: The information will be provided by NARES-Animal Production and Nutrition teams, jointly analyzed and generated by NARES teams and ICARDA Livestock Scientist.

7.1 Change in wheat production cost on CLCA farms in Tunisia and Algeria

Description

Definition: Measures the percent change in production cost (USD) per hectare of wheat production
Unit of Measure: Percent change in USD/ha
Method of calculation: Taking the average wheat production cost per ha at endline and dividing by the baseline value to obtain percent change.
Disaggregated by: Country (Tunisia, Algeria)
Baseline: In both countries, $150-300 USD/ha
Target: 15-20% reduction from baseline
Rationale: This indicator measures the financial impact of farming with the CLCA approach

Data Collection and Analysis

Data Sources: Project data from on-farm trials and on-station trials

Data collection method: Data will be entered into MEL
Timing/Frequency of data collection and report: Baseline; end of project in year 4
Data collection responsibility: The information will be provided by NARES Socio-Economic teams, jointly analyzed and generated with ICARDA Socio-Economic Scientists.

Comments and limitations: NA

7.2 Change in fuel cost for wheat production on CLCA farms in Tunisia, Algeria, Bolivia, and Mexico

Description

Definition: Measures the percent change in the cost (USD) of fuel used for wheat production per hectare per year
Unit of Measure: Percent change in USD/ha/mo
Method of calculation: Taking the average wheat production cost per ha at endline and dividing by the baseline value to obtain percent change.
Disaggregated by: Country (Tunisia, Algeria, Bolivia, Mexico)
Baseline: Tunisia 18 USD/ha/year; Algeria 13.5 USD/ha/year; Bolivia 507 USD/ha/year; Mexico 755 USD/ha/year
Target: 15-20% reduction from baseline
Rationale: This indicator measures the financial impact of farming with the CLCA approach

Data Collection and Analysis

Data Sources: Project data from on-farm trials and on-station trials
Data collection method: Data will be entered into MEL
Timing/Frequency of data collection and report: Baseline; end of project in year 4
Data collection responsibility: The information will be provided by NARES Socio-Economic teams, jointly analyzed and generated with ICARDA and CIMMYT Socio-Economic Scientists.
Comments and limitations: NA

9.1 Change in barley and wheat yields among CLCA farms in Tunisia and Algeria

Description

Definition: Measures the total production in tons per hectare of barley and wheat on CLCA farms in Tunisia and Algeria.
Unit of Measure: Percent change in t/ha
Method of calculation: Divide the yield at endline by the yield at baseline to obtain percent change in yield.
Disaggregated by: Crop type (wheat; barley)
Baseline: In both countries: 1.8 t/ha wheat and barley 2 t/ha
Target: 20% increase from baseline
Rationale: To assess improved production and efficiency of crop systems.

Data Collection and Analysis

Data Sources: Routine project reporting
Data collection method: Will be entered into MEL
Timing/Frequency of data collection and report: Baseline; end of project in year 4
Data collection responsibility: The information will be provided by NARES-Agronomy teams, jointly analyzed and generated with ICARDA Agronomy Scientists.
Comments and limitations: NA

9.2 Change in forage biomass among CLCA farms in Tunisia and Algeria

Description

Definition: Forage biomass measures the total quantity of organic matter produced that may be used for forage/fodder
Unit of Measure: Percent change in t/ha
Method of calculation: Divide the endline forage biomass value by the baseline value in order to calculate percent change
Disaggregated by: Country (Tunisia, Algeria) ; Crop (Oat, Triticale, Forage Mixture)
Baseline: In both countries, Oat: 2 – 5 t/ha, Triticale: 3 – 6 t/ha, Forage mixture: 6 – 8 t/ha
Target: Increase of 20% from baseline
Rationale: Measures an output of CLCA cropping systems.

Data Collection and Analysis

Data Sources: Databases and related narrative reports. Project data from on-farm trials and on-station trials;
Data collection method: Data will be entered into MEL
Timing/Frequency of data collection and report: Baseline; end of project in year 4
Data collection responsibility: The information will be provided by NARES-Agronomy and Forage and Livestock teams, jointly analyzed and generated with ICARDA Agronomy and Livestock Scientists.
Comments and limitations: These targets assume at least 2 average rainfall years during the project period.

10.1 Number of livestock impacted by CLCA practices in Tunisia and Algeria

Description

Definition: Livestock impacted include those for which farmers have implemented CLCA practices.
Unit of Measure: Count
Method of calculation: Sum the total number of livestock in Tunisia and Algeria impacted by CLCA practices
Disaggregated by: Country
Baseline: 0
Target: 220,000
Rationale: Measures the scale of livestock impacted in Tunisia and Algeria

Data Collection and Analysis

Data Sources: Databases and related narrative reports. Project data from on-farm trials and on-station trials
Data collection method: Data will be entered into MEL
Timing/Frequency of data collection and report: Baseline; end of project in year 4
Data collection responsibility: The information will be provided by NARES-Animal Production and Nutrition teams, jointly analyzed and generated by NARES teams and ICARDA Livestock Scientist.
Comments and limitations: NA

10.2 Change in fecundity rate among sheep on CLCA farms

Description

Definition: Fecundity rate is the average number of female offspring produced per female in the population over some period of time
Unit of Measure: Percent change in fecundity rate
Method of calculation: Dividing endline fecundity rate by baseline to determine the percent change.
Disaggregated by: Country (Tunisia, Algeria)
Baseline: 75%
Target: 33% increase from baseline
Rationale: Measures the fertility of sheep.

Data Collection and Analysis

Data Sources: Databases and related narrative reports. Project data from on-farm trials and on-station trials
Data collection method: Data will be entered into MEL
Timing/Frequency of data collection and report: Baseline; end of project in year 4
Data collection responsibility: The information will be provided by NARES-Animal Production and Nutrition team, jointly analyzed and generated by NARES teams and ICARDA Livestock Scientist.

Comments and limitations: NA

11.1 Amount of dry matter (DM) fodder produced in Mexico

Description

Definition: Measures the tons of DM produced per ha in Mexico
Unit of Measure: t/ha
Method of calculation: Calculate the average t/ha
Disaggregated by: NA
Baseline: 1 t/ha
Target: 1.25 t/ha
Rationale: This indicator measures the result of improved agroforestry, soil, and water conservation practices.

Data Collection and Analysis

Data Sources: Databases and related narrative reports. Project data from on-farm trials and on-station trials.
Data collection method: Data will be entered into MEL
Timing/Frequency of data collection and report: Annual
Data collection responsibility: The information will be provided by NARES team in Mexico, jointly analyzed and generated by NARES teams and CLCA CIMMYT Staffs.
Comments and limitations: Cannot be disaggregated by crop as the team is testing mixtures.

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24. Number of CLCA guidelines for extension and advisory services developed with partner organizations

Description

Definition: Counts the number of CLCA guidelines for extension and advisory services developed with partner organizations.
Unit of Measure: Count
Method of calculation: Summation of count
Disaggregated by: Country
Baseline: 0
Target: 4 (1 per country)
Rationale: Ensures that guidance is provided to extension and advisory services and partner organizations with the support of partner organizations with local expertise

Data Collection and Analysis

Data Sources: CLCA guideline documents
Data collection method: To report in MEL
Timing/Frequency of data collection and report: To be collected in year 3
Data collection responsibility: CLCA ICARDA and CIMMYT Staffs: information will be provided by CLCA NARES teams.
Evidence required: CLCA guideline documents
Comments and limitations: NA

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25. Number of private machinery service providers supported by CLCA

Description

Definition: The number of private machinery service providers supported. In Tunisia, a provider of small machines is being supported (feed grinder, seed Cleaning & treatment units) is being supported. In Algeria, there is an ITCG-PMAT partnership (article).

Unit of Measure: Count
Method of calculation: Summation of count
Disaggregated by: Country
Baseline: 0
Target: 4 (1 per country)
Rationale: Helps support an enabling environment for farmers by improving their access to machinery for CA

Data Collection and Analysis

Data Sources: Program and project documents and staff
Data collection method: Reporting in MEL
Timing/Frequency of data collection and report: To be reported in year 2
Data collection responsibility: CLCA ICARDA and CIMMYT staffs: information will be provided by CLCA NARES teams.
Evidence required: Evidence of support (access to conventional finance sources or public-private partnerships) to private machinery service provider
Comments and limitations: NA

4. Learning and Adaptive Management

The project team will document, share, and make use of lessons learned for continuous project improvement. The project criteria for identifying learned will be as follows:
   a. Lessons that are relevant/related to the project thematic areas;
   b. Lessons that demonstrate a clear cause-effect relationship between project action and result realized;
   c. Lessons whose recommendations have a bearing on project relevance, effectiveness, efficiency, sustainability and impact;

Learning and adaptive management will be based on 1) operational processes related lessons learned; and 2) research-based learning.

3.3 Operationational Processes-Related Lessons Learning

The following avenues will be used to capture lessons learned from project operational processes:
1. Operational experience-based/ After-Action lessons learned identification

   During their regular roles, project staff shall identify operational experiences that are potential learning experiences per the three topic areas above and document them in the Lessons Learned report template and submit it to the MEL Officer.

2. **Staff Meeting and Project Review Workshop Pause-and-Reflect sessions:**

   The Project Manager will ensure that pause-and-reflect sessions are incorporated in regular staff meetings and periodic project review meetings. During this session, the chair of the meeting will seek to determine whether, from the meeting discussions and the associated brainstorming, there arose an experience that is worth documenting as a lesson learned. The chair or a volunteer from the meeting shall fill out the lessons learned report template and send it to the MEL Officer to upload to MEL.

3.4 Research-based Lessons Learning

3.4.1 Theory of Change Review and Adaptation

The ToC was developed based on an understanding of how change may happen as a result of the project activities, based upon multiple assumptions, hypotheses, and linkages. However, it is recognized that the understanding of change and the realities of project implementation are not static. Therefore, the project team will routinely test, revise, and adapt the project ToC.

The CLCA project team will annually organize a one-day meeting to review and refine the ToC with field staff and stakeholders. The meeting participants will break into groups, making sure that each group consists of members with a breadth of expertise and knowledge. The breakout groups will discuss key questions related

to the: (1) relevance of outcomes in the ToC, and (2) the rationale of the outcomes and causal pathways. For each outcome, groups should document responses to the following questions:

1. Relevance of outcome:
    a. Is the outcome still relevant? If Yes, maintain; If No, delete and document the irrelevant ones and include any new ones.
    b. Is the outcome still achievable within the ICARDA and partners' technical and operational capability, and within the available project resources?
    c. Are the output results critical for achieving the corresponding outcomes?
    d. Are the associated outputs actionable?
2. Rationale of outcomes and causal pathways:
    a. Do the assumptions still hold? If Yes, no need to review them; If No, revise the assumptions and the associated risk analysis and risk mitigation measures.
    b. Are there shifts in the risks of the 'unchanged' assumptions? If yes, document these and design appropriate risk mitigation actions.
    c. Do we now have better or worse evidence for the assumptions made? If better, document. If worse, how can we seek/generate better evidence?
3. Final assessment
    a. Which of these outcomes do you predict will be at risk of insufficient evidence and why? *(For first ToC review meeting in 2020 only)*
    b. Which of these outcomes have knowledge gaps (insufficient evidence to support the preconditions, assumptions, linkages, and activities) and therefore should be the basis for a learning action plan? *(For Annual Project Review only)*

It is recommended that the initial group of people that conduct ToC analysis do not exceed 5. If a review meeting consists of more than 5 people, create breakout groups of equal numbers, with a mix of specializations. The meeting facilitator should spend some time checking on the groups, ensuring that varying viewpoints are considered, and consensus generated.

The meeting facilitator will collate the information from both groups and share the joint ToC analysis responses with the project MEL Officer, who will make final ToC revisions in consultation with the institutional MEL Officer. Changes made in the project ToC will be clearly communicated back to the project staff and IFAD with clear justification.

3.4.2   Identification of learning outcomes and action plan

As identified in the "final assessment" question from the previous activity, the ToC outcomes for which there is [a risk of] insufficient evidence to support the preconditions, assumptions, linkages, and activities will be considered to represent a knowledge gap and will be the basis for the subsequent year's learning agenda. This activity will be challenging during the first ToC review, as the majority of project activities will not have started yet. Therefore, participants are encouraged to prioritize well and predict areas that may be at risk of insufficient evidence. The learning agenda should be limited to two outcomes. If more than two learning outcomes are initially identified, the project team will prioritize the top two for which the learning will be most useful and actionable and those with the riskiest assumptions and thus endanger the achievement of project outcomes.

To ensure a broad and beneficial learning agenda, each outcome identified will have only one to three learning questions associated with it. Each learning question must have an associated action plan clearly stating the metrics that will be used to measure the different dimensions of the learning questions, the data collection mechanism, timing, and responsible parties. The Learning Question Action Plan shall become an integral part of the subsequent year's MEL Annual Plan. A template for the Learning Question Action Plan is presented in Annex 1.

3.5 Storage and Dissemination of Lessons Learned

Upon completion of the lessons learned report templates, the project MEL Officer will upload them onto the MEL Platform. The institutional MEL Specialist will review the submitted lesson learned and provide feedback to the project MEL Officer and/or approve the lesson learned. The institutional MEL Specialist will approve each lesson learned either for public or internal sharing. The approaches mentioned in Table 8 will be used to disseminate the lessons learned to the respective audiences stated in the table.

Table 8: Dissemination of Lessons Learned to Internal and External Stakeholders

Audience	Dissemination methods
Internal	
ICARDA staff	MEL Platform
Project staff and consultants	E-mail
External	
IFAD	E-mail
Country NARS	E-mail, shared databases
Other institutions involved in plant breeding, agriculture, and dryland systems	Conferences, blogs, webinars

4   MEL Support Supervision

4.1 MSS Approach

MEL support supervision (MSS) will be conducted to continuously appraise the project-level and implementation partner MEL systems, and the data collected and used for routine reporting. The general objective for the MSS section in the MEL plan is to guide MEL system and data quality checks at both the project-level and partner-level.
The specific objectives of MSS will be to:
1. Guide initial assessment of MEL systems established by (new) implementing partners (or sub-contracted parties) for the collection, management and reporting of MEL data.
2. Periodically assess ICARDA and national partners' reporting systems and routine reporting data, to identify strengths and weaknesses so corrective action can be taken.

The first cycle of MSS will be completed within six months of project initiation and subsequent cycles conducted at least once every year.   To ensure that MSS are carried out successfully, a section on MSS will be written into partners' contracts ensuring that partners agree to and commit to having their MEL systems and data assessed for quality. Training and sensitization will be organized for partners on MSS.

The following steps will be followed in the implementation of MSS:

1. Identification of the MSS team: The Institutional MEL Specialist will identify the team to conduct MSS at the project office. The principle that will guide the selection of the team will be to promote learning across the institution and the project and thus other project teams with MEL roles may be invited onto the team.
2. Developing a schedule for the MSS as a team: Whereas a tentative schedule may have been developed by the MSS leader, the schedule will be revisited and/or adopted collectively.

3. Identifying the MEL system components and/or indicators to be included in the MSS.
4. Selecting and refining the MSS templates.
5. Conducting MSS visits.
6. Preparing, presenting & sharing the MSS report and creation of an action plan.
7. Follow up on the implementation of the MSS recommendations.

4.2 MEL System Assessment

The following sections are "checklists" of items to be reviewed during the assessment that should be saved in the MEL system or appropriate project data management system. The MEL officer should record the status of each component, the primary data source, and a brief explanation of how the action exists/is implemented.

4.2.1 MEL Governance/Leadership

a. There is a clear linkage between the MEL plan and the MEL Platform, for recording MEL data;
b. There is sufficient structural MEL oversight and process supervision to minimize errors such as data measurement, recording, transcription, and transmission.

4.3 Data Verification and Validation

This will be done by tracing and verifying (recounting) data collected and used for reporting indicator results. This will help determine if the data was correctly recorded at the primary source and if there were no transcription and transmission errors. The following steps will be followed in the implementation of the data verification/validation component of MSS:

a. Cross-check the data submitted/reported in the quarterly, semi-annual or annual reports and identify indicators that are
   i. Key for overall project reporting;
   ii. Problematic in measurement and reporting;
   iii. Have not been the subject of MSS before, or;
   iv. Whose reported figures seem not to conform to expectations;
b. Ascertain whether the recorded output at the primary data source matches the indicator definition;
c. Check availability and review completeness of all indicator source documents/data collection forms and summary forms at all the data aggregation levels:
   i. Are some source documents missing? If Yes, determine how this might have affected reported numbers;
   ii. Are all available source documents complete? If no, determine how this might have affected reported numbers;
   iii. Review the dates on the source documents. Do all dates lie within the reporting period? If no, determine how this might have affected reported numbers;
d. Recount results from the source documents, compare the verified numbers to the reported numbers;
e. Conduct random verification of the records. For example, if the subject of verification is the number of trainees, randomly select a manageable number of trainees and reach them by telephone or e-mail to verify the authenticity of the records. In case some of the selected trainees for verification refute the claims as contained on the source documents, utilize the ratio of negative responses to the total responses to deflate the 'verified number';
f. Calculate the ratio/percent of the verified numbers to reported numbers, and determine the level of discrepancies (if any);
g. Seek additional information regarding any discrepancies encountered;
h. Document the observed discrepancies (if any) and the reasons provided; and
i. Collegially discuss solutions to the discrepancies.

4.4 Sharing MSS Results

Upon completion of each MSS assessment, a formal report of the results will be developed and shared with project staff and relevant MEL staff. The report will be discussed in a project staff meeting convened

specifically for this purpose. An action plan to address the identified issues will then be developed and used as the basis for follow up to check on improvements. The MSS report template in Annex 2 will be used for this purpose.

4.5 Deliverables

1. Completed MSS checklist, as listed in sections 5.2 and 5.3 above. (Including status of each component and a brief explanation.

2. MSS report (Template in Annex 2)

5   Annual Project Review and Planning

The annual project review is envisioned to build a common understanding of performance of the project, create shared ownership for the achieved results, set the stage for entrenching corrective measures in subsequent project implementation cycles. The project team will annually conduct a reflective and evaluative project review workshop. A sample workshop agenda is presented in Annex 3.
The specific objectives of the project review workshop will be to:
1. Systematically review results, identify success stories, lessons learned and learn from the implementation process and results thereof.
2. Generate and share inputs (including lessons learned) that inform the planning for the subsequent project implementation cycle and for donor reporting.
3. Enhance team building, partners' and team ownership of strategies, implementation plans and results.

5.1 Planning for Project Review and Planning Workshop

The annual project review workshop will be a key calendar event for the project team. The Project team plans to follow the arrangements and timelines set out in Table 9, when planning for the annual project review workshop.

Table 9: Implementation plan for the Annual Project Review Workshop

Issues	Plan
Timing of the Workshop	At least one month before the scheduled annual donor report due date
Duration	2 days
Workshop facilitators	Project MEL Officer or Institutional MEL Specialist.
Participants	· Project staff · Selected ICARDA staff · Project implementation partners. · Representatives from stakeholders such as government, private sector and academia, may also participate. The project team will desist from inviting external parties that may curtail honest discussions as this may impede the achievement of the cardinal objectives of the project review workshop.

5.2 Reflection on Project Results

Reflection on the results achieved by the project will be done at two stages. Namely: 1) Plenary presentation of progress results; 2) Break-out sessions to reflect on results with negative variance.

5.2.1   Results plenary presentation and break-out sessions
The following are the guiding principles for all presentations:
   a.   Start the presentation by celebrating team achievements. This is crucial to cultivate a positive team spirit.
   b.   The presentation should, as much as possible, relate to the project result areas, activities and targets.

Some possible presentations include:
   a.   **Bigger picture**: To highlight key sector and program trends, as well as strategic developments from the Country Director.
   b.   **Implementation process and results**: Progress on output and outcome indicator targets, PoWB, achievements, and lessons learned from project leaders and M&E Officer.
   c.   **Finance report**: Expenditure by project components and partners, possible compliance issues, or developments that require budgetary changes.

Participants break up into groups of not more than 5 people with a mix of skills and operational geographies (ensure that implementing partner staff are spread-out in the groups). The groups reflect on result areas that had negative variance as listed by the M&E Officer in the plenary presentation. Each group works to answer the following questions:
   a.   What could we have done differently to achieve the planned targets? (Reflect on the planned processes, strategies, activities, partners, resources, etc.)
   b.   What are the key learning points from this under achievement and the reasons we have put forward?
   c.   Among the strategies, partners etc., what do we recommend to;
        i.   Carry forward,
        ii.   Drop/discontinue or,
        iii. Modify and continue, in the coming project implementation cycle (year).
The groups present their findings in 15 minutes and follow-up 10 minutes for questions and clarifications and a rapporteur takes notes.

5.3 Plan of Action for the Following Year
The implementation partners form their respective groups and create a PoWB for the upcoming project year/implementation cycle. In doing so they consider the output-level indicator targets that were allocated to them, the strategies that worked well in the just-ended year/project implementation cycle, the lessons learned, ToC modifications, and the key carry forwards, drop and modify items listed by the rapporteur of the group feedback session (section 6.2.2). The implementation partners accordingly label the strategies and actions for the upcoming year (i.e. by rationale).

Deliverables to be shared and uploaded to MEL:
   1.   Workshop report
   2.   PoWB for the upcoming project implementation period (draft)
   3.   Lessons learned reports (drafts) for lessons generated from the workshop

6   Reporting

This section describes different types of reports that the project requires to produce at different time intervals for both internal and external results communication and accountability purposes. Section 7.1 addresses internal reporting requirements while section 7.2 addresses external (donor) reporting requirements.

6.1 Internal Reporting
The internal reporting process will include:

1. Monthly field team reporting on the status of planned tasks: The M&E Officer will attend and take notes or minutes of the meeting and shall achieve these in an appropriate repository. The M&E Officer will ensure to probe deviations from the plan of work and provide timely advice to the Project Manager and field team on appropriate remedies and shall use the meetings as a platform to gather and record lessons learned from the operational processes. In addition, the M&E Officer will ensure that appropriate follow-up is made with the respective field/project team members to record reported deliverables in the MEL Platform.
2. Quarterly documentation of progress: This will be achieved through progress reports complemented with recording of output-level indicator values in the MEL Platform. The report will summarize project activities, physical and financial progress over the previous three months showing targets and achievements, highlighting significant key issues and challenges identified, lessons learned and recommended solutions to overcome the challenges. The indicator values on the status of output-level results will be recorded in MEL following the pre-recorded indicators definitions as laid out in section 3.1.

6.2 External Reporting to IFAD

1. Annual Reports: Annual Reports are prepared covering the above-mentioned areas as indicated in the quarterly reports, but in a more comprehensive format in particular related to technical and financial matters, including a work plan for the subsequent twelve months. The annual report shall also draw from the deliberations of the Annual Project Review Workshop.

2. Evaluation Reports: Upon completion of the baseline, mid-term and end-line evaluation processes, an evaluation report will be submitted to IFAD.

3. Project MEL Final Report: At the end of the CLCA project a project completion report will be sent to IFAD.

The completed donor reports will be uploaded to the MEL Platform under the 'Donor Reports' section, here.

Special reports appropriate for both internal and external reporting and communication will also be generated by the project. These may be a result of a deliberately and systematically recorded case study, success story, or learning agenda implementation.

7   MEL Budget

The total project budget is $2,500,000 USD. Per ICARDA standard practices, projects above $500,000 should have a specific set of activities and a budget for MEL, at least to support data curation. However the project did not budget for M&E costs and a potential reallocation can be reassessed in 2021.

The following table is a draft of estimated MEL costs based on 4 main activities: (1) a virtual workshop, (2) data collection, (3) routine data collection in MEL, (4) mid-term project evaluation, and (5) end of project evaluation. The total estimated cost for these MEL activities is $112,950, noting that ICARDA staff costs are based on estimated daily rates of $500 and **represent the cost of staff time-- not additional costs**.

Activity	Staff	Time total	Staff cost	Inputs	Inputs cost	Total cost	Summary of Results
2-day Annual workshop/ partner meeting (2021, virtual)	1 MEL Research Fellow	**7 days** (including prep, event, and follow up)	N/A	N/A	N/A	**$8,750**	1. Project staff help adapt the project M&E plan and Theory of Change 2. The MEL support planned for the project becomes strengthened and better aligned
	1 MEL Specialist	**1.5 days** (including review of workshop materials & workshop attendance	$750				
	8 project staff	**2 days** (including preparation and attendance)	$8000				
Data collection	2 staff (Zied (ICARDA), Santiago (CIMMYT))	**30 days** (including the development of data collection tools, supervision of data collection, and analysis. survey revision, data collection, and analysis)	$30,000	N/A	N/A	**$30,000**	Generates evidence on uptake of CLCA practices and results.
Routine data collection in MEL	Zied	**24 days** (24 months at 1 day per month)	$12,000	N/A	N/A	**$12,000**	Tracks the project's overall progress and provides measurable means of verifying whether or not the outputs and outcomes are achieved.
Mid-term evaluation	1 External consultant	**38 days**	$24,700	(Includes all costs per Mid-Term Evaluation Selection report)	N/A	**$24,700**	1. Activities and outputs achieved by ICARDA and partners are appraised 2. Outcomes of the project are identified and assessed 3. Enablers and/or constraints to the attainment of project results and lessons learned are identified
	2 Local staff to	**4 days**	$4,000			**$4,000**	

	accompany consultant						
End of project evaluation	1 External consultant (estimates based off mid-term evaluation minus COVID alterations)	**38 days**	$33,500	(Includes all costs per Mid-Term Evaluation Selection report)	N/A	**$33,500**	1. Activities and outputs achieved by ICARDA and partners are appraised 2. Outcomes of the project are identified and assessed 3. Enablers and/or constraints to the attainment of project results and lessons learned are identified
Total MEL activity costs						**$112,950**	

Annexes

Annex 1: Learning Question Action Plan

Learning question	Metrics/Measures	Data collection mechanism	Data collection timing	Responsible parties	Requires update to MEL plan?	Why will this data be helpful/ what will it be used for?	Next steps
[Question 1] *Example: how can we ensure validity of NARS responses?*	*Add question on start date of speed breeding to NARS survey*	*NARS survey*	*Baseline & Endline*	*MEL officer (to update survey) Project Staff (to send out survey)*	*No, does not affect impact pathway or indicators*	*Provides more detail and accuracy to our knowledge of NARS plans to start speed breeding, which is a key measurement of project capacity building/impact*	*Raise this suggestion w/ MEL Officer to update survey*
	[Measure 2]						
[Question 2]							

Annex 2: MSS Report Template

This template shall accompany completed checklists from sections 5.2 and 5.3. While the checklists provide details of each criterion, this report should provide a summary of the strengths, weaknesses, and suggested corrective actions for each component assessed by the MSS.

1. MEL Governance Leadership
   a. Strengths
   b. Weaknesses
   c. Suggested Corrective Actions
2. MEL Plan
   a. Strengths
   b. Weaknesses
   c. Suggested Corrective Actions
3. Standard Operating Procedures
   a. Strengths
   b. Weaknesses
   c. Suggested Corrective Actions
4. MEL Work Plan & Budget
   a. Strengths
   b. Weaknesses
   c. Suggested Corrective Actions
5. Human Capacity for MEL
   a. Strengths
   b. Weaknesses
   c. Suggested Corrective Actions
6. MEL Information Systems & Knowledge Management
   a. Strengths
   b. Weaknesses
   c. Suggested Corrective Actions
7. Data Verification & Validation
   a. Strengths
   b. Weaknesses
   c. Suggested Corrective Actions

Annex 3: Annual Workshop Agenda

Day 1: Progress to date			
Time	Activity	Activity Facilitator	Note taker

Time	Activity	Facilitator	Note taker
8:45-9:00	Arrival	-	-
9:00-9:30	Introductions & Ice Breaker	Project Staff Member	-
9:30-10:00	Ground rules, expectations, and workshop objectives	MEL Officer	-
10:30-11:15	The Bigger Picture: Setting the Stage	Project Manager	TBD
11:15-11:30	Break	-	-
11:30-12:30	Implementation Progress & Results: Part 1	Project Component Leaders	TBD
12:30-13:15	Lunch Break	TBD	-
13:15-14:00	Implementation Progress & Results: Part 2	MEL Officer	TBD
14:00-15:30	Breakout session: pause and reflect • 45 min – group discussion of questions (listed in section 6.2.2) • 45 min – presentations of group discussions & Q&A	MEL Officer	TBD
15:30-15:45	Break	-	-
15:45-16:30	Finance Report	Finance Officers	TBD
16:30-16:45	Wrap up, plan for tomorrow	Project Manager	TBD
Day 2: Planning for the Future			
Time	Activity	Activity Facilitator	Note taker
8:45-9:00	Arrival	-	-
9:00-9:30	Welcome & Ice Breaker	Project Staff Member	-
9:30-11:30	Breakout groups: Identification of Learning Outcomes & Action Plan	MEL Officer	-
11:30-12:30	Presentation and Q&A	MEL Officer	TBD
12:30-13:15	Lunch Break	TBD	-
13:15-15:30	Thematic group breakout session: Work plan & budget for next year	Project Manager	-
15:30-16:30	Summary presentations and Q&A	Project Manager	TBD
16:30-17:00	Next steps & thank you	MEL Officer; Project Manager	TBD

Annex 4: Glossary of terms

Theory of Change (ToC)[2]

ToC explains why it is expected that an intervention will bring about the desired results. It articulates the theory behind the intervention. A ToC is a model of how the interventions work, a model of the causal linkages behind the intervention. As such, ToC involves a hypothesis about how the intervention works that need to be periodically revisited and validated (working group IDOs 2013). ToC has a number of components:

- **Impact pathway:** The causal pathway for the cluster of activity that outlines the expected sequence to achieve desired objectives beginning with inputs, moving through activities and products, and culminating in outcomes and impacts (SLOs).

- **Assumptions:** The events and conditions understood as necessary for the link in the intervention ToC to occur. They are developed from a mix of stakeholder and social science theories. Along with the activities they comprise the intervention causal package. There is a causal package for each link in the theory of change.

- **Risks:** External events and conditions that could put the link at risk.

- **Other explanatory factors:** Other factors or conditions that might explain the occurrence of the observed result other than the influence of the intervention causal package.

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[2] Results-based Monitoring & Evaluation System. MEL. August 2017.

- **Unintended effects:** Positive or more usually, negative unanticipated effects that occur as a result of the interventions activities and results.

Evaluation

The systematic and objective assessment of an on-going or completed project, program or policy, its design, implementation and results. An evaluation should provide information that is credible and useful, enabling the incorporation of lessons learned into the decision-making processes of major stakeholders.

Cluster of activities

The level n-2 in CRPs' management structure. They include strategic objective, theory of change and impact pathway. They require a work package comprising both the research needed to develop and improve the products and the capacity development which is also required to achieve the strategic objective.

Flagship project

The level n-1 in CRPs' management structure. They are organized around research with high impact potential. They consist of one or more clusters of activity (level n-2).

Impact pathway

The causal pathway that outlines the expected sequence of events to achieve desired objectives. It begins with inputs, moves through activities and products, and culminates in outcomes and impacts (SLOs).

Indicator

A quantitative or qualitative variable that represents an approximation of the characteristic, phenomenon or change of interest (for instance, efficiency, quality or outcome). Indicators can be used to monitor research or to help assess for instance organizational or research performance. (E.g. Quantitative: # of varieties released; # farmers adopting a new technology; % yield increase. Qualitative: next-users satisfaction with research outputs or collaboration; consumers' perception of new commercial products; seed producers' opinion on changes in hygiene regulations).

Monitoring

A process of continuous or periodic collection and analysis of data to compare how well a project, program, or policy is being implemented against expected results, in order to track performance against plans and targets, to identify reasons for under or over achievement, and to take
necessary actions to improve performance.

Outcomes

Research Outcomes (RO)

Represent uptake and further use of research outputs by next users targeted by the CRP, such as NARS, researchers and national policy makers. They are

generated as a result of research, capacity building and advocacy activities by the CRP.

Development outcomes (DO)

Represent capacity and behavioral changes concerning end users. They include the adoption of new technologies (e.g. varieties, IPM technologies) by farmers or changes in competencies such as their ability to assess post-harvest losses.

Intermediate development outcomes (IDO)

Represent changes that occur in the medium term (5 to 10 years) that affect positively the welfare of the targeted population or environment (direct benefits) or the enabling environment (policies and institutions). They result, at least in part, from research carried out by the CGIAR and its partners.

System Level Outcomes (SLO)

Represent the high level impact goals of the CGIAR: Reduction in rural poverty; Increase in food security; Improving nutrition and health; and more sustainable management of natural resources.

Output

A product or service resulting from a research activity or a set of related activities
attributable to the Organization or the Program that could be used by a partner or other stakeholders. Outputs are of different types: knowledge, tools, data, and technologies and practices

Result

The output, outcome or impact (intended or unintended, positive and/or negative) of an intervention.

Target

The performance or results targets are the more specific results that are expected to occur over a multi-year timeline as a result of the CRP's efforts.