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

CLCA PROJECT

Mid-Term Evaluation of the "IFAD Crop Livestock Conservation Agriculture (CLCA) Project"

Photo credit: Zied Idoudi, ICARDA

McLeod, R., Massaoud, A. and Aguilera, J.

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IFAD Investing in rural people

ICARDA Science for resilient livelihoods in dry areas

CIMMYT International Maize and Wheat Improvement Center

Contents

Abbreviations and acronyms

AWPB:	Annual Work Plan and Budget
BBN:	Bayesian Belief Network
CA:	Conservation Agriculture
CGIAR:	Consortium of International Agricultural Research Centers
CIDES-UMSA:	Postgraduate School of Development of the Universidad Mayor de San Andres
CIMMYT:	International Maize and Wheat Improvement Center
CLCA:	Crop Livestock Conservation Agriculture
COTUGRAIN:	Compagnie Grainière Tunisienne
CT:	Conventional Tillage
DZD:	Algerian Dinar
GDA:	Groupements de Développement Agricole (GDA)
HH:	Household
ICARDA:	International Center for Agricultural Research in the Dry Areas
ICT:	Information and Communications Technology
IFAD:	International Fund for Agricultural Development
INGC:	Institut National des Grandes Cultures (Tunisie)
INIFAP:	Instituto Nacional de Investigaciones Forestales Agrícolas y Pecuarias
INRAT:	Institut National de Recherche Agronomique de Tunisie
IRESA:	Institution de la Recherche et de l'Enseignement Supérieur Agricoles
ITELV:	Institut Technique des Elevages (Algérie)
ITGC:	Institut Technique des Grandes Cultures (Algérie)
KM:	Knowledge Management
LAC:	Latin America and Caribbean Countries
M&E:	Monitoring and Evaluation
MTE	Mid-Term Evaluation
NA:	North Africa
NARES:	National Agricultural Research and Extension Services
NARS:	National Agricultural Research Services
NEN:	Near East and North Africa
NGO:	Non-Governmental Organization
NT:	No Tillage
O4S:	Organization for Scaling
ODK:	Open Data Kit
OEP:	Office de l'Elevage et des Pâturages (Tunisie)
OM:	Organic Matters
PMAT:	Entreprise Nationale de Production de Matériels Agricoles Trading
PROINPA:	Fundación para la Promoción e Investigación de Productos Andinos
R&D:	Research and Development
SCT:	Simplified Cultivation Techniques
SME:	Small and Medium Enterprises

SMSA:	Mutual Association of Agricultural Services
SOLA:	Maquinaria Agrícola Solà company
SOM:	Soil Organic Matter
TND:	Tunisian Dinar
UAM-X:	Universidad Autonoma Metropolotana-Xochimilco
USD:	United States Dollar
WUE:	Water Use Efficiency
ZT:	Zero Tillage

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Executive summary

Background

1. ICARDA commissioned a mid-term evaluation of the Use of Conservation Agriculture in Crop-Livestock Systems (CLCA) in the drylands for enhanced water use and soil fertility in Near East and North Africa (NEN) and Latin America and Caribbean Countries (LAC) countries project. The IFAD grant project is led by the International Centre for Agricultural Research in the Dry Areas (ICARDA) and funded by the International Fund for Agricultural Development (IFAD), with subcontracts provided to International Maize and Wheat Improvement Centre (CIMMYT, Mexico) and NARES in Algeria, Tunisia, Bolivia, and Mexico.

2. The objectives of the midterm evaluation are to (i) appraise the activities and outputs achieved by ICARDA and partners, (ii) identify and assess outcomes of the project, (iii) identify the enablers and/or constraints to the attainment of project results and lessons learned, and (iv) make practical recommendations for corrective action required to achieve the envisioned project results within the remaining period of the project. The evaluation is based on a review of project-related documents, along with remote and face-to-face interviews with various stakeholders, including beneficiaries and the CLCA project implementation team.

The project

3. The overall project goal is to sustainably increase production and enhance the resilience of smallholder crop-livestock production systems to climate variability in drylands in NEN and LAC countries. The four-year project commenced in April 2018. The overall cost of the project is estimated at US$ 3 million, of which IFAD will finance US$ 2.5 million and US$ 0.5 million is to be provided from NARES in the form of in-kind contributions. The project completion date is 30 June 2022.

4. The expected outcomes are: i) 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 four (4) target countries] with increased production and improved cost-benefits optimized by filling research and development gaps; ii) At least six (6) NARES, in addition to decision makers, NGOs and IFAD loan project partners in the four (4) target countries have adopted tools and methodologies for reliable decision making and guide investments on contextually appropriate CLCA system; and iii) at least four (4) effective agricultural innovation systems – one (1) in each implementation area of the four (4) target countries - are coalesced in order to foster broad uptake of CA practices within integrated dryland crop-livestock production systems.

5. The CLCA project consists of two components. The first component (53 per cent of the project cost) is divided into two subcomponents: Subcomponent 1.1 ($1,132,338): CLCA system optimization, involves filling research gaps and the full implementation and integration of technologies developed by both centres for the two regions; and Subcomponent 1.2 ($467,790): Appropriate system development methodology development to support wider adoption and decision-making. Component 2, ($579,375, 19 per cent of the project cost) includes the acceleration of adoption through the development of delivery systems and to

inform the development of contextually relevant CLCA technologies and practices. Cross cutting themes have a budget of $589,016 (20 per cent of the project cost).

Main findings

6. **Relevance.** The project design is consistent with national and IFAD priorities. The first CLCA project resulted in the development of site-specific crop–livestock integration practices in Algeria and Tunisia. Despite the development of CA packages in North Africa, and priority of efficient water use and soil management in LAC country programs, CLCA adoption has been difficult to achieve. Countries were selected in the proposal based on their relevance to previous research efforts to scale CLCA in North Africa and identify appropriate CLCA practices in LAC. Additionally, countries were selected in the grant to support the objectives and beneficiaries of IFAD investment projects. Despite these considerations there has been limited interaction with a number of these projects and political considerations have forced changes in the countries of implementation. Farmer priorities identified in the first CLCA project were factored into the current project, and its design has acceptable coherence between activities, outputs, and outcomes, however the theory of change is difficult to comprehend.

7. **Effectiveness**. CLCA is judged to be effective at midterm as assessed by achievement of planned outputs and outcomes (measured by milestones). The target of 3,000 smallholder farmers reached has been achieved and 2,100 having directly adopted CLCA farming systems should be attained. Progress has been rapid in North Africa, with COVID causing some disruptions, although implementation in the LAC region has not been at the same pace. Changes in implementation countries in the region and elections have hindered the holding of field days and technical supervision by CIMMYT in Bolivia and COVID-19 has compounded the problem and several visits have been postponed. Despite these issues, the number of innovation systems and development of CLCA tools are meeting outcome targets. Similarly, most output targets are being attained.

8. **Efficiency**. The grant is being managed with reasonable efficiency. About 40% of funds had been disbursed by January 2020, with US$ 1,205,500 transferred by IFAD to ICARDA. Given 50% of the total implementation time had occurred (i.e., 24 months of 48 months, 24 months - April 2018-March 2020, compared to project period of 48 months April 2018-June 2022) budget utilisation is reasonable at 40%. Based on 20,000 farmers being reached through broader CLCA initiatives, a cost per beneficiary ratio of US$125 would be evident which is reasonable compared to the average of US$246 in IFAD's 2016-2018 portfolio.[1] Governance and project financial management appear to be reasonable.

9. **Rural poverty impact**. It is not possible to judge the rural poverty impacts of the CLCA project. The proposal states the focus of the grant will contribute to the IFAD Grant Policy objective to "promote innovative, pro-poor approaches and technologies with the potential to be scaled up for greater impact". The poverty targeting of the project appears to rest with selected target agro-systems, however, no measurement of poverty impacts has been integrated into the CLCA project M&E systems and no mention of poverty is evident in the second- or third-year project reports.

[1]https://www.ifad.org/documents/38714182/41331982/ARRI2019_Web.pdf/3a6b4016-3c6c-f040-a12f-3c46e8e82d5b

10. **Sustainability of benefits**. Benefits generated by project funded CLCA interventions are likely to continue due to the development of innovative PPPs and the nature of CLCA interventions leading to longer term farm productivity improvements. For example, the adoption of CLCA practices contribute strongly to the preservation of natural resources, especially soils. The longer-term improvement in organic matter and prevention of erosion will lead to longer term productivity benefits.

11. **Scaling up**. According to IFAD, scaling up occurs when other partners (Government, donors, NGOs, or civil society) use their resources to scale up results. This requires that the project demonstrates to private industry and government that project activities and outputs have positive results. A range of activities have been conducted to enhance the effectiveness of the delivery systems in the studied countries, including scaling road maps[2] developed to support implementation and impact. Innovation hubs are an innovative feature of the project which provide farmers with capability to understand scientific principles associated with CA, and cooperative actions improve farmer capacity to afford the technology or practice. They have already resulted in adoption of CLCA technologies through better coordination of knowledge generation and critical mass of farmer involvement required for self-sustained scaling.

12. **Innovation**. The project combines finetuning and the scale-up of identified CLCA practices in North Africa, along with the development of innovative CLCA packages in LAC. In Bolivia, the project has started to roll out some of the main alternatives promoted to reduce erosion and improve water use efficiency in the systems. Minimum tillage and soil cover, relay cropping, living barriers and controlled grazing are all technologies that have been identified through experimental trials to reduce erosion due to strong rainfall events. Scaling involves the development of scaling road maps involving innovative PPPs and establishment of innovation hubs.

13. **Cross Cutting Themes.**

14. **Gender equality and women's empowerment**. An overarching outcome is at least 40% of all farmers adopting CLCA being women and 20% youth below 35 years. Innovation hubs have been established to support women farming collectives. Project implementation monitoring includes gender-disaggregated data. Despite these activities less than 10% of adopting farmers are women. Further could be done in the project to include strengthening women's decision-making roles and achieving a reduced workload and an equitable workload balance between women and men receive limited attention. Ensuring that project management arrangements (composition of the PCU/PMU, project TORs of staff and implementing partners, etc.) reflect gender equality has not been considered. The numbers of female full-time equivalent (FTE) staff in the CLCA project management unit are limited. The CLCA projects contribution to women's empowerment is modest at midterm.

15. **Environment and natural resources management**. CLCA has conducted numerous trials and simulation studies around improved environment and natural resources management. Experimental work in North Africa includes agronomy trials relating to forage, weed management and soil health, along with integrating the feeding of sheep. Trial results

[2] Hatem Cheikh M'hamed. (26/4/2019). Scaling Road Map -Tunisia.

support the use of no tillage management, along with rotations, to improve yields, N use efficiency, and gross margins. Work in LAC includes multi species wind barriers in Bolivia, minimising runoff, and erosion in agricultural fields of Mexico and an erosion model has been calibrated to assess erosion of different land uses in Mixteca Alta. The FarmDESIGN model optimizes systems with a genetic algorithm which considers soil organic matter balance. Spatially explicit Extended Cost Benefit Analysis (ECBA) of CA adoption has been conducted in Zaghouan in Tunisia. The framework includes environmental and social impacts of adoption at large watershed scale.

16. **Partnerships**. Partnerships have been developed with innovate private sector players. They include cooperation with COTUGRAIN in Tunisia, a private seeds' production, and commercialization company. The partnership is set around the commercialization of some forage crop seeds, in addition to some forage mixtures (Vetch-Oat, Vetch-Triticale, Meslin). In Algeria, partnerships have been established with associations such as the Cereal and Seed Producers Association – Prodec, and private machinery manufacturers. In Bolivia the CLCA implementing partner PROINPA is engaging with farmers, farmers organization and local authorities as well as local NGO's. In Mexico, collaborations are underway with the Department of Crop and Animal Production of the Universidad Autonoma Metropolotana Xochimilco (UAM X) to test and assess the performance of the current and alternative crop and livestock management systems. There has been limited interaction with IFAD projects in the LAC region due to changes in project staffing.

A. Conclusions

17. **Overall, CLCA is demonstrating satisfactory achievement at mid-term.** The project design is relevant as it is aligned with national priorities, as well as IFAD policies, although country selection could have considered broader socio-economic factors. The lessons of the first CLCA project have been used, which included farmer nomination of CLCA priorities. CLCA is judged to be effective at midterm as assessed by achievement of planned outputs and outcomes (measured by milestones). The target of 3,000 smallholder farmers being reached has been achieved and 2,100 having directly adopted CLCA farming systems should be attained. The proportion of women beneficiaries are below target, although youth participation is reasonable. Efficiency has been impacted by country changes and COVID but is reasonable.

18. Based on MTE ratings of project performance based on relevance, effectiveness, efficiency, sustainability of benefits, rural poverty impact, gender, innovation, scaling up, environment and natural resources management, and adaptation to climate change criteria – the CLCA project is assessed to be moderately satisfactory at midterm

Table 1: MTE assessment of evaluation criterion

Criteria [a]	MTE Rating	Score
Rural poverty impact	Moderately satisfactory	4
Project performance		
Relevance	Satisfactory	5
Effectiveness	Satisfactory	5
Efficiency	Moderately satisfactory	4
Sustainability of benefits	Satisfactory	5

Project performance [b]	Satisfactory	5
Other performance criteria		
Gender equality	Moderately unsatisfactory	3
Innovation	Moderately satisfactory	4
Scaling up	Satisfactory	5
Environment and natural resources management	Moderately satisfactory	4
Adaptation to climate change	Moderately satisfactory	4
Overall project achievement [c]	Moderately satisfactory	4

a Rating scale: 1 = highly unsatisfactory; 2 = unsatisfactory; 3 = moderately unsatisfactory; 4 = moderately satisfactory; 5 = satisfactory; 6 = highly satisfactory.
b Average of ratings for relevance, effectiveness, efficiency, and sustainability of benefits
c Overarching MTE assessment of project performance at mid-term, based on the rating for relevance, effectiveness, efficiency, sustainability of benefits, rural poverty impact, gender, innovation, scaling up, environment and natural resources management, and adaptation to climate change.

B. Recommendations

19. **Key recommendations are provided below for consideration for the CLCA team, partners, and IFAD.** Mid-term evaluation (MTE) recommendations are primarily designed for the remaining period of CLCA implementation and any follow-on projects. They are drawn from the MTE stakeholder survey and discussions with the CLCA project team.

20. The first graph presents farmer suggestions about the focus of CLCA activities for the remaining implementation period. Expanding the planting area and including more producers were key recommendations. Creating farmer incentives and advocating to include government agencies or programs were also frequently nominated priority actions. Agencies, policy makers and NGOs were also asked about what could be done to maximise CLCA impact. Looking for other entities to expand project reach, creating hubs for scale-up and expanding planting areas were also frequent responses.

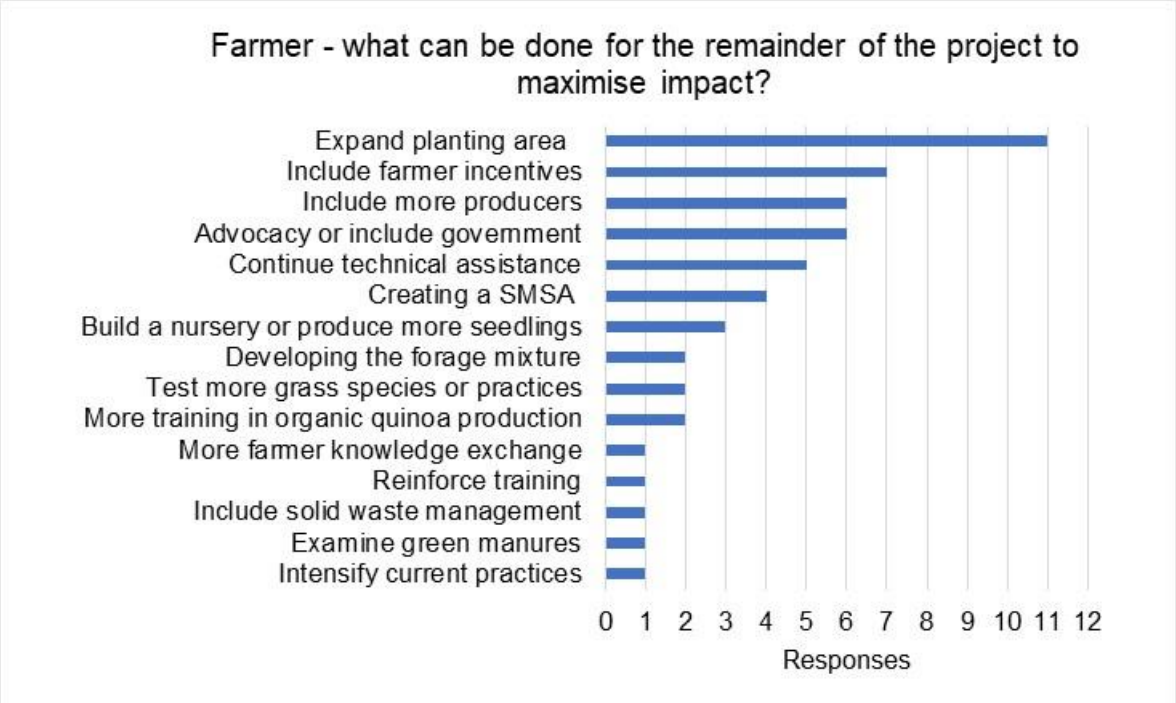

Figure 1: LAC and NEN farmer nominated focus for remainder of CLCA project

Source: MTE stakeholder survey, April 2021

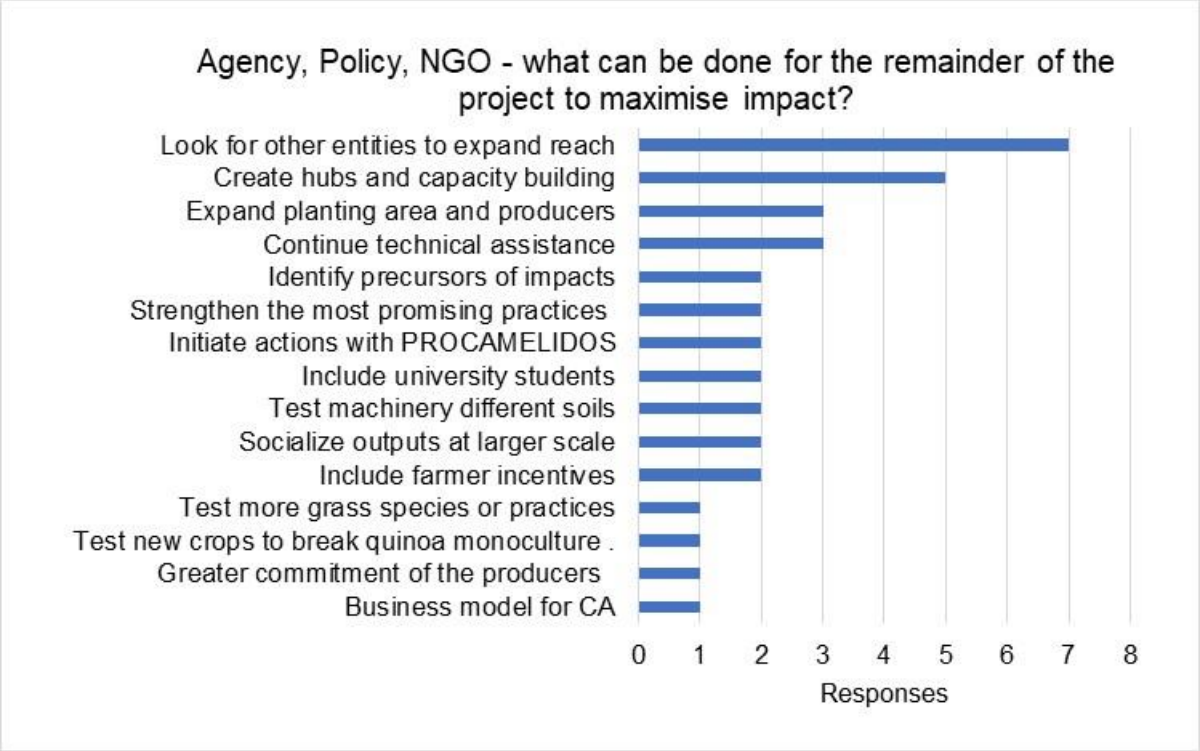

Figure 2: LAC and NEN agency, NGO and policy maker nominated focus for remainder of CLCA project

Source: MTE stakeholder survey, April 2021

21. **Recommendation 1: Advocate with local and government authorities for farmer access to subsidies and resources to support scale-up**. Based on stakeholder feedback, a key priority for CLCA remaining implementation should be to advocate with local and government authorities for farmer access to subsidies and resources to support scale-up. The project completion report for the first CLCA project[3] noted the project had created a high level of awareness and enthusiasm amongst farmers about adopting CA and should they have access to affordable ZT machinery, either purchased outright or hired through local contractors, it is likely that there will be high levels of CA adoption. The report indicated farmers would be prepared to pay in the order of $6-12,000 US for such equipment. Business cases have been prepared for seeders in the second CLCA project, however, it is not clear farmer access to subsidised machinery has been made easier. Advocacy[4] should be undertaken to include CLCA machinery and practice adoption in Ministry of Agriculture strategy and provide pathways for farmer access to subsidies.

22. **Recommendation 2: Investment cases are required for public-private partnerships**. The issue of machinery availability at affordable prices remains a significant

[3] Cummins, J. 2016. Grant Number: IFAD GRANT # I-R-1393-ICARDA Project Completion Review Mission Report, January 2016

[4] For example, the Ministries of Agriculture and Environments receive funds for the protection of the environment from various international donors and governments. Part of these funds could be used as subsidies to promote agronomic practices that preserve the environment and the resource base.

barrier to the uptake of the ZT seeding system amongst farmers. Business cases have been developed for individual local community group ownership and the encouragement of local contractors to provide ZT sowing services to smaller farmers and a range of other PPPS have been developed. Similar business planning is needed for seed producers, grinders, pellet machines and seedlings for wind break nursery business cases in LAC and North Africa. Developing a range of models for ownership, syndication and contracting services for small-scale farmers needs to be developed to ensure wide scale adoption.

23. **Recommendation 3: Project savings in North Africa should be prioritised for knowledge hubs**. Many farmers and NGOs who provided feedback to the stakeholder survey indicated more farmers and innovation hubs should be engaged by the project. Hubs provide farmers with an understanding of the key knowledge associated with CA, while cooperative actions improve farmer capacity to afford the technology or practice. Already hubs have resulted in CLCA adoption and access to CLCA technologies through better coordination of knowledge generation and establishment of a critical mass of farmers required for self-sustained scaling. CIMMYT has been operating a long term public funded program in Mexico, MasAgro, for the last 9 years where an innovation model was implemented successfully. These efforts need to be a focus for the reminder of the project. Any expansion in hubs should focus on improving women participation in farming and agri-processing industries given the CLCA project is well below gender participation targets.

Recommendation 4: Publish long term results from CLCA and CLCA2 datasets. The previous CLCA projected generated site specific CLCA packages, despite there being only two full crop seasons in the project. These studies have continued in the current CLCA project using several of the same sites with a bridging period filled by NARS in Algeria and Tunisia. Correspondingly, the two CLCA projects have generated unique long-term databases associated with experimental CA, forages, feed, and livestock work. Given the longer-term productivity impacts of CA, there is the need to mine these datasets to track longer term agricultural productivity and resource benefits, given elements of CLCA impact such as changes in soil structural and organic properties may take more than five years, along with associated changes in crop and livestock yields, weed pressures (herbicide resistance) and incidence of crop diseases. These investigations should be published in the literature.

24. **Recommendation 5: Undertake synthesis of lessons learned and longitudinal surveys of farmer behaviour and farm economic performance**. A great deal of effort has gone into baseline surveys of farmer practices and productivity. Farm impacts from CLCA adoption will take time to fully impact farm incomes. It is important to obtain follow up data to assess the impact and change in farmer behaviour and farm business economic performance over more than five years. This could be undertaken by conducting longitudinal surveys, incorporating retrospective data from the first CLCA project. The tracking of economic (farm costs and gross margins) and technical (forage, crop and livestock productivity) performance of conventionally and CLCA managed sites will provide evidence that can be used to demonstrate CA practice adoption benefits across the targeted areas. Such a study could be used to validate economic modelling studies, which tend to be ex-ante in nature. Very few studies appear to use real world data which the two CLCA projects have generated.

25. **Recommendation 6: Improve the articulation of environmental benefits.** Experimental work has included forage and cropping trials, testing weed and pest management approaches and soil health monitoring (erosion, water retention, WUE) in Algeria

and Tunisia. Similarly in LAC, farm level data has been collected for trade-off modelling parametrization and application of the MESMIS framework for sustainability evaluation. These findings provide evidence of the positive impact of CLCA on broader natural resource management considerations. The results have been used for FarmDESIGN modelling which considers soil organic matter impacts of CA and for spatially explicit Extended Cost Benefit analysis (ECBA) of CA adoption which has been conducted in Zaghouan in Tunisia. The environmental benefits from trials and simulation work need to be published in the peer review literature. The 2nd year annual report noted that a study was published that shows how CA based on zero tillage and soil residue retention make wheat production more resilient to climate change in Tunisia. More evidence is needed and specialist input from soil science engineers could be sought to better define environmental benefits at both the farm and the landscape levels.

26. **Recommendation 7: Increase focus on gender equality and women empowerment**. The CLCA project target farmer group is 3,000 smallholder farmers reached with at least 40% being women and 20% youth below 35 years. Gender-disaggregated indicators have been collected for trainings and farmer adoption. Nearly 20% of adopting farmers are below 35 years of age, however less than 10% are women. There is a need to increase the number of activities targeting women farmers, such as women centred knowledge hubs. An improved understanding of how women participate in small mixed farming systems of North Africa and LAC are needed, along with a better understanding of attitudes towards women's role in agriculture in these regions and how CLCA may improve women empowerment is needed. The socio-economic situation of women varies in North Africa and LAC, so differential gender targets that are informed by agricultural system analysis should be included in future CLCA projects.

27. **Recommendation 8: Better align project design with logical framework and use consolidated list of indicators**. The M&E plan was developed using the logical framework developed in the proposal, which presented CLCA specified impact, objectives, outputs, activities, and assumptions. The alignment of objectives with project design is not coherent and some of the indicators are difficult to measure and are duplicative. Good practice in MEL[5] is that indicators are clear (precise and unambiguous), relevant (appropriate to the subject at hand), economic (can be collected at appropriate cost), adequate (sufficient to assess performance), and monitorable (can be independently validated). (Schiavo-Campo 1999, p. 85).6 Many of the CLCA indicators do not meet these criteria.

28. **(a) For any future CLCA projects.** Outcomes should be defined around the CLCA adoption problem or need the project is intending to address. For example, if the key obstacles related to low CA adoption are lack of evidence, non-affordable price for machines, lack of proven service delivery models, etc., then outcomes should be specified as 1-2 sentences that summarize the change the project intendeds to deliver to address these considerations. Outputs should then be specified in terms of deliverables during implementation to support changes in these outcomes. eg. evidence on key research questions, scale-up conditions created, people (farmers e.t.c) trained, or awareness generated. The current project theory of change appears to reflect internal project considerations, rather than broader information

[5] http://documents1.worldbank.org/curated/en/638011468766181874/pdf/296720PAPER0100steps.pdf
[6] Schiavo-Campo, Salvatore. 1999. "'Performance' in the Public Sector." Asian Journal of Political Science 7(2): 75–87

gaps or adoption constraints in NEN and LAC conservation agriculture that need to be addressed.

29. **(b) For the current project**. The proposal log frame links outcomes to outputs, includes very large numbers of assumptions and multiple indicators per output. Given the nature of the project, specific outcomes should have been specified for the research component in LAC and scale up activities in NEN. The MTE recommends (i) outcome yield gap indicators for outputs be omitted (ii) duplicative indicators be removed (iii) descriptions of log frame elements be condensed and better defined where possible (iv) adoption targets be specified for LAC and NEN farmers and (iv) simple poverty impact analysis be included in project reporting.

30. **Recommendation 9: Improve the assessment of poverty impacts.** Investing in vulnerable rural people is central to IFAD's mandate. Poverty has received limited attention in CLCA project reporting, and no formal measurement of poverty impact is included in the MEL plan. A great deal of work has been undertaken in CLCA characterising the socio-economic profile of farmers in implementation areas and farm level models have been developed to undertake multi criteria analysis of different CA options. There is an opportunity to report the poverty impact of CLCA adoption which will help IFAD and CGIAR researchers to reinforce dialogue with policy makers on CLCAs impact (and agricultural research more broadly) on reducing rural poverty.

31. **Recommendation 10: IFAD, the CGIAR and other donors should continue to support CA through follow-up projects**. The resilience of farmers to climate change and need to sustainably manage soil and water resources are on-going priorities for agriculture and IFAD. IFAD's Strategic Framework 2016-2025[7] sets out how the fund will contribute to the 2030 Agenda, including its support for the development, dissemination and uptake of improved agricultural technologies and practices that raise the productivity, sustainability, and resilience of smallholder production systems. Interventions will focus on addressing resource degradation, pollution, loss of habitat and biodiversity, and natural hazards. Furthering CLCA development and adoption is in line with these priorities. The CLCA projects have defined CA packages and innovative PPPs to support scaling of practices to counter resource degradation. Follow-on projects should be supported, particularly focussing on public-private partnerships and institutional strengthening of innovative farmer and industry led hub models.

[7] https://www.ifad.org/documents/38714170/39132730/IFAD+Strategic+Framework+2016-2025/d43eed79-c827-4ae8-b043-09e65977e22d

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
Mid-Term Evaluation

I. Evaluation objectives, methodology and process

32. **Background**. The Use of Conservation Agriculture in Crop-Livestock Systems (CLCA) in the drylands for enhanced water use and soil fertility in Near East and North Africa (NEN) and Latin America and Caribbean Countries (LAC) countries project is a grant project led by the International Centre for Agricultural Research in the Dry Areas (ICARDA) and funded by the International Fund for Agricultural Development (IFAD), with subcontracts provided to International Maize and Wheat Improvement Centre (CIMMYT, Mexico) and NARES in Algeria, Tunisia, Bolivia, and Mexico.

33. **Evaluation objectives**. The objectives of the midterm evaluation are to (i) appraise the activities and outputs achieved by ICARDA and partners, (ii) identify and assess outcomes of the project, (iii) identify the enablers and/or constraints to the attainment of project results and lessons learned, and (iv) make practical recommendations for corrective action required to achieve the envisioned project results within the remaining period of the project

34. **Methodology**. The mid-term follows IFAD's Evaluation Policy, the IFAD/IOE Evaluation Manual (second edition)[8] and the Guidelines for project completion report validation and project performance assessment. It adopts a set of internationally recognised evaluation criteria and a six-point rating system. The rating scale includes the following values: 1 = highly unsatisfactory; 2 = unsatisfactory; 3 = moderately unsatisfactory; 4 = moderately satisfactory; 5 = satisfactory; and 6 = highly satisfactory. Data collection methods included desk-based research and review, and interviews with various stakeholders and key informants. The desk review covered project documents from design to the third-year annual report, monitoring and evaluation (M&E) data, and background documents. Stakeholders were interviewed face-to-face and using remote web-based conference calls based on various considerations including coverage of areas with different characteristics (e.g., institutions and geographic locations); different project activities; and number of beneficiaries.

35. The North African stakeholder survey involved the interview of 22 CLCA project stakeholders in Tunisia and Algeria by a consultant who prepared transcripts of interviews, along with coding into thematic areas. A total of 8 NARS officers and university partners were interviewed, 5 policy makers, development agency and NGOs and 9 farmers, private industries, and farmer's association representatives were interviewed between 22-30 March, with all but two interviews in Algeria being conducted in person. In LAC, the consultant conducted a total of 22 interviews between March 11 and 22. Four NARS officers, 9 policy makers, development agency and NGOs and 9 farmers and private industries were

[8] http://www.ifad.org/evaluation/process_methodology/doc/manual.pdf

interviewed. Results of the surveys are presented through the report and the questionnaires included in the Annex.

II. The project

A. Project context

36. **Selected Countries**. Countries initially selected for the implementation of the project were Bolivia and Nicaragua in LAC and Algeria and Tunisia in NEN. Due to operating constraints, Mexico was substituted for Nicaragua. The main target groups are 3,000 households of small crop-livestock producers in NEN and LAC regions, where 70% are expected to adopt CLCA farming systems potentially leading to increased production. Other beneficiaries are NARES (National Agricultural Research and Extension Services) and R&D partners and policy makers who have access to innovative technologies.

37. **IFAD support for CA**. The proposal noted the grant is aligned with IFAD corporate priorities and strategic objectives (SO) of IFAD's current Strategic Framework (2016-2025). This included contributing to SO1, "Increase poor rural people's productive capacities" and SO3, "Strengthen the environmental and climate resilience of poor rural people's economic activities" and focuses on the continuing and growing challenges of food security, climate change, and land and natural resource degradation. Conservation agriculture (CA) involves the use of practices such as minimum tillage, crop residue cover, crop rotations and intercropping to improve long term farm productivity.

38. The project follows the "Integrated Crop-Livestock Conservation Agriculture for Sustainable Intensification of Cereal-based Systems in North Africa and Central Asia (CLCA)" project which was implemented between January 2013 to January 2016 (IFAD GRANT 1393-ICARDA). This project identified farmer packages of CLCA practices for smallholder farmers in North Africa and Tajikistan. CIMMYT has been successful in promoting the development of CA in maize and wheat-based production systems across LAC, SSA and South Asia. This has included the introduction of legume and livestock components into maize-based systems, and the development of zero-till seeders to meet the prevailing diverse contexts that face smallholder farmers.

39. ICARDA (in consortium with CIMMYT) was selected as the grant recipient for the project through a competitive process using an open call for proposals evaluated by a selection panel. The proposal submitted by ICARDA and CIMMYT was designed to combine an adaptive research program, including integrated capacity development, for CLCA systems in both targeted regions. These activities are incorporated in the project as two components. The first, covering adaptive research involves socioeconomic and market data collection to help optimize CLCA packages for different agro-ecologies and socioeconomic contexts. The second component includes activities to develop a farmer-led extension system to accelerate adoption

40. **Project links to other IFAD operations**. The grant aimed to directly support the objectives and beneficiaries of IFAD investment projects through improved access to innovative production technologies and practices. It was to be implemented in collaboration

with investment projects that included Pro-Camelidos (Bolivia); Sustainable Territorial Development (Peru); NICAVIDA (Nicaragua); Hinterland (Guyana); Agropastoral Value Chains (Tunisia); Smallholder Agriculture Revitalization (Iraq); and farming communities from the project area of the now closed Rural Development Project for the North of the Wilaya of M'Sila (Algeria).

41. **Changes in context during the project**. Countries initially selected for the implementation of the project were Bolivia and Nicaragua in LAC and Algeria and Tunisia in NEN. The proposal noted CIMMYT had collaborated with national systems in Bolivia, Peru and Nicaragua on nutrition, sustainable agriculture, and institutional improvement of the national agricultural systems. The organisation had established partnerships with local research institutes (e.g., INTA in Nicaragua and INIAF in Bolivia) and farmer organisations (e.g., SIMAS and the CAC in Nicaragua, and PROINPA in Bolivia). This experience and potential to leverage IFAD loans (NICAVIDA in Nicaragua and ProCamelidos in Bolivia) led to country selections in LAC. Due to operating constraints, Mexico was substituted for Nicaragua. The overarching change in context has been the emergence of the COVID pandemic. This has impacted the mode of project delivery and hindered researcher-farmer-extension interaction since early 2020.

B. Project implementation

42. **Project goal and objectives**. The overall goal of the CLCA Project is to sustainably increase production and enhance the resilience of smallholder crop-livestock production systems to climate variability drylands in NEN and LAC countries, with objectives being 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. This objective will be achieved through: (i) the development of contextually relevant soil conservation and water use efficiency practices; (ii) the introduction of more productive forage crops and enhanced practices for biomass management; and (iii) linking with and leveraging existing or upcoming IFAD projects within the countries of engagement as well as developmental programmes being undertaken by national governments or multilateral and international organizations.

43. **Project target**. The main target groups directly reached by the project are 3,000 households of small crop-livestock producers in NA and LAC regions whose livelihoods are dependent on crop production (barley and wheat based systems in NA and maize, wheat and Andean cereal-based systems in LAC countries) and livestock (sheep and goats in NA, and small ruminants, llamas, and to some extent, extensive cattle production in LAC) of which 70% (2100) will adopt CLCA farming systems with increased production and improved cost-benefits compared to conventional systems.

44. **Project components**. The programme comprises two components

45. **Component 1:** Participatory adaptive research with the integrated capacity development of farmers and other key partners to fully implement and evaluate CLCA systems (53 per cent of estimated project cost). Sub-components include subcomponent 1.1 ($1,132,338): CLCA system optimization involves filling research gaps and the full

implementation and integration of technologies developed supported by both centres for the two regions and Subcomponent 1.2 ($467,790): Appropriate system development methodology development to support wider adoption and decision-making.

46. **Component 2:** Component 2, ($579,375, 19 per cent of the project cost) includes the acceleration of adoption through the development of delivery systems-participatory farmer-led extension systems and to inform the development of contextually relevant CLCA technologies and practices. Cross cutting themes have a budget of $589,016 (20 per cent of the project cost). They include 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, develop and test a framework for effective rural advisory and service provision for machinery, agronomic and livestock services with special emphasis on participation of rural youth and fine-tune and implement a gender/youth sensitive KM strategy.

47. **Project costs and financing**. The total project cost at approval was US$3.0 million, of which US$2.5 million was to be funded by IFAD. The partners were to finance US$0.5. Of the IFAD grant financing, 25 per cent ($619,000) was to be used to support salaries, a similar amount for goods and services of 25 per cent ($618,000), with other major cost categories being operating costs and goods and services (9 per cent each).

48. **Time frame**. The official starting date of the four-year CLCA project was 13 April 2018, and the project completion date is 30 June 2022. The effective closing date is 31 December 2022.

49. **Implementation arrangements**. ICARDA is responsible for overall coordination and technical and financial management of the project through its offices in Amman, Tunis and Cairo, and its headquarters in Beirut. In-field implementation of research activities within NA will be undertaken by ICARDA, while CIMMYT will lead on activities in LAC. Activities in-country are being undertaken through collaborative agreements with local, national, and regional organizations, as well as private actors and civil society institutions

50. **Significant changes during project implementation**. No amendment of the financing agreement has taken place. Investments into Nicaragua, then Honduras were cancelled. Planned targets have not been adjusted to reflect changes in the project area.

Key points

- The Use of Conservation Agriculture in Crop-Livestock Systems (CLCA) in the drylands for enhanced water use and soil fertility in Near East and North Africa (NEN) and Latin America and Caribbean Countries (LAC) countries project is a grant project led by the International Centre for Agricultural Research in the Dry Areas (ICARDA) and funded by the International Fund for Agricultural Development (IFAD), with subcontracts provided to International Maize and Wheat Improvement Centre (CIMMYT, Mexico) and NARES in Algeria, Tunisia, Bolivia, and Mexico.

- The four-year project commenced in April 2018. The overall cost of the project is estimated at US$ 3 million, of which IFAD will finance US$ 2.5 million and US$ 0.5 million is to be provided from NARES in the form of in-kind contributions. The project completion date is 30 June 2022

- Its overarching goal is to sustainably increase production and enhance the resilience of smallholder crop-livestock production systems to climate variability in drylands in NEN and LAC countries. The main target groups directly targeted by the project are 3,000 households of small crop-livestock producers in NEN and LAC regions whose livelihoods are dependent on crop production and livestock of which 70% are expected to adopt CLCA farming systems potentially leading to increased production. Other beneficiaries will be NARES (National Agricultural Research and Extension Services) and R&D partners and policy makers who will have access to innovative technologies

- Countries initially selected for the implementation of the project were Bolivia and Nicaragua in LAC and Algeria and Tunisia in NEN. Due to operating constraints, Mexico was substituted for Nicaragua. No amendment of the financing agreement has taken place. Adjustments were made during early annual work plans due to changes in countries of implementation. Planned targets have not been adjusted to reflect changes in the project area.

III. Main evaluation findings

A. Project performance

A1. Relevance

51. **Country selection in the project design needed more consideration of broader socio-economic factors**. Crop–livestock CA practices development made substantial progress across Algeria and Tunisia in the first CLCA project. The second CLCA project proposal noted that conservation agriculture has been widely successful in the Southern Cone region of South America, however, in other regions of Latin America - such as Central America and the Andean region, CA adoption has proven to be more difficult. The second CLCA project was designed to formulate appropriate CA packages for these parts of LAC and build on the success of the first CLCA project in extending already proven CA packages across North Africa.

52. These project objectives are aligned with national priorities, as well as IFAD policies more broadly. The overall objective of the IFAD country programme for Tunisia is to improve the living conditions, incomes, and climate change resilience of poor rural people, particularly women and youth.[9] In addition, the country strategy supports the promotion of sustainable natural resource development (soil fertility and water resources). Similarly in Bolivia,[10] the IFAD country strategy supports initiatives to assess vulnerabilities to climate impacts and investments in efficient use of water for irrigation and soil management.

53. Bolivia and Nicaragua were selected in the proposal based on their relevance to previous research efforts and relevance to IFAD country operations. For example, maize residue management options tested in Mexico and Guatemala could be assessed in Nicaragua and the use of lupins and different amaranth options developed in Mexico and Guatemala could be shared and tested in new sites across Bolivia. Additionally, IFAD operations, such as the Camelid Value Chain in the Bolivian High Plateau (Pro-Camélidos) could leverage off research results. CIMMYT had partnerships with INTA in Nicaragua and INIAF in Bolivia, along with farmer organisations such as SIMAS and the CAC in Nicaragua, and PROINPA in Bolivia which would be of benefit to CLCA implementation. Country selection did not consider broader socio-political considerations and more practical sites (proximity to existing CIMMYT research platforms) which has resulted in changes in project implementation countries.

54. **Limited interaction with IFAD operations in some countries**. The proposal noted CLCA will support the objectives and beneficiaries of IFAD investment projects through improved access to innovative production technologies and practices. North African projects included the Agropastoral Value Chains in Tunisia and IFAD PROFITS in North Africa. Project annual reporting indicated CLCA had interacted with the PROFITS project through its interventions measuring erosion. This activity expanded in 2020 by doubling the number of experimental plots being monitored for runoff. The Tunisian CLCA team also consulted with IFAD PRODESU project to identify groups of farmers who can benefit from feed grinders for more efficient stall-based feeding of small ruminants. There has limited interaction with IFAD

[9] https://www.ifad.org/en/-/document/cosop-tunisie-2019-2024
[10] https://webapps.ifad.org/members/eb/131R/docs/EB-2020-131-R-R-15.pdf?attach=1

operations in LAC. For example, the 3rd year annual report noted that the political situation in Bolivia led to staff changes in the ProCamelidos project which has hindered cooperation. The PRODEZA project team in Mexico has not responded to CLCA project communications.

55. **The project builds on previous CA efforts**. The second CLCA project is building on the success and lessons of the first CLCA project. The ICARDA CLCA project proved that CA results are achievable at the farm level in North Africa. The MasAgro project in Mexico has also shown the importance of CA, while researchers in Bolivia are working towards developing and testing site-specific alternatives for CA. Not many MTE stakeholder interviewees had prior experience with CA. Consultation with farmers was evident in the first CLCA project completion report, so possibly expansion of efforts into new areas has resulted in a lack of background knowledge about previous research.

56. **Acceptable coherence between activities, outputs, and outcomes, however the theory of change difficult to comprehend**. The proposal noted that M&E indicators will be developed by the selected grantee together with the national implementing partners once the proposal has been prepared. A MEL framework has been developed for the project. [11] There is coherence across the activities and outputs, however the indicators measuring outcomes and description of MEL elements could be simplified. Good practice in MEL[12] is that indicators are clear (precise and unambiguous), relevant (appropriate to the subject at hand), economic (can be collected at appropriate cost), adequate (sufficient to assess performance), and monitorable (can be independently validated). (Schiavo-Campo 1999, p. 85).[13] Many of the CLCA indicators in the project design do not meet these criteria. Outcome indicators appear to be applied to outputs, the description of elements of the MEL is not concise and a very large list of indicators require measurement.

57. The theory of change appears to include a feedback loop for the project. The MEL plan notes the CLCA systems project model creates a feedback loop between Components 1 and 2. The plan (p.10) notes “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 theory of change should focus on the issues the CLCA project is seeking to address, rather than the project itself. Component 1 outcomes and associated outputs should be addressing gaps in knowledge required for CA package development (particularly in LAC) and Component 2 current gaps and needs for widespread CLCA scaling. Targets should have been set for each region, rather than a consolidated target across all implementing areas.

58. **Alignment of CLCA evaluation framework to IFAD and CGIAR strategic frameworks is not supported by evidence and poverty impacts are not being tracked**. The MEL plan noted three CLCA outcomes compare closely to IFAD strategic outcomes as well as with the CGIAR strategic-level outcomes. Notably the project is supporting IFAD strategic objective 1, being increasing “poor rural people’s productive capacity” through thematic areas such as, access to agricultural technologies and production services.

[11] (20/04/2019). Monitoring, Evaluation and Learning Plan. 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. ICARDA.

[12] http://documents1.worldbank.org/curated/en/638011468766181874/pdf/296720PAPER0100steps.pdf

[13] Schiavo-Campo, Salvatore. 1999. “‘Performance’ in the Public Sector.” Asian Journal of Political Science 7(2): 75–87

59. This claim is not being supported by evidence. It is not possible to judge the rural poverty impacts of CLCA. The poverty targeting of the project appear to rest with selected target agro systems. For example, the proposal states, the highlands of LAC countries, maize, wheat, and other Andean cereals, together with potato and beans, support the livelihoods of millions of small-scale resource-poor farmers that are especially vulnerable to climate change and the degradation of soils. Presumably targeting these farmers would lead to poverty reduction. No measurements of poverty impacts are integrated into the CLCA M&E systems, and no mention of poverty impact is evident in the second- or third-year project reports.

60. **In summary, relevance is rated satisfactory (5).** Sustainable agricultural productivity through soil improvement and water management remains a high priority for IFAD, CGIAR centres and national agricultural sectors. The design builds on success of the first CLCA project, however, country selection should have considered broader socio-economic factors at design. Efforts have been made to leverage off other projects in target countries, with mixed results.

A2. Effectiveness

Project goal, outcomes, objectives, and assumptions

61. **Progress towards the overall goal is evident**. The overarching goal is to sustainably increase production and enhance the resilience of smallholder crop-livestock production systems to climate variability in drylands in NEN and LAC countries. The original goal appeared to be measured by yield gaps of cereals, legumes and livestock being reduced by increased resources use efficiency (e.g., water and nutrients). Targets include crop yield gaps being reduced by as much as 40% and livestock offtake rate by 30% in both rain fed and irrigated systems. This indicator seems to have been amended in the latest MEL plan to changes in gaps, rather than targets.

Table 2: Project goals and outcomes, and MTE assessment of progress

ToC level	Indicator and verification	Assumption	MTE Finding
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	Crop yield gaps reduced by as much as 40% and livestock offtake rate by 30% in both rain fed and irrigated systems	(CA1) Assumption 1: Normal weather patterns and absence of calamities along the duration of project. (CA2) Assumption 2: Political stability of countries where the project is implemented. (CA3) Assumption 3: Continued funding from other linked projects.	Evidence of progress

(CAO1) 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	Measure the total number of farmers who have been reached (i.e., farmers that have been exposed to the CLCA farmer-led extension system) Measures the total number of farmers who have adopted CLCA farming systems (i.e. farmers that are now implementing CLCA-promoted practices)	(CA4) Assumption 4: Targeted farmers open to innovate in land and their flock's management under CLCA system and collaborate with the project team for on-farm trials and data collection. (CA5) Assumption 5 Public institutions for the development of CA and livestock as well as farmers-led extension services welcome extension of integrated CLCA system into the cereal-livestock systems of NA and LAC.	Overall target has been met for reached farmers (5625), but only 9% women and 19% youth 600 farmers have adopted CLCA but only 9% women and 17% youth. Assumptions not reported
(CAO2) 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	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	(CA6) Assumption 6 NARES capabilities and support are available for integrated assessment of CLCA systems Institutional will within NARES and collaborators to embark in integrated assessment of CLCA and robust M&E&L strategies	Achieved. CLCA M&E reporting indicates 15 NARES, 8 NGOs and 2 IFAD LPPs are using tools. The target has been met. Assumption not reported
(CAO3) Outcome 3: At least 4 effective agricultural innovation systems - 1 in each implementation area of the 4 target countries - are coalesced to foster broad uptake of conservation agriculture practices within integrated dryland crop-livestock production systems	Number of local agricultural innovation systems, 1 in each implementation area of the 4 target countries. The purpose of these innovation systems is to foster broad uptake of conservation agriculture practices within integrated dryland crop-livestock production systems	(CA7) Assumption 7: Local manufacturers willing to collaborate in the design of alternative mechanization and business models for broad uptake of CLCA practices and technologies. (CA8) Assumption 8: Political will to allow local manufacturers and service providers to perform their business. (CA9) Assumption 9: Local institutional infrastructure and will to host knowledge repositories on CLCA	Achieved. 4 systems reported. Assumptions not reported

62. **More than 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) (Outcome 1).** This outcome is measured with two indicators. The first measures the total number of farmers who have been reached. The latest project M&E report for Year 2 indicated that CA had reached 5625 farmers, with 519 women (9%) and 1070 young farmers (19%). The project has already exceeded its reach its overall farmers reached target but is below women and youth proportions.

63. The other measure is numbers of farmers who have adopted CLCA farming systems. The MEL system reports 600 farmers have adopted CA but only 9% are women. The latest project annual reported indicated that CA has been directly implemented across 2000 ha in Tunisia, with 117 farmers between October and December. In Algeria, CA was established across 732 ha by 430 smallholder farmers (compared to 982 ha and 241 farmers in the previous year). Adopting farmers are lower in LAC. A total of 113 adopting farmers were reported in Bolivia and 51 in Mexico cumulative to Year 2.

64. **Farmers are benefiting from CLCA outputs**. The MTE stakeholder survey found key farmer nominated benefits of CLCA activities included training to improve soils, participation in field days and technical assistance. Forage and soil improvements were highlighted by LAC farmers. In Bolivia, the project has resulted in the establishment of more than 3 200 meters of wind barriers and the establishment of 5 ha of improved pastures. In Mexico, intercropping and living barriers have been established across 100 farmers' plots. Many of the interviewed North African farmers consider that livestock feed quality improvement is one of the best outputs and this has resulted in the adoption of forage mixtures by farmers.

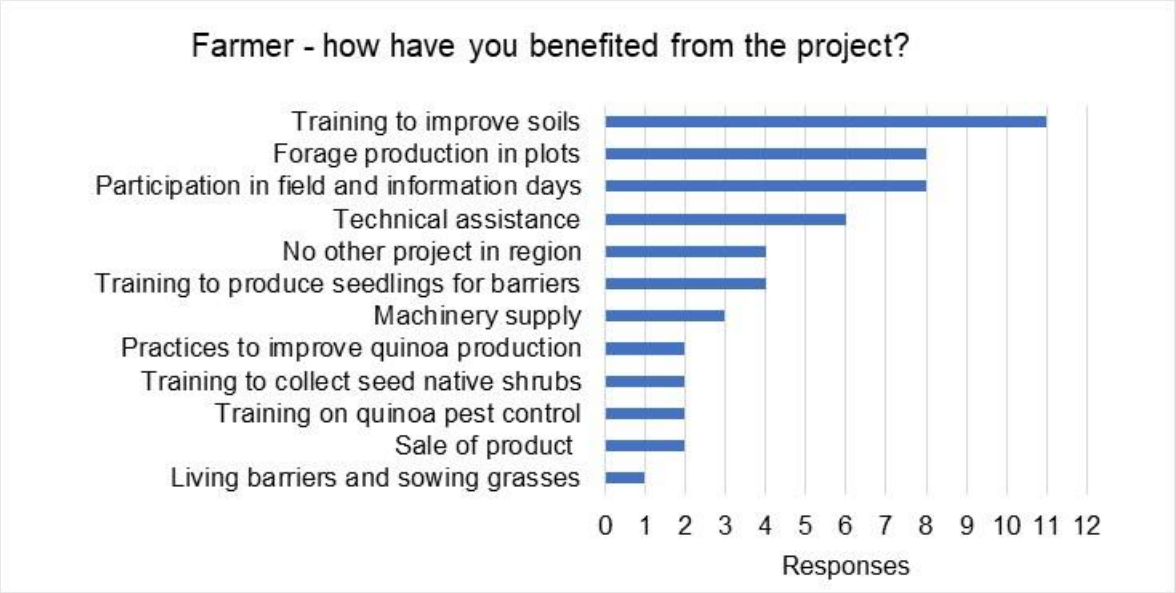

Figure 3: LAC and NEN farmer nominated benefits of the CLCA project

Source: MTE stakeholder survey, April 2021

65. **6 NARES, in addition to decision makers, NGO's and IFAD loan project partners in the 4 target countries have adopted tools and methodologies (outcome 2).** This outcome is measured as the number of NARES, NGOs, and IFAD LPPs that have adopted CLCA tools and methodologies for reliable decision-making. The MEL plan indicates that

organizations need to confirm they are using CLCA tools and methodologies for general decision-making or investment decisions. By Year 2, the M&E report indicates 15 NARES, 8 NGOs and 2 IFAD LPPs are using tools. The target has been met.

66. **At least 4 effective agricultural innovation systems have been established. (Outcome 3).** This outcome measures the number of local agricultural innovation systems, with a target of 1 in each implementation area of the 4 target countries. The target has been met with four being reported. It is not clear from the MEL plan what this indicator means. Details of what constitutes the establishment of an innovation systems should be provided.

Assumptions in the theory of change

67. Many assumptions were included in the proposal log frame. Very few are being discussed in the annual reports of the project. The MTE has assessed the degree of impact they are having on CLCA effectiveness, where analyses have been possible.

68. Normal weather patterns and absence of calamities along the duration of project. (CA1, assumption 1). Weather conditions are reported along with experimental results in annual reports. For example, it is mentioned that the 2018/19 cropping season in Tunisia was characterized by a relatively favourable annual rainfall for cereal and forage crops in most project sites. Little mention of weather conditions is provided for LAC. Weather has not been mentioned as a serious constraint on project progress.

69. **Political stability of countries where the project is implemented (CA2. Assumption 2)**. Countries initially selected for the implementation of the project were Bolivia and Nicaragua in LAC and Algeria and Tunisia in North Africa. For force majeure reasons, the target countries in LAC were changed to be Bolivia and Mexico. In LAC, the implementation of the project has been slower due to the change in site from Nicaragua to Mexico and the recent political disruptions in Bolivia.

70. **Continued funding from other linked projects. (CA3, assumption 3).** Links to other projects are mentioned and have had varied degrees of interaction. The linkages with CRP Livestock in Tunisia is where CLCA was able to benefit from investments from this CGIAR program particularly in the area of small machinery. For example, the CLCA project has links with the IFAD PROFITS project and consulted with IFAD PRODESU to identify groups of farmers who can benefit from feed grinders. The Bolivian component of CLCA was to be linked with the Integral Strengthening Programme for the Camelid Value Chain in the Bolivian High Plateau (Pro-Camélidos), which aims to reduce rural poverty and child malnutrition, increase the incomes of rural families, and promote practices that are conducive to sustainable natural resource management. Project changes have hindered interaction and the PRODEZA team has not responded to CLCA communications.

71. **Targeted farmers open to innovate in land and their flock's management under CLCA system and collaborate with the project team for on-farm trials and data collection (CA4, assumption 4)**. Numbers of farmers attending training and field days, along with adopting CA are being reported. Among the beneficiaries interviewed as part of the MTE, many farmers found a range of elements of CLCA useful. For example, adoption of grasses

and wind barriers, training to improve soil conditions and green manure incorporation were the most frequently nominated useful outputs.

72. **Public institutions for the development of CA and livestock as well as farmers-led extension services welcome extension of integrated CLCA system into the cereal-livestock systems of NA and LAC (CA5, assumption 5).** The attitude of extension services to CLCA is not being outlined in annual project reporting. NARS interviewed as part of the MTE are supportive of the project. Among those interviewed, value in the project was perceived to be associated with the funding, consideration of women and youth and introduction of new methods (See next figure).

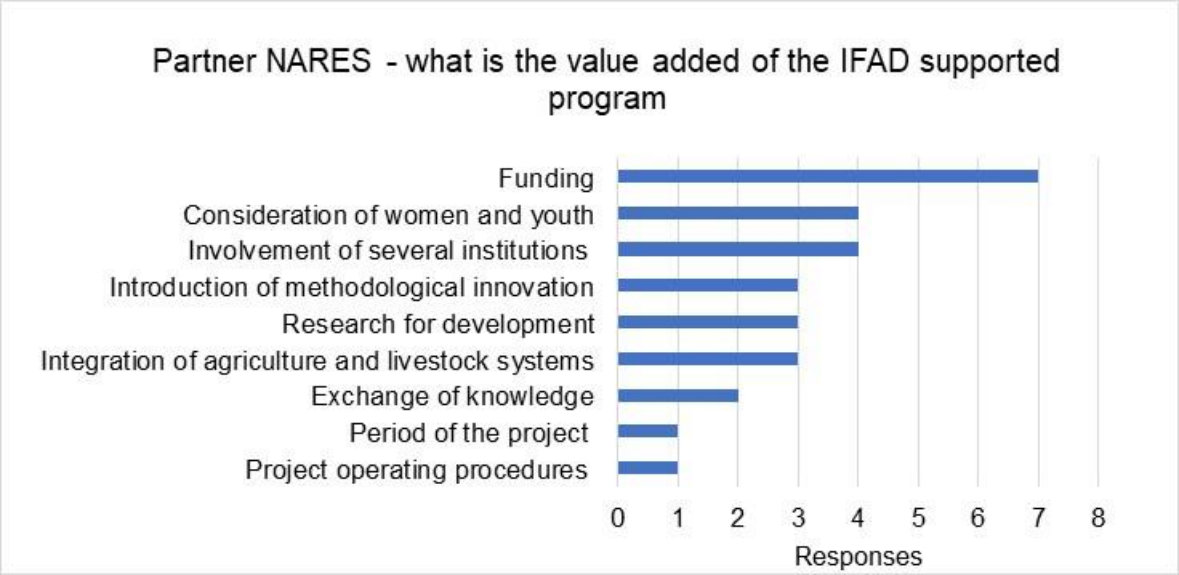

Figure 4: LAC and NEN partner NARES nominated valued added aspects of the CLCA project

Source: MTE stakeholder survey, April 2021

73. **NARES capabilities and support are available for integrated assessment of CLCA systems (CA6, assumption 6).** This consideration is not being documented in annual project reports. It is not clear what role NARES are having in the integrated assessment of CLCA and MEL strategies.

74. **Local manufacturers willing to collaborate in the design of alternative mechanization and business models for broad uptake of CLCA practices and technologies (CA7, assumption 7).** A range of PPPs have been established as part of the project. They include with machinery, milking cooperatives, and seed companies. It has been difficult for the project to establish zero till seeder manufacturing capacity in Tunisia.

75. **Political will to allow local manufacturers and service providers to perform their business (CA7, assumption 8).** PPPS are on-going with private machinery and grain industry companies. The political will around these arrangements has not been stated in project annual reporting, however, agreements have been established. For example, in Algeria, the Technical Institute of Field Crops – ITGC has signed an agreement with the National Company of Agricultural Equipment Production & Trading (PMAT) to provide technical assistance for promoting zero-tillage seeders. In Tunisia, the National Institute of Agronomic Research of

Tunisia – INRAT has engaged with COTUGRAIN, a private seeds production company to support commercialization of forage crop seeds and forage mixtures (Vetch-Oat, Vetch-Triticale, Meslin).

76. **Local institutional infrastructure and will to host knowledge repositories on CLCA (CA9, assumption 9).** Not being reported.

Project outputs

77. **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 agroecological specificities as well as farmers' needs for sustainable livelihood development (Output 1.1).** This output is mainly devoted to the development and packaging of technical CLCA options. The indicators outlined in the proposal for this output largely appear to be outcomes measures, such as increases in barley and wheat yields, animal productivity and grain and straw yield of cropping systems. As such, they are not output measures and should be omitted from the output level of the project MEL framework. A single indicator associated with package development should be used to track delivery of the output.

78. The CLCA project annual reports outline that a technical CLCA framework has been developed. For example, stakeholder engagement and rapid appraisals were conducted in Algeria, Tunisia, Bolivia, and Mexico in 2019, along with the development of integrated improved crop management systems. Details have been outlined in reports and protocols describing on-farm and on-station trials, along with the preparation of a draft scientific paper in North Africa about the main technical alternatives for CLCA systems. Analysis has been conducted about data availability and research gaps in Oaxaca, Mexico and assessment of identified alternatives in the Bolivian Highlands have been undertaken.

79. The output indicator outlined in the proposal also included that 25% of total beneficiaries (900 farmers), 50 extension staff, and 30 scientists participate in knowledge sharing on CLCA practice management. Knowledge sharing activities were defined in the MEL plan to include participation in innovation hubs; focus group discussions; and receipt of research pieces with interactive KM models, tools, and products. The target appears to have been dropped in the revised MEL plan, although the numbers of people sharing are being reported. At last count, 2952 farmers 1045 extension staff and 698 scientists have shared knowledge. The output has reached its original target.

80. Advocating alternative feeding systems and livestock enterprises was included in the original proposal log frame. This output has involved defining the current feeding systems used by smallholder farmers (400 observations from M'Sila site-Algeria and 500 from 5 different sites in Tunisia), advocating alternative feeding systems through integrating forage options and establishing forage seed multiplication with farmers. Tools are being developed to estimate stubble biomass, biomass intake, residual biomass, grazing intensity and piloting feedlot systems for greater efficiency. This indicator appears to have omitted from Output 1 of the MEL plan, along with developing financially viable business models for no-till service provision enterprises.

81. **Increased water use efficiency in rainfed and irrigated systems and reduction of erosion in soils with steep slopes (Output 1.2).** This output includes development of a suite of soil and water conservation practices for different agro-ecologies in LAC. It includes assessments of soil fertility, erosion, and water productivity under CLCA systems, along with testing and adapting alternatives for improved water use efficiency (WUE) and decreased erosion. Suites appear to have been identified. In Bolivia, soil, and water conservation practice (dual purpose wind barriers) have been applied across 43 hectares and 36 hectares in Mexico.

82. **Comprehensive trade-off models between competing uses for crop residue biomass developed and simplified for wider use (Output 1.3).** The third sub-output is appropriate system development to support adoption and decision-making. Activities include farm-level modelling based on the farming systems approach developed as part of the ProCamelidos baseline survey and use of the Farm DESIGN model in LAC. This model includes an algorithm which is used to assess the financial outcomes of alternative farm configurations. Several indicators were specified in the proposal for this output including detailed analysis of costs, benefits, and market viability of CLCA options, farm level models for multi-criteria assessment and trade off analysis for different farm types and agro-ecologies, one in each target countries of NA and LAC developed, calibrated and available for use by NARES and simplified simulation tools of optimised CLCA systems for wider use by IFAD loan projects and local development partners. Most have been retained in the updated MEL plan.

83. The first indicator is the number of detailed analysis of costs, benefits, and market viability of CLCA options include assessing the technical feasibility, economic viability, and environmental performance of CLCA system and CA adoption. So far three analyses have been conducted. They include assessment of profitability threshold of no till (NT) Boudour seeder, economic evaluation of the practice of CA in comparison with the conventional system under the crop-livestock system, and economic valuation of the conservation agriculture technical package under crop-livestock system.

84. The second involves analysis of farm systems in each of the countries using the FarmDESIGN model which has been developed to explore future possibilities of Crop-Livestock integration in sheep-cereal farms in Zaghouan (Tunisia), and Setif and Oum Bouaghi (Algeria). Reports have been prepared which outline the assessment of soil fertility, erosion and water productivity under CLCA systems in Algeria and Tunisia (monitoring on 30 farms in the three target areas in Algeria and 60 demonstration plots in 3 different sites in Tunisia.

85. The third indicator is the number of simulation tools of optimised CLCA systems for wider use by IFAD loan projects and local development partners. Ten have been developed by mid-term, with feed production (IFAD-PROFITS; IFAD-PRODESUD), soil erosion (IFAD-PROFITS), forage crops (IFAD-PROFITS) and a stubble grazing tool (IFAD-PROFITS) in Tunisia being major contributing analyses.

Table 3: Project outputs and MTE assessment of progress

ToC level	Indicator	MTE Finding
Output 1.1: An extended technical CLCA framework (including crop production,	In NA, 20% increase in barley and wheat yields across a total area of 60,000 ha (11,000 irrigated) through effective integrated CA packages; 30 % increase of	Some progress towards this outcome

stubble management, forage production, livestock, and manure management resilient to shocks) is developed and applied, taking into consideration farming systems and agroecological specificities as well as farmers' needs for sustainable livelihood development.	forage biomass which will support small-scale farm feedlots	
	In NA at least 25% increase in live weight growth and 20% increase in fertility of sheep directly and indirectly impacting 220,000 heads	Some progress towards this outcome
	In LAC grain and straw yield of cropping systems increased by 15% through CA management, including agroforestry and soil and water conservation practices. Fodder and cover crops adopted by farmers leading to 25% increased fodder availability with ultimate increase of livestock productivity by 15	Some progress towards this outcome
	In both regions, 25% of total beneficiaries (900 farmers), 50 extension staff, and 30 scientists participate in knowledge sharing on CLCA practice management	Target met. At last count, 2952 farmers 1045 extension staff and 698 scientists have shared knowledge
Output 1.2: Increased water use efficiency in rainfed and irrigated systems and reduction of erosion in soils with steep slopes	A suite of pertinent soil and water conservation practices (SWC) (including no-till and residue management) identified and promoted for different agro-ecologies in LAC countries and appropriate for different types of farming systems	Suite identified. In Bolivia, soil and water conservation practice (dual purpose wind barriers) have been applied across 43 hectares and 36 hectares in Mexico
Output 1.3: Comprehensive trade-off models between competing uses for crop residue biomass developed and simplified for wider use	Detailed analysis of costs, benefits, and market viability of CLCA options	Three analyses have been conducted, which include seeder economics
	Farm level models for multi-criteria assessment and trade off analysis for different farm types and agro-ecologies, one in each target countries of NA and LAC developed, calibrated and available for use by NARES.	Four analyses have been conducted
	Simplified simulation tools of optimised CLCA systems for wider use by IFAD loan projects and local development partners.	Ten have been developed by mid-term, with four associated with IFAD-PROFITS
Output 1.4: Appropriate monitoring and evaluation frameworks are established	ITC-based M&E tools developed and used by NARES and collaborators. Algorithms for data storage, classification and analysis developed.	Four ODK and FORMSTAK M&E tools developed, with no algorithms
	4 qualitative studies on farmers' (men and women) existing knowledge, attitudes and practices are carried out with 150 participants in each country	NA
	4 participatory evaluations are conducted with 150 farmers (men and women) in each country	Participatory evaluations conducted in Tunisia and Algeria

	Feedback indicators from decision makers and private market actors are collected via survey monkey on a national level and shared between the countries	None
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 finetuned in both Algeria and Latin America (Bolivia and Nicaragua), through participatory processes	Context relevant knowledge and learning centred structures are facilitated (innovation systems, learning centres, multi-stakeholder workshops) – at least two in each country of engagement – within which IFAD's toolkits on household methodologies (HHMs) are tested for proof of concept and adaptation in context	Six structures. Two in Algeria and Tunisia and one in each LAC country
Output 2.2: Effective delivery systems for machinery, agronomic and livestock services through facilitation of access to finance, private investment, and public-private partnerships	Number of CLCA intervention countries in which there is provision of efficient and effective support by extension/advisory services to beneficiaries. 4 (1 per country)	None
	Number of CLCA guidelines for extension and advisory services developed with partner organizations.	None
	Number of private machinery service providers supported by CLCA.	Two private machinery service providers are supported by CLCA
	Number of individuals participating in CLCA courses, workshops, or field days. 500 farmers, 50 extension staff, 20 scientists, 2 NGOs, 2 traders in each country	Large number of farmers (2954), extension staff (1045), scientists (698), NGOs (15) and traders (2) have been reached
	Number of groups using CLCA-generated methodologies and knowledge. 1 training platform, 10 validation sites, and 10 scaling partners per country	Training Platforms (2), Validation Sites (20) and Scaling Partners (20) are using tools
	At least 2 research questions per country formulated that feed back to Component 1	Achieved. Nine at mid-term.

86. **Appropriate monitoring and evaluation frameworks are established (Output 1.4).** This output includes ITC-based M&E tools being developed and used by NARES and collaborators and a range of studies. Multiple indicators were developed to track the output. They included ITC-based M&E tools developed, 4 qualitative studies on farmers' (men and women) existing knowledge, attitudes and practices are carried out with 150 participants in each country, 4 participatory evaluations are conducted with 150 farmers (men and women) in each country and develop appropriate monitoring and evaluation of the different project activities. They are listed in the above table, with qualitative studies being omitted and

feedback indicators from decision makers and private market actors being included. Four ODK and FORMSTAK M&E tools have been developed and participatory evaluations have been conducted in Tunisia and Algeria.

87. **Contextually relevant processes for enhancing broad uptake of conservation agriculture – different from traditional (linear) processes of technology transfer - are refined and fine-tuned (Output 2.1).** The indicator for this complicated output description was that context relevant knowledge and learning centred structures are facilitated. The MEL plan notes the indicator "counts the number of knowledge and learning structures within which IFAD's toolkits on HHMs are tested for proof of concept and adaptation". It is unclear what constitutes a context relevant knowledge and learning centred structures being facilitated. A simple lay-language description of what this indicator measures would be beneficial. It is not clear how this output indicator differs from 4 effective agricultural innovation systems being implemented in 4 target countries to foster broad uptake of conservation agriculture (outcome 3). Progress has been made in North Africa team with the establishment of numerous knowledge hubs. They include the CA hub hosted at a pilot farm of ITGC, which includes CA machinery and demonstration plots, a forage crops hub hosted at the COOPSSEL Ras El Ma farmer's milk cooperative, a livestock hub hosted at the ITELV station in Ain Mlila, and a mechanization hub at the PMAT station of Setif.

88. The 2nd year annual report noted the PROINPA foundation (main CLCA Partner in Bolivia) has been engaging NGOs and farmer organizations to participate in CLCA project activities. This includes the development of a collaboration with the Postgraduate School of Development of the Universidad Mayor de San Andres (CIDES-UMSA). In Mexico, collaborations have been formalized with the Department of Crop and Animal Production of the Universidad Autonoma Metropolotana-Xochimilco (UAM-X).

89. **Effective delivery systems for machinery, agronomic and livestock services through facilitation of access to finance, private investment, and public-private partnerships (Output 2.2).** A range of indicators linked to knowledge products and training were proposed. They include the number of CLCA intervention countries in which there is provision of efficient and effective support by extension/advisory services to beneficiaries, CLCA guidelines for extension and advisory services developed, number of private machinery service providers supported by CLCA, number of individuals participating in CLCA courses, workshops, or field days, number of groups using CLCA-generated methodologies and knowledge and number of research questions formulated that feed back to CLCA project component 1. The feedback loop has a target of at least 2 research questions per country formulated that feed back to Component 1, with nine being reported at mid-term. It is not clear, however, how feedback is defined.

90. No countries have been estimated to be providing effective support for CLCA by extension/advisory services, nor have developed CLCA guidelines for extension and advisory services. Two private machinery service providers are supported by CLCA. In NENA countries, the 2nd year of CLCA project further engaged national public and private partners. In Algeria, the Technical Institute of Field Crops – ITGC (CLCA project coordinating institution) signed an agreement with the National Company of Agricultural Equipment Production & Trading – PMAT. In Tunisia, the National Institute of Agronomic Research of Tunisia – INRAT continued to collaborate with COTUGRAIN, a private seed company. Meetings, workshops,

and field days were conducted in NENA to secure stakeholder engagement and identify potential new areas for scaling CA practice adoption

91. Financially viable business models for no-till service provision enterprises. Improve the local low-cost direct seeder and modify the conventional seeder to a no till seeder (Two conventional seeders will be modified to no-till seeders each in Algeria and Tunisia) Support the development of innovative business models and business plans suitable for small entrepreneurs willing to invest in machinery services. Year 2, seeder prototypes available in Algeria and other small machinery in Tunisia. ZT seeder prototype in Tunisia not achieved yet.

92. Reports and protocols describing the establishment of on-farm and on-station trials, the drafting of a scientific paper in North Africa, exploring technical alternatives for CLCA systems and research gaps in Oaxaca, Mexico, and an assessment of identified alternatives in Bolivian Highlands have been conducted for Activities 1.1.2 and 1.1.3. Seeder prototypes are available, and advocacy has been developed for alternative feeding systems and livestock enterprises

93. The number of individuals participating in CLCA courses, workshops, or field days Number of individuals participating in CLCA courses, workshops, or field days were also included as part of this output. The output has the target of 500 farmers, 50 extension staff, 20 scientists, 2 NGOs, 2 traders in each country. At midterm, many farmers (2954), extension staff (1045), scientists (698), NGOs (15) and traders (2) have been reached. The number of groups reached using CLCA-generated methodologies and knowledge had a target of 1 training platform, 10 validation sites, and 10 scaling partners per country. At midterm, a range of Training Platforms (2), Validation Sites (20) and Scaling Partners (20) are using tools.

61. **In summary, effectiveness is rated satisfactory (5).** The project has achieved satisfactory progress towards its expected outputs at mid-term. The outputs appear to be valued by partners and policy makers. Improvements in feed quality, recovery of soils and vegetative ground cover and understanding of CA (although not outputs) were nominated as the best outputs during the MTE stakeholder survey. Many output targets have been achieved and most are on track to be attained.

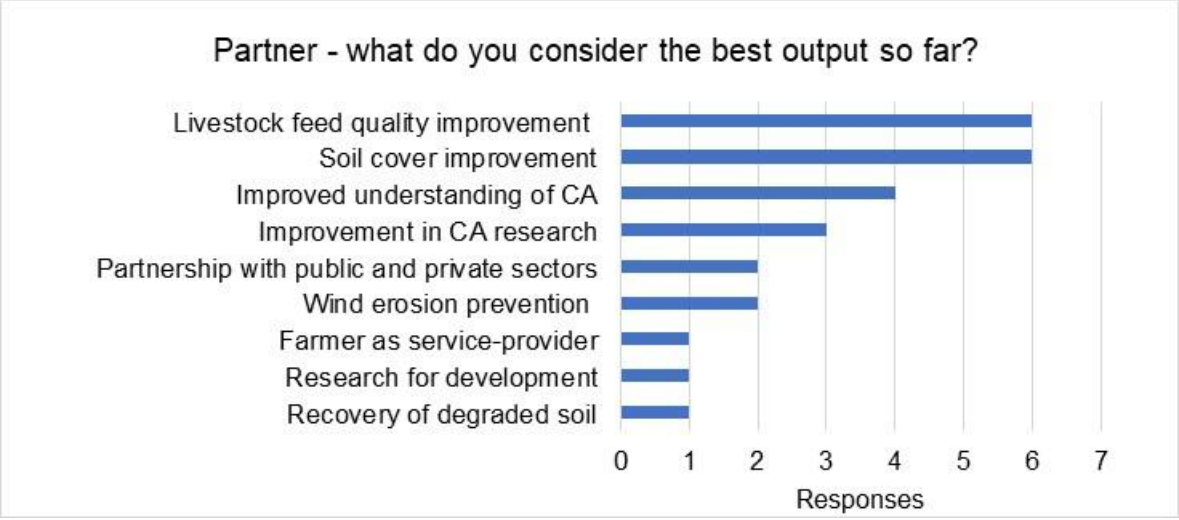

Figure 5: LAC and NEN partner NARES nominated best output of the CLCA project

Source: MTE stakeholder survey, April 2021

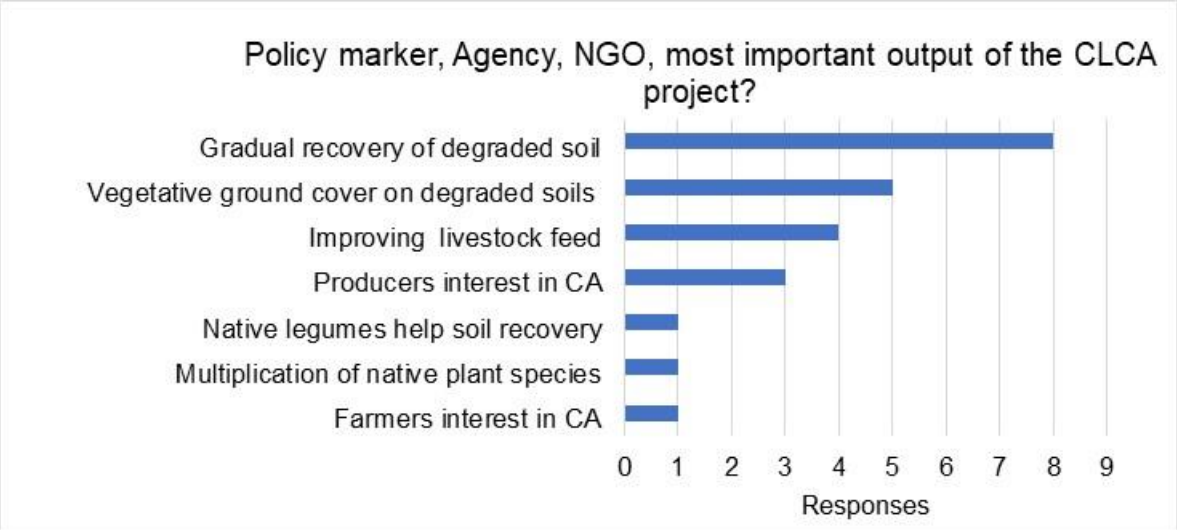

Figure 6: LAC and NEN agency, policy maker and NGO most important output of the CLCA project

Source: MTE stakeholder survey, April 2021

Efficiency

94. **The IFAD grant is managed in a relatively efficient manner**. Strengths of the CLCA project nominated by stakeholders participating in the MTE survey include agility of the approach and complementary between stakeholders and research-action methodology (See figure). The total disbursement rate for the grant is reasonable

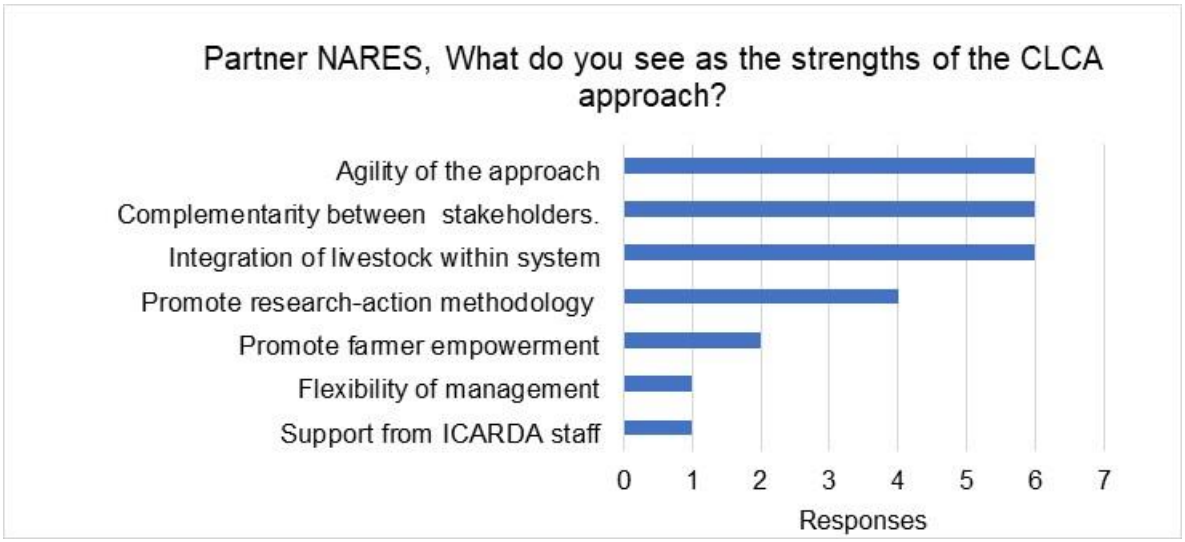

Figure 7: LAC and NEN partner NARES nominated strengths of the CLCA project approach

Source: MTE stakeholder survey, April 2021

95. **Early progress was slowed by changes in the implementation countries**. The 2nd Year Annual Report details implemented activities and changes over the first two years of the project. Target countries in LAC were changed which has slowed progress. Moreover, CLCA

is a start-up project in the LAC region as CIMMYT had limited activities in the selected country sites. There have been CA activities in wheat systems across the southern states of Bolivia, however, the CLCA project targets the Altiplano (Highlands) dryland area where cropping systems are dominated by quinoa and llama management. This area was selected to leverage the Pro-Camelidos program. These changes and new implementation areas has resulted in the project being implemented at a slower rate than planned in the LAC region. COVID has compounded the problem, although progress has been higher than planned in North Africa.

96. **Issues facing implementation and impact**. The key issues nominated by partner stakeholders (NARES, Universities) participating in the MTE survey were COVID, adoption of outputs without project support and adverse climatic conditions. Project reporting indicates elections have hindered the holding of field days and technical supervision by CIMMYT - who have not been able to travel to Bolivia. COVID-19 resulted in several Bolivia visits planned for March 2020 having to be postponed and a Systems Analysis course organized with the Universidad Mayor de San Andres (UMSA) had to be delivered remotely.

97. The project area has been defined and characterized in Mexico, with COVID-19 not substantially impacting workshops and field work. At the time of preparing the 2nd year progress report there were concerns about the sowing of maize and other crops at the beginning of the cropping season. Implementation in North Africa has not been impacted by COVID-19 in the second year of the CLCA project, and it was noted that in some areas the project was able to achieve more than previously planned.[14] Sub-agreements between ICARDA and the partners in Algeria and Tunisia have been established. The annual planning meeting in Tunisia also had to be rescheduled.

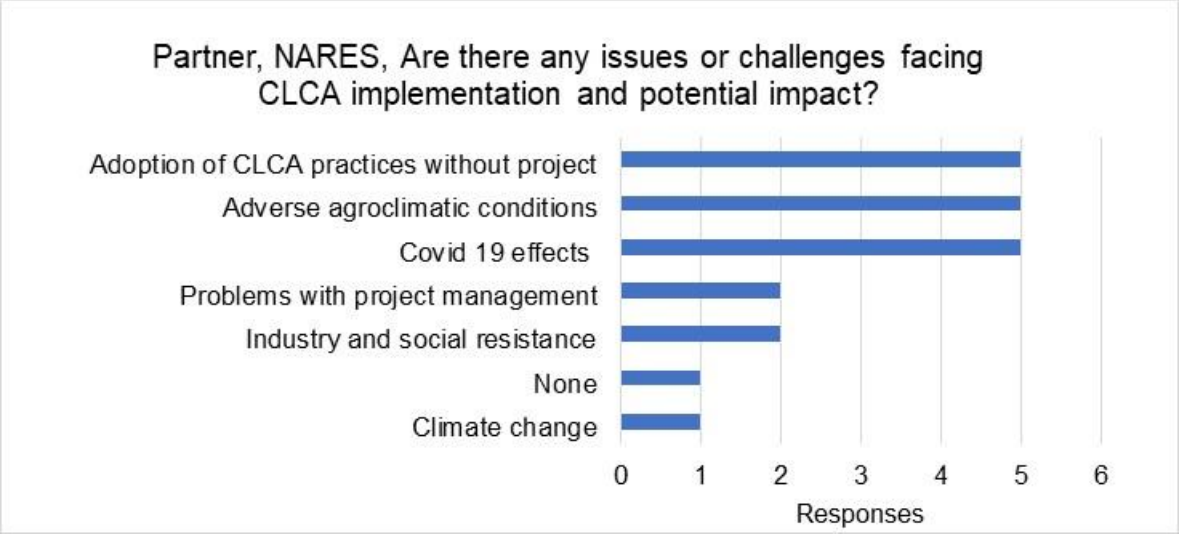

Figure 8: LAC and NEN partner NARES nominated challenges facing CLCA project implementation and impact

Source: MTE stakeholder survey, April 2021

[14] The main reason provided to the MTI for limited COVID disruption was the project is partnering with development institutions (INGC, OEP in Tunisia and ITGC, ITELV in Algeria) who have a nation-wide presence, a proximate presence to field trials and their field presence was only partly restricted during lockdowns.

98. **The amount disbursed by IFAD to ICARDA is reasonable compared to the period of implementation**. About 40% of funds had been disbursed by January 2020, with US$ 1,205,500 transferred by IFAD to ICARDA.[15] It is evident that ICARDA budget utilisation over the first two years of CLCA has been highest for travel, operating and salaries, at 50-73% of budgeted direct cost category totals. Given 50% of the total implementation time had occurred (i.e., 24 months of 48 months, 24 months - April 2018-March 2020, compared to project period of 48 months April 2018-June 2022) budget utilisation is reasonable at 40%. CIMMYT spending is low, with an overall expenditure of 31% of allocated project budget for the first two years. Spending appears very low for workshops and equipment. The 2nd Year Progress Report indicated underspending mainly corresponded to CIMMYT engaging late in Mexico. No reallocations have been approved prior to mid-term.

Table 4: IFAD Project budget and expenditure, March 2020

	ICARDA					CIMMYT		
	Expend	**Available**	**Budget**	**%**	**Expend**	**Available**	**Budget**	**%**
Salaries and allowances	166,911	164,089	331,000	50%	178,893	109,107	288,000	62%
Travel and allowances	37,084	22,916	60,000	62%	31,952	107,048	139,000	23%
Workshops	91,991	98,009	190,000	48%	11,792	168,208	180,000	7%
Good and services	154,964	186,036	341,000	45%	95,240	181,760	277,000	34%
Equipment	-	115,000	115,000	0%	0	120,000	120,000	0%
Operational costs	85,829	31,171	117,000	73%	29,209	80,791	110,000	27%
Total Direct	536,779	617,221	1,154,000	47%	347,086	766,914	1,114,000	31%
Management fee	42,970	49,635	92,605	46%	29,528	59,867	89,395	33%
CSP 2%	24,130	1,311	25,441	95%	0	24,559	24,559	0%
Total	**603,879**	**668,167**	**1,272,046**	**47%**	**376,614**	**851,340**	**1,227,954**	**31%**

99. **The cost per beneficiary is reasonable**. It is difficult to compare beneficiary ratio of the CLCA project with other IFAD operations as the project is providing knowledge and developing PPPs rather than rural infrastructure. The total area directly influenced by the CLCA project in the 4 hubs, through demonstration plots and field trials, was about 1,750 ha in the latest 3rd year annual report. Based on a target of 3,000 farmers reached and IFAD funding of $2.5 million, a cost per beneficiary of US$833 would be evident. The project is also producing improved varieties, seed and machinery through PPPs and digital messaging which will increase reach.

100. The proposal indicated that support to innovation systems, involvement of NARES and linking to IFAD investment projects, will result in adoption spill-over to 20,000 householders. It is not clear to the MTE as to how this estimate was derived. Based on 20,000 farmers being reached through these broader initiatives, a cost per beneficiary ratio of US$125 would be evident which is reasonable compared to the average of US$246 in IFAD's 2016-2018 portfolio.[16] Given adoption at mid-term is limited to 600 farmers (less than 200 in LAC), no

[15] March 31st, 2020, balance was US$ 225,007.

[16] https://www.ifad.org/documents/38714182/41331982/ARRI2019_Web.pdf/3a6b4016-3c6c-f040-a12f-3c46e8e82d5b

cost-benefit analysis has been conducted. An analysis should be undertaken at project completion once the scale of adoption is evident.

101. **Implementation arrangements are satisfactory.** ICARDA has lead responsibility for CLCA project activities. In-field implementation of research activities within NA are undertaken by ICARDA, while CIMMYT leads activities in LAC. Implementation is being undertaken by a consortium of local, sub-regional and international research institutions and other development partners. The proposal noted that local partners will be selected competitively based on proven expertise in CLCA and participatory research approaches with small farmers and farmers organizations; along with experience in working with government partners and investment project implementers; sound financial management and provision of co-financing to the grant project activities.

102. PROINPA is the implementing partner in Bolivia and progress which as continued the establishment of demonstrative plots has been outlined in project reporting. In Mexico, collaborations have been formalized with the Department of Crop and Animal Production of the Universidad Autonoma Metropolotana-Xochimilco (UAM-X) and National Institute of Forestry, Agriculture, Fisheries and Livestock Research (INIFAP) have been defined as well along with four NGOs to test CLCA options. In Algeria, the Technical Institute of Field Crops (ITGC) is the coordinating organisation and the National Institute of Agronomic Research of Tunisia (INRAT) in Tunisia. No concerns were raised about local partners in the MTE survey.

103. **Annual workplan and budgeting are generally on time.** The proposal noted the project's progress will be monitored by a Steering Committee (SC), which will meet once a year. The SC consists of ICARDA and CIMMYT representatives, as well as National Coordinators and representatives from farmers' organisation and other key stakeholders in the participating countries. Technical coordination meetings are taking place every year with national partners and organized separately by ICARDA and CIMMYT, for NA and LAC, respectively. Intensive online consultations and exchanges continue. The 2nd year annual report noted there have been no major deviations between what has been planned in the AWPB and the implementation in the fields in North Africa with more achievement than that planned. Progress has been slower in LAC.

104. **No issues with financial management were reported.** The proposal noted semi-annual unaudited financial reports (SOEs) will be submitted to IFAD within 45 days of the end of the reporting period. A project-specific audit report will be submitted to IFAD following prior agreement to an audit TOR. The MTE understands these actions are being conducted on a timely basis.

105. **M&E systems is tracking output level progress**. The Project agreement indicated the Recipient shall develop a flexible M&E system to track project progress, performance, and results. This has been conducted. The logical framework from the proposal has formed the basis for the M&E plan, with associated performance and impact indicators. The plan maps project outputs and outcomes into the strategic frameworks of ICARDA, CGIAR, and IFAD. The MTE assessment of framework was provided earlier in the report.

Overall, the MTE rates efficiency as moderately satisfactory (4) based on the timeliness of implementation, and reasonable disbursement. Project governance appears sound, along

with a reasonable cost per beneficiary. Changes in the implementation countries has resulted in the project being implemented at a slower rate than planned in the LAC region and COVID has curtailed efficiency in 2020.

A4. Rural poverty impact

(i) Alleviating poverty

106. **CLCA may have some poverty impacts, although they are not being captured in project impact assessment**. The Proposal states the focus the grant project will contribute to the objective "promote innovative, pro-poor approaches and technologies with the potential to be scaled up for greater impact" of the IFAD Grant Policy and the CGIAR Strategic Framework to 2022 [17] which aims to move 30 million people out of poverty, of which 50% are women. IFAD's mandate defines its target group as rural people living in poverty and experiencing food insecurity in developing countries. Within this broad group, IFAD strives proactively to reach the extremely poor people[18] using geographic targeting and other methods included in their targeting checklist for project design.[19] The MTE has rated the CLCA design against the checklist criteria in the following table. Poverty alleviation impacts of CLCA adoption have had some attention in design.

Table 5: IFAD social inclusion checklist and MTE assessment of alignment

Targeting checklist	MTE assessment in design
Does the main target group – those expected to benefit most – correspond to IFAD's target group as defined by the targeting policy (poorer households and food insecure)	Limited description of small holder farmers in north Africa and LAC. Many small holder farmers are poor
Have target subgroups been identified and described according to their diverse socio- economic characteristics, assets and livelihoods – and with attention to gender and youth differences (matrix on target group characteristics completed)	There is no economic characteristics, assets and livelihoods described in annual reporting, however, farm trade-off models explore these aspects
Is evidence provided of interest in and likely uptake of proposed activities by identified target subgroups? What is the evidence (matrix on analysis of project components and activities by principal beneficiary groups completed)?	The MTE stakeholder survey found a level of interest and evidence of up-take is documented in annual reporting
Does the design document describe a feasible and operational targeting strategy in line with the targeting policy and involving some or all of the following measures and methods?	
-Geographical targeting – based on poverty data or proxy indicators to identify, for area-based projects, geographical areas (and within these, communities) with a high concentration of poor people	Some, the regions targeted were described in the proposals as having poor farmers
-Direct targeting – when services or resources are to be channelled to specific individuals or household	No
-Self-targeting – when goods and services respond to the priority needs, resource endowments and livelihood strategies of targeting	Limited. CLCA is noted as being of assistance to resource poor farmers, and economic models are assessing income and cost implications of adoption.

[17] https://www.cgiar.org/progress-towards-strategy-results-framework-goals-evidence-2017/

[18] https://www.ifad.org/documents/38714170/39135645/poverty_e.pdf/d2c23922-2816-4675-8f82-ccf913bb08cd

[19] IFAD. 2017. Poverty targeting, gender equality and empowerment during project design https://www.ifad.org/documents/38714170/41240300/How+to+do+note+Poverty+targenting%2C+gender+equality+and+empowerment+during+project+design.pdf/0171dde5-e157-4a6a-8e00-a2cafaa0e314

-Empowering measures – including information and communication, focused capacity- and confidence-building measures and organizational support to empower and encourage more-active participation and inclusion in planning and decision-making by people who traditionally have less voice and power	Yes, there is focused capacity building, which include farmers field days
- Enabling measures – to strengthen stakeholders' and partners' attitudes and commitment to poverty targeting, gender equality and women's empowerment, including policy dialogue, awareness-raising, and capacity-building	Some discussion of women led farms, digital capacity development.
-Procedural and operational - appropriate project management arrangements, staffing, selection of implementation partners and service providers	No
Monitoring targeting performance. Does the design document specify that targeting performance will be monitored using participatory M&E and assessed at mid-term review? Does the M&E framework allow for collection and analysis of sex-disaggregated data, and are there gender-sensitive indicators against which to monitor/evaluate outputs, outcomes, and impacts	Limited. Participatory M&E is described in the proposal. Indicators are not capturing beneficiaries by poverty status

107. CGIAR framework documentation includes several CGIAR studies in which the poverty impacts of agricultural research have been documented. For example, the adoption of improved rice varieties in Africa between 2000 and 2014 resulted in the average income from rice increasing from US$ 25 per capita to US$ 58 per capita. An estimated 8 million people were estimated to be lifted out of poverty. (Reported by the RICE CRP[20]). Gains in cassava productivity in Nigeria were associated with a reduction in poverty (below US$ 1.25 per person per day) by an estimated 4.7 percentage points, implying that 8.4% of Nigeria's rural poor cassava producers (1.8 million people) escaped poverty in 2015/16. (Reported by RTB/IITA)[21] Given CLCA is collecting farm socio-economic data as part of modelling and other studies, it would be relatively straightforward to conduct similar poverty impact analyses for the project.

(ii) Human and social capital and empowerment

108. **High numbers of participants at CLCA meetings, field days, workshops, and training events**. The proposal notes that the training and adoption of technologies and practices for CLCA systems will reach an additional 20,000 small crop-livestock farmers. Other beneficiaries will be NARES (National Agricultural Research and Extension Services) and R&D partners and policy makers. The capacity development benefits for the poor are not explicitly being assessed in the CLCA MEL system (eg. no participation by poverty status reported) however farmers from resource poor settings have expressed satisfaction with the training. Many respondents in the MTE stakeholder survey found training to be practical, new ideas were presented and farmer-to-farmer exchange was useful.

[20] A. Arouna et al., "Contribution of Improved Rice Varieties to Poverty Reduction and Food Security in Sub-Saharan Africa," Global Food Security, Food Security Governance in Latin America, 14 (September 1, 2017): 54–60, https://doi.org/10.1016/j.gfs.2017.03.001

[21] Wossen et al., "The Cassava Monitoring Survey in Nigeria Final Report"; Standing Panel on Impact Assessment (SPIA), "What Is the True Impact of Improved Cassava Varieties in Nigeria?

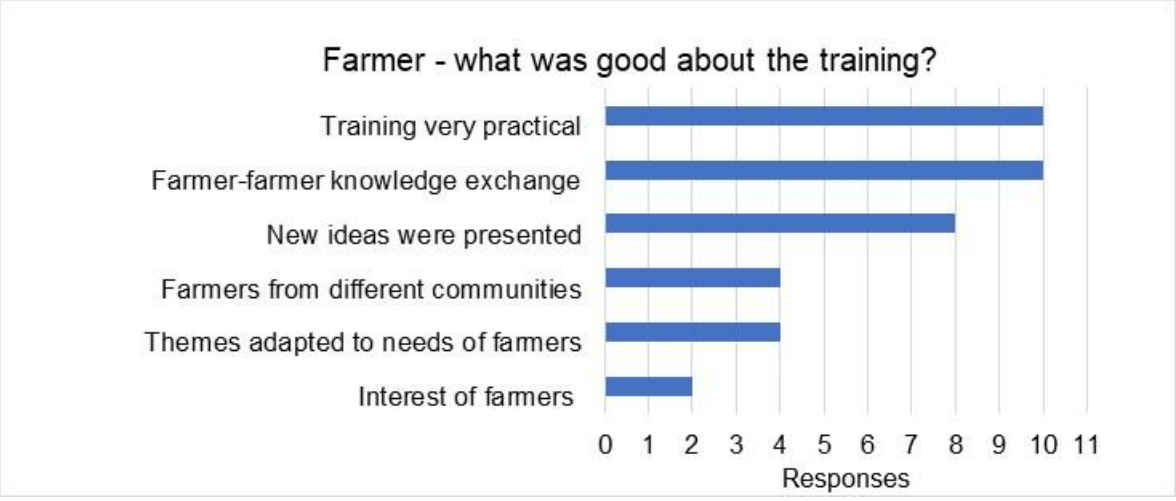

Figure 9: LAC and NEN farmer perceived good aspects of CLCA training

Source: MTE stakeholder survey, April 2021

(iii) Food security and agricultural productivity

109. **Food security is being considered in farm modelling and CA recommendation packaging**. Farm diversity and food security is being modelled using the FarmDESIGN tool. The model assesses food self-sufficiency as the number of persons that one Ha of land satisfies using their kcal needs per year. Modelling has been conducted for Mixteca Alta in Oaxaca Mexico, where diversity was characterized by agricultural production for self-consumption. Socioeconomic research in North Africa is aiming to create and share knowledge on the applicability of CA to support food security, enhance food production and to prevent land degradation in the agroecosystems selected by the CLCA project in both Tunisia and Algeria. In North African countries this also includes bioeconomic modelling using FarmDESIGN model in sheep-cereal farm types across Zaghouan – Tunisia, and Setif & Oum Bouaghi – Algeria.

(iv) Institutions and policies

110. The project includes developing a framework for effective services delivery, including rural advisory, extension systems and service provision for machinery, agronomic and livestock services. This involves developing an understanding of the constraints in the adoption process. Opinions of farmers regarding the technology transfer process were sourced from 20 farmers in Tunisia, and from 115 crop-livestock farmers in M'Sila, Setif, and Oum El Bouaghi. An innovation systems diagnostic analysis has been conducted for Oaxaca, Mexico which includes identifying organizational and structural gaps on strategic innovation areas that are limited by weak linkages among stakeholders and between sectors. The role of poverty in hindering technology transfer and addressing these bottlenecks needs to be outlined from these studies.

111. **In summary, there is potential rural poverty impact from the project, but its magnitude is unclear. Poverty impact is rated moderately satisfactory (4).** Poverty reduction from CLCA is not being measured, although farm modelling and economic studies could be used for such analyses. The rural poor have had some consideration in project design, although the poverty impacts from CLCA adoption could be derived from project socio-economic research studies.

A5. Sustainability of benefits

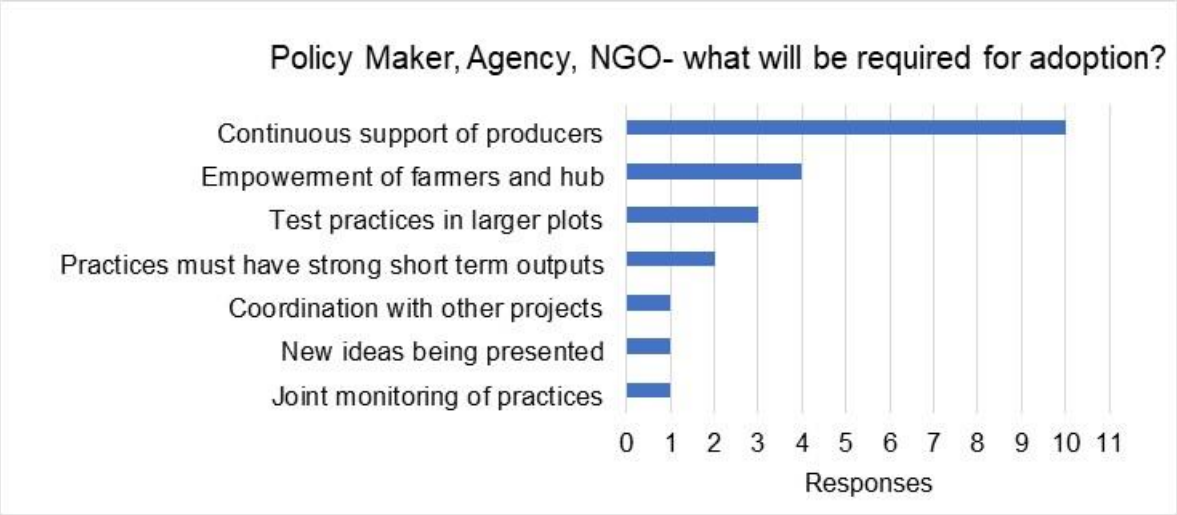

Figure 10: LAC and NEN farmer perceived 'good' aspects of CLCA training

Source: MTE stakeholder survey, April 2021

112. **There is potential for substantial outcomes and longer-term impacts**. The first CLCA project review noted the opportunity for 'up-scaling' an integrated livestock crop production system was extremely significant by citing evidence from field stations and on-farm demonstration sites relating to ZT (earlier seeding, reduced time, fuel, seed and irrigated water savings) seeders and CLCA systems. Further quantification of the benefits of such a system (including total on-farm profitability) was recommended which has been done in the current CLCA project. The potential for sustainable benefits is being enhanced though private sector engagement to distribute seeds and machinery after the project implementation period is completed, along with the establishment of innovation hubs.

113. The number of adopting farmers is already significant and the numbers reached have exceeded CLCA project targets. Scaling road maps have been prepared for NEN countries to further longer term CLCA output adoption. There are some bottlenecks that require consideration. The Tunisia[22] scaling road map indicated there are some concerns about governance. The plan noted that CLCA technology is not included within in the remit or strategies of the Ministry of Agriculture, but in the strategy of public institutions. This hinders the availability of no till seeders and quality forage seed production. These constraints, along with limited coordination at the local level by regional institutions, need to be addressed

114. The Algeria scaling road map indicated that there are pockets of awareness among farmers and extension staff about decreasing yields caused by poor soil fertility and inadequate soil management. The map indicated Setif farmers are aware, however, in Msila awareness is just being developed. Farmers in OumElBouaghi were found to have no knowledge about CA. Awareness needs to be created across a greater number of regions, along with addressing constraints such as availability of forage seeds and direct seeders. Imported seeders are expensive and lower cost local models are not extensively produced. Development agencies and NGOs what asked what needed to be done to ensure adoption of

[22] Hatem Cheikh M'hamed. (26/4/2019). Scaling Road Map -Tunisia.

CLCA outputs as part of the MTE survey. They indicated continuous support of producers is needed, along with empowerment of hubs.

115. **Overall, sustainability of benefits is rated satisfactory (5).** This is due to the level of adoption of CLCA at midterm (600 farmers) and establishment of scaling hubs and PPPs. Scaling road maps suggest further scale up would be supported by improving availability of availability and cost of no till seeders and quality forage seed production.

B. Other performance criteria

B1. Innovation

116. **PPPs in Tunisia between public research and a private seed company.** The National Institute of Agronomic Research of Tunisia – INRAT and COTUGRAIN, a private seeds company have formed an innovative PPP with CLCA support to overcome the absence of a formal forage seed system in the country. Forage mixtures based on different proportions of Vetch-Oat, Vetch-Triticale, Meslin have been formulated and are commercialized by COTUGRAIN. More than twenty (20) multiplicator contracts were established over an area of 300 ha in the different target sites of CLCA Project. A machinery PPP has also been developed in Algeria.

117. **CLCA has a limited footprint in the scientific literature**. The CLCA annual report noted that farmer participatory development and extension (through on-farm demonstrations), farmer engagement at open days and field days have been the major method for knowledge dissemination. A range of extension publications and information sheets have been prepared to support these activities. Only limited publication has occurred in the peer reviewed literature. Papers include a prospective paper about long-term CA scope and impact in Tunisia. More effort is needed given ICRADA and CIMMYT are international research agencies. **For these reasons, innovation in CLCA is rated as moderately satisfactory (4)**

B2. Scaling up

118. **Innovation hubs have been established**. As noted in the sustainability section of the MTE, PPPs and innovation hubs have been established to help promote longer term benefits and scale-up. The second CLCA project builds on piloted technologies and practices for CLCA systems developed under the first CLCA project in Algeria and Tunisia. CLCA packages were identified for these countries and potential opportunities for scale-up identified. These opportunities have been included in the second CLCA project. The need to develop a range of models for machinery ownership, syndication and contracting services for small-scale farmers was identified as a key activity in any follow-on CLCA efforts to ensure wide scale adoption. These considerations were reflected in the second CLCA project design and activities have been conducted to address these issues. They include PPPs for seeds and machinery associated with CLCA.

119. The first CLCA project included an adoption survey which was used to describe the key characteristics and attributes of the targeted farming population, local farming systems and adoption characteristics of the research audience. The second project has further extension research by identifying farmers perceptions about approaches for technology transfer in their regions (such as field schools, trainings, experiments). Farmers preferences for these approaches are being used to prioritize some of the knowledge management

activities. Knowledge hubs have been designed to adapt, expand, and support successful practices, models and knowledge, so that they can leverage resources and partners to deliver larger results for a greater number of rural poor in a sustainable way.

120. The total area directly influenced by the CLCA project in hubs, through demonstration plots and field trials is around 1,750 ha. In Mexico, the best fit framework has been applied to analyse rural advisory services provision for crops and livestock systems in Mexico. Results of this research is being used to tailor extension strategies to maximise scale-up in this region. Modelling efforts are on-going to define optimal CLCA strategies using FARM design program and extended cost-benefit analysis have been prepared. The project also has long term sites in North Africa which could be used in combination with longitudinal surveys to assess the long-term farm economic benefits from CLCA adoption.

121. CLCA has been working with IFAD investment project partners and government institutions to open pathways for adoption by a greater number of smallholder farmers in North Africa, however, interaction with IFAD project teams in LAC has been limited. The range of partners in the grantee consortium has helped support scaling up.

122. **Partnerships have been developed, with innovate associations and private sector players.** The CLCA project proposal noted activities would be implemented to expand the grantee partnership to a broader consortium of research and rural development partners The second year of CLCA project was successful in engaging with national public and private partners. In Tunisia, the National Institute of Agronomic Research of Tunisia – INRAT (CLCA Project coordinating institution) has engaged with COTUGRAIN, a private seeds' production and commercialization company. A prototype of a "mobile seed cleaning and treatment unit" is being developed in Tunisia to be manufactured at low cost.

123. In Algeria, the Technical Institute of Field Crops – ITGC (CLCA project coordinating institution) signed an agreement with the National Company of Agricultural Equipment Production & Trading to promote zero-tillage seeders. Partnerships are also being formed in the country with the Cereal and Seed Producers Association – Prodec, the Irrigators association, the Agricultural Service and Supply Cooperative of Setif – CASAP, the Interprofessional Council of Agricultural Sector- CWIF, and the Cereals/Legumes Interprofessional Council. PROINPA has engaged with farmers, farmers organization and local authorities in Bolivia and the project is collaborating with the Department of Crop and Animal Production of the Universidad Autonoma Metropolotana Xochimilco (UAM X) in Mexico. **Potential for scale-up of CLCA outputs is rated as satisfactory (5)**

B3. Gender equality and youth

124. **Gender and youth issues have been considered in design, but more needs to be done to meet gender targets**. The direct target group of CLCA is 3,000 (at least 50% women and 30% youth (below 35 years)) small crop-livestock farmers. The proposal noted that CLCA will prioritize efforts to identify the constraints undermining women's decision-making power and CLCA adoption. Likewise, efforts will be made to identify constraints for youth involvement and support activities for youth engagement in CLCA systems. At mid-term, the percentage of women adopting CLCA as a percentage of all adopting farmers remains below 10%, which is below the project target. The youth proportion of adoption is around 19%, which is reasonable.

More needs to be done to improve female participation in CLCA activities and adoption of CLCA.

125. The MTE has assessed the CLCA project against IFADs gender inclusion checklist. Results are presented in the following table. Although the project is collecting gender disaggregated data, more can be done to support women's active participation in project-related activities, decision-making bodies, and committees. Such an area is more support for knowledge hubs around women centred agro-industries. Efforts have been made to support cheese making in Algeria for a group of 30 women, phones have been provided to 150 women farmers in collaboration with the CGIAR Gender Platform and a knowledge hub in Northwest of Tunisia is supporting quality feed production. More of these initiatives are needed.

126. More analysis should be provided as to how gender targets have been developed. The socio-economic profile of agriculture, along with women's decision-making roles in the household and community vary in NEN and LAC. Targets could be specified for each region following country-level analysis of gender differences in the activities or sectors concerned. Limited details are provided in project annual reporting about how CLCA is ensuring that project management arrangements (composition of the PCU/PMU, project TORs of staff and implementing partners, etc.) reflect attention to gender equality and women's empowerment concerns.

Table 6: IFAD gender checklist and MTE assessment of alignment

Targeting checklist[23]	MTE assessment in design
The PDR contains – and project implementation is based on – gender-disaggregated poverty data and an analysis of gender differences in the activities or sectors concerned, as well as an analysis of each project activity from a gender perspective to address any unintentional barriers to women's participation	The project is collecting gender-disaggregated data for capacity development and adopting farmers. It is not linked to poverty data, with limited analysis of gender differences in the activities
Expand women's economic empowerment through access to and control over productive and household assets	Farm profiles developed for economic and trade-off modelling. Not clear how gender data will be used.
Strengthen women's decision-making roles in the household and community and their representation in the membership and leadership of local institutions	Some. Women centred hub and distribution of cell phones to poor women
Achieve a reduced workload and an equitable workload balance between women and men	Not assessed
The PDR includes one paragraph in the targeting section that explains what the project will deliver from a gender perspective	Yes, broad statement included that strategies will be used to integrated women from both women headed households
It describes key elements in operationalizing the gender strategy with respect to the relevant project components	Some. Women mentioned in fine tuning residue strategies, amongst other components
Allocating adequate human and financial resources to implement the gender strategy	No budget described
Ensuring and supporting women's active participation in project-related activities, decision-making bodies and committees, including setting specific targets for participation	Targets included, but more detail about women supported activities needed

23 https://www.ifad.org/documents/38714170/41240300/How+to+do+note+Poverty+targenting%2C+gender+equality+and+empowerment+during+project+design.pdf/0171dde5-e157-4a6a-8e00-a2cafaa0e314

Ensuring that project management arrangements (composition of the PCU/PMU, project TORs of staff and implementing partners, etc.) reflect attention to gender equality and women's empowerment concerns	Not clear
Ensuring direct project outreach to women (for example through appropriate numbers and qualification of field staff), especially where women's mobility is limited	Adoption targets included
Identifying opportunities to support strategic partnerships with government and other development organizations for networking and policy dialogue	Not clear
The project's logframe, M&E, MIS and learning systems specify in design – and the project M&E unit collects, analyses and interprets – sex- and age-disaggregated performance and impact data, including specific indicators for gender equality and women's empowerment	Yes, sex- -disaggregated data is being collected

127. **In summary**, **gender equality and women's empowerment are rated moderately unsatisfactory (3).** The project includes gender focussed activities and gender-related training and adoption targets. At mid-term less than 10% of all adopting farmers are women, which is well below the proposal define target of 40%. Women focussed activities need to be expanded for the reminder of the project and practical approaches to resolve existing obstacles to women's meaningful participation in the project.

B4. Environment and natural resources management

128. Both CLCA projects have conducted a range of agronomy trials including forage trials, weeding management and soil health monitoring (erosion, water retention, WUE). Results have been used to formulate CLCA farmer practice packages, with trial results highlighting the impacts on yields, N use efficiency, and gross margins. In Mexico runoff and erosion are problems, so trials have been undertaken to examine the impact of minimum tillage and soil cover, relay cropping, living barriers and controlled grazing on erosion, especially during strong rainfall events. An erosion model has been calibrated to assess erosion of different land uses in a watershed of the Mixteca Alta. There are limited data which demonstrate the environment and natural resources management benefits of CLCA. The project should develop scientific papers, possibly by engaging an international expert in soil engineering to publish the results of the CLCA projects unique database.

129. **In summary**, **CLCA contribution to environment and natural resources management is rated as satisfactory (4 score).** This rating reflects the large amount of trial data that has been assembled. The data needs to be included in scientific publications.

B5. Adaptation to climate change

130. **Efforts are being made to raise awareness on climate change adaptation.** CLCA has conducted trials examining differences in water use efficiency between CA and conventional cropping. Farmer resilience to climate change is being supported by farmer extension and messaging. The annual CLCA project report noted messages are being sent and 50 one-minute radio spots developed to help farmers cope with climate change and adapt their practices in a more resilient way. Gender sensitization, climate-smart agriculture, and nutrition topics are being delivered in LAC country programs (i.e., MasAgro). **In summary, adaptation to climate change is rated as moderately satisfactory (4).**

C. Overall project mid-term achievement

131. **Overall, CLCA is demonstrating satisfactory achievement at mid-term.** The project design remains relevant at mid-term as it is aligned with national priorities, as well as IFAD policies, although country selection could have considered broader socio-economic factors. The lessons of the first CLCA project have been used, which included farmer nomination of CLCA priorities. The CLCA project is judged to be effective at midterm as assessed by achievement of planned outputs and outcomes (measured by milestones). The target of 3,000 smallholder farmers being reached has been achieved and 2,100 having directly adopted CLCA farming systems should be attained. The proportion of women beneficiaries are below target, although youth participation is reasonable. Efficiency has been impacted by country changes and COVID but is reasonable.

D. Performance of partners

IFAD

132. **Performance of IFAD is rated as satisfactory**. IFAD support to PMU is reasonable. Nevertheless, communication with IFAD loan projects is slow and this has not facilitated alignment of the project activities with those of the IFAD large loans.

ICARDA and CIMMYT

133. **Performance of ICARDA and CIMMYT are rated as satisfactory**. AWPBs have been prepared on time, although fund disbursement was impacted by country changes ICARDA is submitting semi-annual unaudited financial reports (SOEs) to IFAD within 45 days of the end of the reporting period. They disclose both IFAD funds and any co-financing funds, and consolidate expenditures incurred by sub-grantees. A low relatively low spending rate from CIMMYT has been evident in LAC, which can be solved to a great extent if the request of budget realignment by CIMMY is quickly approved.

IV. Conclusions and recommendations

A. Conclusions

134. Based on MTE ratings of project performance based on relevance, effectiveness, efficiency, sustainability of benefits, rural poverty impact, gender, innovation, scaling up, environment and natural resources management, and adaptation to climate change criteria - CLCA is assessed to be moderately satisfactory at midterm

Table 7: MTE assessment of evaluation criterion

Criteria [a]	MTE Rating	Score
Rural poverty impact	Moderately satisfactory	4
Project performance		
Relevance	Satisfactory	5
Effectiveness	Satisfactory	5
Efficiency	Moderately satisfactory	4

Sustainability of benefits	Satisfactory	5
Project performance [b]	Satisfactory	5
Other performance criteria		
Gender equality	Moderately unsatisfactory	3
Innovation	Moderately satisfactory	4
Scaling up	Satisfactory	5
Environment and natural resources management	Moderately satisfactory	4
Adaptation to climate change	Moderately satisfactory	4
Overall project achievement [c]	Moderately satisfactory	4

a Rating scale: 1 = highly unsatisfactory; 2 = unsatisfactory; 3 = moderately unsatisfactory; 4 = moderately satisfactory; 5 = satisfactory; 6 = highly satisfactory.
b Average of ratings for relevance, effectiveness, efficiency, and sustainability of benefits
c Overarching MTE assessment of project performance at mid-term, based on the rating for relevance, effectiveness, efficiency, sustainability of benefits, rural poverty impact, gender, innovation, scaling up, environment and natural resources management, and adaptation to climate change.

B. Recommendations

135. **Key recommendations are provided below for consideration for the CLCA team, partners, and IFAD.** Mid-term evaluation (MTE) recommendations are primarily designed for the remaining period of CLCA implementation and any follow-on projects. They are drawn from the MTE stakeholder survey and discussions with the CLCA project team.

136. The first graph presents farmer suggestions about the focus of CLCA activities for the remaining implementation period. Expanding the planting area and including more producers were key recommendations. Creating farmer incentives and advocating to include government agencies or programs were also frequently nominated priority actions. Agencies, policy makers and NGOs were also asked about what could be done to maximise CLCA impact. Looking for other entities to expand project reach, creating hubs for scale-up and expanding planting areas were also frequent responses.

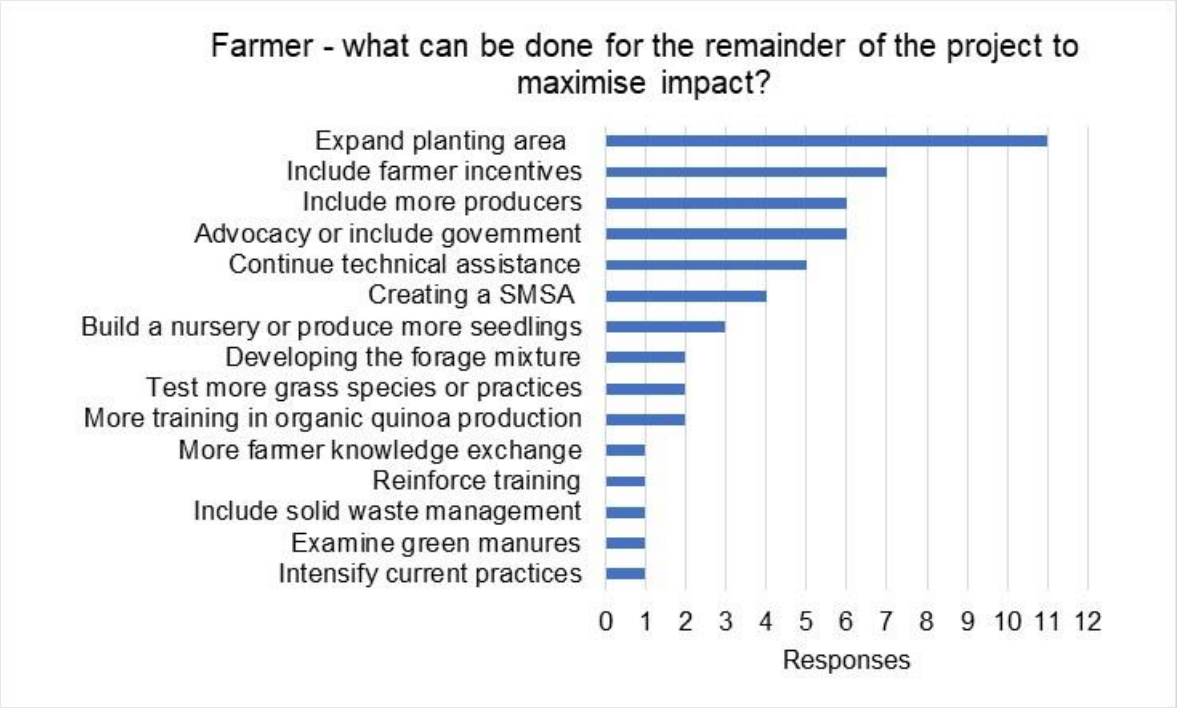

Figure 11: LAC and NEN farmer nominated focus for remainder of CLCA project

Source: MTE stakeholder survey, April 2021

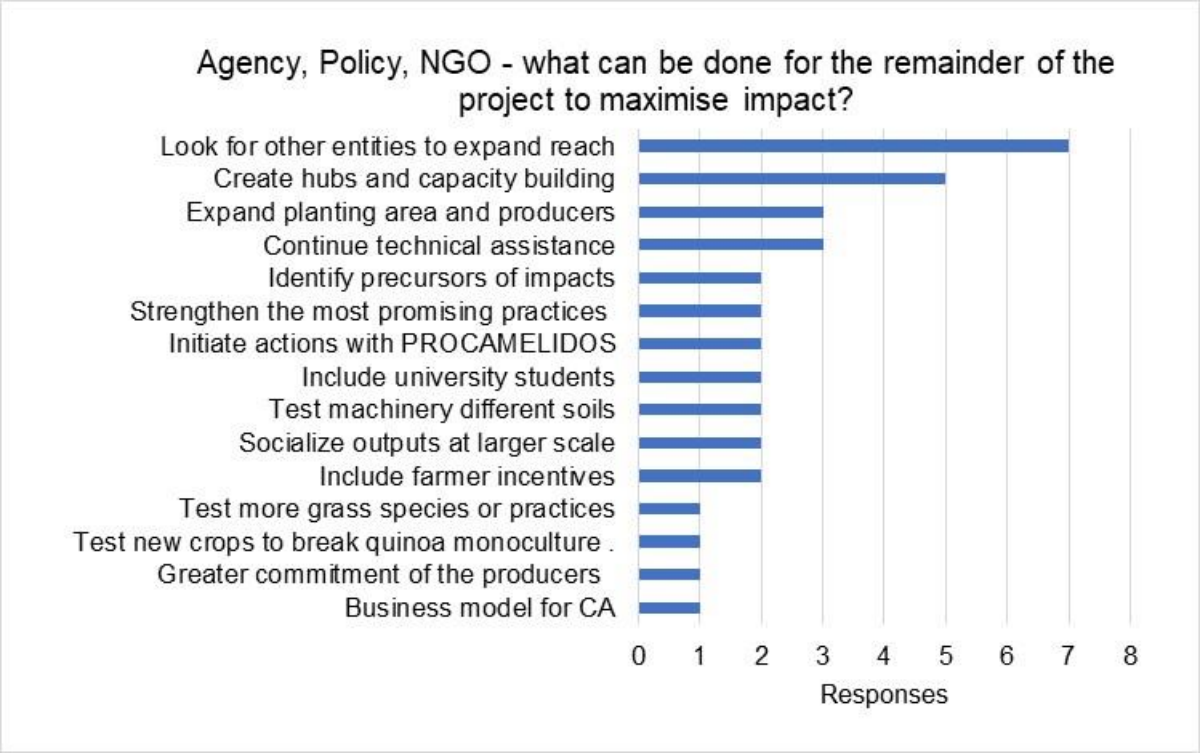

Figure 12: LAC and NEN agency, NGO and policy maker nominated focus for remainder of CLCA project

Source: MTE stakeholder survey, April 2021

137. **Recommendation 1: Advocate with local and government authorities for farmer access to subsidies and resources to support scale-up**. Based on stakeholder feedback, a key priority for CLCA remaining implementation should be to advocate with local and government authorities for farmer access to subsidies and resources to support scale-up. The project completion report for the first CLCA project24 noted the project had created a high level of awareness and enthusiasm amongst farmers about adopting CA and should they have access to affordable ZT machinery, either purchased outright or hired through local contractors, it is likely that there will be high levels of CA adoption. The report indicated farmers would be prepared to pay in the order of $6-12,000 US for such equipment. Business cases have been prepared for seeders in the second CLCA project, however, it is not clear farmer access to subsidised machinery has been made easier. The Tunisia25 scaling road map noted that CLCA technology is not included within in the remit or strategies of the Ministry of Agriculture, but in the strategy of public institutions. This hinders the availability of no till seeders and quality forage seed production. Advocacy should be undertaken to include CLCA machinery and practice adoption in Ministry of Agriculture strategy and provide pathways for farmer access to subsidies.

138. **Recommendation 2: Investment cases are required for public-private partnerships**. The issue of machinery availability at affordable prices remains a significant barrier to the uptake of the ZT seeding system amongst farmers. Business cases have been developed for individual local community group ownership and the encouragement of local contractors to provide ZT sowing services to smaller farmers and a range of other PPPS have been developed. Similar business planning is needed for seed producers, grinders, pellet machines and seedlings for wind break business cases in LAC and North Africa. Developing a range of models for ownership, syndication and contracting services for small-scale farmers needs to be developed to ensure wide scale adoption.

139. **Recommendation 3: Project savings in North Africa should be prioritised for knowledge hubs**. Many farmers and NGOs who provided feedback to the stakeholder survey indicated more farmers and innovation hubs should be engaged by the project. Hubs provide farmers with an understanding of the key scientific principles associated CA, while cooperative actions improve farmer capacity to afford the technology or practice. Already hubs have resulted in CLCA adoption and access to CLCA technologies through better coordination of knowledge generation and establishment of a critical mass of farmers required for self-sustained scaling. CIMMYT has been operating a long term public funded program in Mexico, MasAgro, for the last 9 years where an innovation model was implemented successfully. These efforts need to be a focus for the reminder of the project. Any expansion in hubs should focus on improving women participation in farming and processing industries given the CLCA project is well below gender participation targets.

140. **Recommendation 4: Publish long term results from CLCA and CLCA2 datasets**. The previous CLCA projected generate site specific CLCA packages, despite there being only two full crop seasons in the project. These studies have continued in the current CLCA project using several of the same sites. Correspondingly, the two CLCA projects have generated unique long-term databases associated with experimental CA work. Given the longer-term productivity impacts of CA, there is the need to mine these datasets to track longer term

[24] Cummins, J. 2016. Grant Number: IFAD GRANT # I-R-1393-ICARDA Project Completion Review Mission Report, January 2016

[25] Hatem Cheikh M'hamed. (26/4/2019). Scaling Road Map -Tunisia.

agricultural productivity and resource benefits, given elements of CLCA impact such as changes in soil structural and organic properties may take more than five years, along with associated changes in crop and livestock yields, weed pressures (herbicide resistance) and incidence of crop diseases. These investigations should be published in the literature.

141. **Recommendation 5: Undertake synthesis of lessons learned and longitudinal surveys of farmer behaviour and farm economic performance**. A great deal of effort has gone into baseline surveys of farmer practices and productivity. Farm impacts from CLCA adoption will take time to fully impact farm incomes. It is important to obtain follow up data to assess the impact and change in farmer behaviour and farm business economic performance over more than five years. This could be undertaken be conducting longitudinal surveys, incorporating retrospective data from the first CLCA project. The tracking of economic (farm costs and gross margins) and technical (forage, crop, and livestock productivity) performance of conventional and CLCA managed sites will provide evidence that can be used to demonstrate CA practice adoption benefits across the targeted areas. Such a study could be used to validate economic modelling studies, which tend to be ex-ante in nature. Very few studies appear to use real world data which CLCA1 and CLCA2 projects have generated.

142. **Recommendation 6: Improve the articulation of environmental benefits.** Experimental work has included forage and cropping trials, testing weed and pest management approaches and soil health monitoring (erosion, water retention, WUE) in Algeria and Tunisia. Similarly in LAC, farm level data has been collected for trade-off modelling parametrization and application of the MESMIS framework for sustainability evaluation. These findings provide evidence of the positive impact of CLCA on broader natural resource management considerations. The results have been used for FarmDESIGN modelling which considers soil organic matter impacts of CA and for spatially explicit Extended Cost Benefit analysis (ECBA) of CA adoption which has been conducted in Zaghouan in Tunisia. The environmental benefits from trials and simulation work need to be published in the peer review literature. The 2nd year annual report noted that a study was published that shows how CA based on zero tillage and soil residue retention make wheat production more resilient to climate change in Tunisia through. More evidence is needed and specialist input from soil science engineers could be sought to better define environmental benefits.

143. **Recommendation 7: Increase focus on gender equality and women empowerment**. The CLCA project target farmer group is 3,000 smallholder farmers with at least 40% being women and 20% youth below 35 years. Gender-disaggregated indicators have been collected for trainings and farmer adoption. Nearly 20% of adopting farmers are below 35 years of age, however less than 10% are women. There is a need to increase the number of activities targeting women farmers, such as women centred knowledge hubs. An improved understanding of how women participate in small mixed farming systems of North Africa and LAC are needed, along with a better understanding of attitudes towards women's role in agriculture in these regions and how CLCA may improve women empowerment is needed. The socio-economic situation of women varies in North Africa and LAC, so differential gender targets that are informed by agricultural system analysis should be included in future CLCA projects.

144. **Recommendation 8: Better align project design with logical framework and use consolidated list of indicators**. The M&E plan was developed using the logical framework developed in the proposal, which presented CLCA specified impact, objectives, outputs,

activities, and assumptions. The alignment of objectives with project design is not coherent and some of the indicators are difficult to measure and are duplicative. Good practice in MEL development26 is that indicators are clear (precise and unambiguous), relevant (appropriate to the subject at hand), economic (can be collected at appropriate cost), adequate (sufficient to assess performance), and monitorable (can be independently validated). (Schiavo-Campo 1999, p. 85).27 Many of the CLCA indicators do not meet these criteria.

145. **(a) For any future CLCA projects.** Outcomes should be defined around the CLCA adoption problem or need the project is intending to address. For example, if the key obstacles related to low CA adoption are lack of evidence, non-affordable price for machines, lack of proven service delivery models, etc., then outcomes should be specified as 1-2 sentences that summarize the change the project intendeds to deliver to address these considerations. Outputs should then be specified in terms of deliverables during implementation to support changes in these outcomes. eg. evidence on key research questions, scale-up conditions created, numbers trained, or awareness generated. The current project theory of change appears to reflect internal project considerations, rather than broader information gaps or adoption constraints in NEN and LAC conservation agriculture that need to be addressed.

146. **(b) For the current project**. The proposal log frame links outcomes to outputs, includes very large numbers of assumptions and multiple indicators per output. Given the nature of the project, specific outcomes should have been specified for the research component in LAC and scale up activities in NEN. The MTE recommends (i) outcome yield gap indicators for outputs be omitted (ii) duplicative indicators be removed (iii) descriptions of log frame elements be condensed and better defined where possible (iv) adoption targets be specified for LAC and NEN farmers and (iv) simple poverty impact analysis be included in project reporting.

147. **Recommendation 9: Improve the assessment of poverty impacts.** Investing in vulnerable rural people is central to IFAD's mandate. Poverty has received limited attention in CLCA project reporting, and no formal measurement of poverty impact is included in the MEL. A great deal of work has been undertaken in CLCA characterising the socio-economic profile of farmers in implementation areas and farm level models have been developed to undertake multi criteria analysis of different CA options. There is an opportunity to report the poverty impact of CLCA adoption which will help IFAD and CGIAR researchers to reinforce dialogue with policy makers on CLCAs impact (and agricultural research more broadly) on reducing rural poverty.

148. **Recommendation 10: IFAD, the CGIAR and other donors should continue to support CA through follow-up projects**. The resilience of farmers to climate change and need to sustainably manage soil and water resources are on-going priorities for agriculture and IFAD. IFAD's Strategic Framework 2016-2025[28] sets out how the fund will contribute to the 2030 Agenda, including its support for the development, dissemination and uptake of improved agricultural technologies and practices that raise the productivity, sustainability, and resilience of smallholder production systems. Interventions will focus on addressing resource degradation, pollution, loss of habitat and biodiversity, and natural hazards. Furthering CLCA

[26] http://documents1.worldbank.org/curated/en/638011468766181874/pdf/296720PAPER0100steps.pdf
[27] Schiavo-Campo, Salvatore. 1999. "'Performance' in the Public Sector." Asian Journal of Political Science 7(2): 75–87
[28] https://www.ifad.org/documents/38714170/39132730/IFAD+Strategic+Framework+2016-2025/d43eed79-c827-4ae8-b043-09e65977e22d

development and adoption is in line with these priorities. The CLCA projects have defined CA packages and innovative PPPs to support scaling of practices to counter resource degradation. Follow-on projects should be supported, particularly focussing on public-private partnerships and institutional strengthening of innovative farmer and industry led hub models

Annexes

I. Basic project data

			Approval *(US$ m)*	
Region	NEM and LAC	Total project costs	US$ 3,000,000	
Country	Algeria Bolivia Mexico Tunisia	IFAD grant and percentage of total	US$ 2,500,000	83%
Type of project (subsector)	Grant	Cofinancier 1 (National partners)	US$ 500,000	17%

II. Definition and rating of the evaluation criteria

Criteria	*Definition* *	*Mandatory*	*To be rated*
Rural poverty impact	Impact is defined as the changes that have occurred or are expected to occur in the lives of the rural poor (whether positive or negative, direct or indirect, intended or unintended) as a result of development interventions. *Four impact domains* · Household income and net assets: Household income provides a means of assessing the flow of economic benefits accruing to an individual or group, whereas assets relate to a stock of accumulated items of economic value. The analysis must include an assessment of trends in equality over time. · Human and social capital and empowerment: Human and social capital and empowerment include an assessment of the changes that have occurred in the empowerment of individuals, the quality of grass-roots organizations and institutions, the poor's individual and collective capacity, and in particular, the extent to which specific groups such as youth are included or excluded from the development process. · Food security and agricultural productivity: Changes in food security relate to availability, stability, affordability and access to food and stability of access, whereas changes in agricultural productivity are measured in terms of yields; nutrition relates to the nutritional value of food and child malnutrition. · Institutions and policies: The criterion relating to institutions and policies is designed to assess changes in the quality and performance of institutions, policies and the regulatory framework that influence the lives of the poor.	X	Yes No No No
Project performance	Project performance is an average of the ratings for relevance, effectiveness, efficiency and sustainability of benefits.	X	Yes
Relevance	The extent to which the objectives of a development intervention are consistent with beneficiaries' requirements, country needs, institutional priorities and partner and donor policies. It also entails an assessment of project design and coherence in achieving its objectives. An assessment should also be made of whether objectives and design address inequality, for example, by assessing the relevance of targeting strategies adopted.	X	Yes
Effectiveness	The extent to which the development intervention's objectives were achieved, or are expected to be achieved, taking into account their relative importance.	X	Yes
Efficiency	A measure of how economically resources/inputs (funds, expertise, time, etc.) are converted into results.	X	Yes
Sustainability of benefits	The likely continuation of net benefits from a development intervention beyond the phase of external funding support. It also includes an assessment of the likelihood that actual and anticipated results will be resilient to risks beyond the project's life.	X	Yes
Other performance criteria			
Gender equality and women's empowerment	The extent to which IFAD interventions have contributed to better gender equality and women's empowerment, for example, in terms of women's access to and ownership of assets, resources and services; participation in decision making; workload balance and impact on women's incomes, nutrition and livelihoods.	X	Yes
Innovation	The extent to which IFAD development interventions have introduced innovative approaches to rural poverty reduction.	X	Yes
Scaling up	The extent to which IFAD development interventions have been (or are likely to be) scaled up by Government authorities, donor organizations, the private sector and others agencies.	X	Yes
Environment and natural resources management	The extent to which IFAD development interventions contribute to resilient livelihoods and ecosystems. The focus is on the use and management of the natural environment, including natural resources defined as raw materials used for socio-economic and cultural purposes, and ecosystems and biodiversity - with the goods and services they provide.	X	Yes

Annex II

Criteria	*Definition* *	*Mandatory*	*To be rated*
Adaptation to climate change	The contribution of the project to reducing the negative impacts of climate change through dedicated adaptation or risk reduction measures.	X	Yes

Criteria	*Definition* *	*Mandatory*	*To be rated*
Overall project achievement	This provides an overarching assessment of the intervention, drawing upon **achievement** the analysis and ratings for rural poverty impact, relevance, effectiveness, efficiency, sustainability of benefits, gender equality and women's empowerment, innovation, scaling up, as well as environment and natural resources management, and adaptation to climate change.		
Performance of partners			
· IFAD	This criterion assesses the contribution of partners to project design, execution, monitoring and reporting, supervision and implementation support, and evaluation. The performance of each partner will be assessed on an individual basis with a view to the partner's expected role and responsibility in the project life cycle.	X	Yes
· Government		X	Yes

* These definitions build on the Organisation for Economic Co-operation and Development/Development Assistance Committee (OECD/DAC) Glossary of Key Terms in Evaluation and Results-Based Management; the Methodological Framework for Project Evaluation agreed with the Evaluation Committee in September 2003; the first edition of the Evaluation Manual discussed with the Evaluation Committee in December 2008; and further discussions with the Evaluation Committee in November 2010 on IOE's evaluation criteria and key questions

III. Evaluation approach

The mid-evaluation aims to formulate recommendations for the remaining implementation of CLCA based on evidence identified during the evaluation. Recommendations will be formed based on the evaluation criteria: relevance, efficiency, quality of science, effectiveness, impact and sustainability, as required by the ToR and OECD guidelines. Cross cutting issues (i) financial inclusion of rural women and youth; (ii) natural resource management and climate resilience; and (iii) productive agricultural technologies – will also be assessed in the context of the SKiM impact pathway. The mid-term evaluation will employ several tools and approaches to assess project performance and assist with developing mid-term recommendations. The mid-term evaluation will follow the OECD/DAC's evaluation criteria, with the overarching objectives being to:

(i) Appraise the activities and outputs achieved by ICARDA and partners,
(ii) Identify and assess outcomes of the project,
(iii) Identify the enablers and/or constraints to the attainment of project results and lessons learned, and
(iv) Make practical recommendations for corrective action required to achieve the envisioned project results within the remaining period of the project.

Many evaluation questions have been identified during inception which have been formulated to the address the overarching objectives of the evaluation. These questions are contained in the Evaluation Matrix (See ***Annex 1***). They build on those presented in the ToR for the evaluation. Questions are presented within each component of the OECD/DAC's evaluation criteria, with relevance first, followed by effectiveness. Impact and sustainability criteria have been combined and the Matrix includes questions about the cross-cutting themes The Efficiency criterion includes project governance

Some of the tools are listed and discussed here. They include:

- Evaluation Matrix (***Annex 1***)
- Semi-structured and informal interviews (***Annex 3***)
- Governance & Management Assessment
- Organizational Timeline
- Quality of science analysis
- Beneficiary Assessment
- Cost-benefit Analysis

Evaluation Matrix

The Evaluation Matrix (***Annex 1***) will be used to identify the most appropriate and feasible data collection methods for each of the evaluation questions. The matrix has been used to design the interviews, and data extraction tools for project records.

Semi-structured and informal interviews (SSI)

Questionnaires have been prepared during inception for NARS partners (Questionnaire A) and industry/policy makers (Questionnaire B). They are included in ***Annex 3***. Stakeholders were selected for interviews based on level of participation in the project, connectivity, ability

to communicate in English and to reflect the geographic spread and scope of the project. The project team were also interviewed based on questions presented in the Evaluation Matix.

Governance and Management Assessment

Governance and management arrangements will be assessed in terms of efficiency, accountability, transparency, and fairness. It will include an examination of structures, functions, and processes.

Organizational Timeline

The organizational timeline indicates significant events, achievements, setbacks and changes in the history of the project. This tool helps to provide an understanding on the specific contexts of the program.

Quality of Science Analysis

Publications claimed as project outputs will be reviewed. Publication quality control processes, scientists' perceptions of the quality of scientific outputs and the ISI of the journals where papers are published will be examined, and the extent to which papers are open access.

Beneficiary Assessment

Beneficiary Assessment will be used to map stakeholders who benefit from the outputs and outcomes of the SKiM project. This includes gender-sensitive beneficiary assessments focusing on who has (and may) benefited.

Cost-benefit analysis

Cost-benefit evaluation will be undertaken to quantify the impacts of any significant outputs to date, or from future implemented activities.

Due to the inability to travel, it has not been possible to hold face-to-face interviews with SKiM project stakeholders. Interviews will be undertaken remotely which limits the scope for feedback and may pose language limitations. The evaluation will try to overcome these limitations through the selection of informants with connectivity and fluent English, however this may limit the scope of informants who provide input into the evaluation.

Deliverables and timing of the evaluation

The ToR has two deliverables. An additional interim report is included prior to submission of the evaluation report. They include:

- An **Inception Report** which expands on the TORs for the evaluation and includes interview templates, the basis for informant interviewee selection and results of a desk review of project documents. It provides a work plan and outline of the tools that will be used.
- A brief **Interim Report** outlining preliminary findings and possible recommendations for SKiM project team members review. Comments and feedback will be included into the final evaluation report.
- The **Evaluation Repor**t presents all evidence and responses to evaluation crtiteria. It will include an executive summary, evaluation overview, description of evaluation tools, along with conclusions and recommendations. Supporting data and analysis will be annexed to the report

The timeline for outputs is as follows.

Table 8: **Evaluation timeline**

	Dates	Team Leader	MEN and LAC consulting	Activity
		Days	Days	
Commence	18/01/2021	0	0	Signed contract
Inception Phase	7-Jan	1	1	Joint meeting with ICARDA-CIMMYT for overall brainstorming and start-up of desk review. Each team to provide a small presentation on the status of the project.
	8-Jan	3	0	Preparatory Desktop Review
	8-Feb	3	0	Inception report drafting
	20-Feb	1	0	Draft Inception Report
	27-Feb	2	0	Submission of final Inception Report
Data collection	1/3 to 20/3	3	2	Document analysis
	1/3-16/4	2	8	Consultants visit action sites in Bolivia
	1/3-16/4	2	8	Consultants visit action sites in Tunisia
Analysis-synthesis	1/4-30/4	6	5	Analysis, synthesis, preparation of Final Report
	2-May	2	0	Share preliminary ideas, recommendations (Interim Report)
	7-May	1	0	Submission of draft final report
	14-May	0	0	Receipt of comments on draft final report
	14/5-29/5	2	1	Revise draft final report based on comments received
	22-May	1	0	Submit final evaluation report
Dissemination	1-Jun	1	1	Knowledge products from the evaluation report
Total Days		**30**	**26**	

Team Composition

Ross McLeod led the evaluation. He is an economist and evaluation specialist who holds a Ph.D. in economic evaluation of research and development and is the Director of eSYS Development (economic consulting), Australia. He has 25 years of experience in designing, costing, coordinating, evaluating and reviewing development projects across 30 countries in Africa, Asia and the Pacific

Ross has demonstrated experience in results-based management, theory of change, impact pathways and evaluation of agricultural R&D which is evident across 150+ R&D project evaluations undertaken for Australian rural research corporations, the CSIRO, CGIAR Centres, Australian Cooperative Research Centres, the World Bank and the Australian Centre for International Agricultural Research. Agricultural project evaluation has included OECD criteria, cost benefit evaluation/appraisal, financial assessment, distribution effects of benefits using equilibrium trade models, reviews of lessons learned, and stakeholder consultation.

The North African consultations were undertaken by Ahlem Massaoud. She is an agro-economist engineer in the AGER/ Agricultural Development Project. She has a bachelor's

degree in Experimental Sciences from Abu Kacem Chebbi University and National Engineering Diploma specialising as an Agro economist. She has worked on numerous projects including AGER/NGO Fert, in the Governorates of: Kairouan/Kasserine/Sidi and Bouzid/Mahdia/ Monastir/Bizert, The Hive Association for Active Citizenship, Microfinanza/AGER and GIZ support for the integrated management of natural resources AGIRE II (GIZ Kairouan/Sidi BOUZID).

Informant interviews in LAC were conducted by Dr Javier Aguilera, a specialist in soil and environmental management and conservation, with an emphasis on fertility of productive soils. He has extensive experience in the management, monitoring and evaluation of productive projects, with more than 20 years leading projects at the national level. He has extensive experience in participatory methodologies of research, training, and technology transfer, with a gender approach. His mother tongue is Spanish, and he speaks, writes, and reads fluent English. He holds a PhD in Soil and Environment Sciences from the School of Agriculture, Food and Natural Resources, University of Missouri, Columbia

IV. List of stakeholders interviewed

North Africa (NEN)

Relevant Stakeholder	Role and Contribution	Category	Date	Mode
Key major partners as per the project document (National Level)				
TUNISIA				
IRESA	ICARDA Agreement Partner (Administrative)	Policy Maker Researcher	22 March	Person
INRAT	Main Implementing Institute	Partner in proposal and researcher	25 March	Person
INGC	Field Crop Institute	Partner in proposal and Role in Scale-Up	23 March	Person
OEP	Livestock Development Agency	Partner in proposal and Role in Scale-Up	22 March	Person
INAT	Researcher (Livestock)	Researcher	24 March	Person
ESA Mog	Researcher (Socio-economy)	Researcher	29 March	Person
INRGREF	Researcher (Natural Research)	Researcher	25 March	Person
ALGERIA				
ITELV	Livestock Development Agency	Partner in proposal and Role in Scale-Up	31 March	Online
ITGC	Main Implementing Institute	Partner in proposal and Role in Scale-Up	21 March	Online

Directly/actively involved regional and proximate partners				
TUNISIA				
INGC - Regional Focal Points Zaghouan	Field Implementation	Partner in proposal and Role in Scale-Up	29 March	Person
INGC - Regional Focal Points Beja	Field Implementation	Partner in proposal and Role in Scale-Up	26 March	Person
OEP - Regional Focal Points Zaghouan	Forage and Livestock	Partner in proposal and Role in Scale-Up	29 March	Person
OEP - Regional Focal Points Kef	Forage and Livestock	Partner in proposal and Role in Scale-Up	30 March	Person
Farmers 'Associations SMSA Chouarnia	Scaling	Beneficiaries and Local partners and role in scale up	30 March	Person
Farmers 'Associations GDA Seres	Scaling	Beneficiaries and Local partners and role in scale up	30 March	Person
Farmers 'Associations SMSA Melyen Fahs	Scaling	Beneficiaries and Local partners and role in scale up	29 March	Person
Individual Farmers Beja	Scaling	Leader farmers and Role in scale up	26 March	Person
Individual farmers Kef Sers	Scaling	Leader farmers and Role in scale up	30 March	Person
Individual farmers Zaghouan Saouf	Scaling	Leader farmers and Role in scale up	24 March	Person
Tunisia partners-ready to engage as part of the innovation systems				
Cotugrain (Tunis)	PPP for scaling forage mixture	Private Industry and Role in Scale-Up	22 March	Person

Seed Cleaning and treatment Unit/Local Man. (Beja)	Small machinery	Private Industry and Role in Scale-Up	26 March	Person
AVFA	Large scale extension and Knowledge Dissemination	policy Makers and role in scale-Up	23 March	Person

Americas

Relevant Stakeholder	Role and Contribution	Category	Date and mode of interview
BOLIVIA			
Director of the National Soil Platform Bolivia (Fernando Canedo)	Partner in proposal and researcher	Researcher	12/03 - in person
FAO Programs Associate (Sergio Laguna)	Regional partner	Role in scale up	15/03 - in person
Executive Director of ADEMA (Abraham Borda)	Researcher	Role in scale up	17/03 - in person
ADEMA technician (Edilberto Layme)	Researcher	Role in scale up	19/03 - in person
Former Legal Representative of HEIFER (Edwin Marquez)	NGO	Role in scale up	17/03 - in person
IFAD Representative in Bolivia (Arnoud Hameleers)	Partner in proposal	Regional partner	16/03 - virtual
Altiplano Region Coordinator PROINPA Foundation (Wilfredo Rojas)	Participant	Role in Scale-Up	19/03 - in person
PROINPA's Southern Region Consultant (Genaro Aroni)	Participant	Role in Scale-Up	16/03 - virtual
INIAF technician – MDRyT (Hermeregildo Equize)	Participant	Role in Scale-Up	12/03 - virtual
Directory of the Bolivian Society of Soil Science (Arnulfo Borges)	Researcher	Role in Scale-Up	18/03 - virtual
Gender Responsible - PROCAMELIDOS – MDRyT (Susana Pérez)	Partner in proposal	Regional partner	18/03 - virtual
Andean Valley Industry technician (Adalid Velis)	Farmer	Role in Scale Up and Private Industry	15/03 - virtual
Local Authority Chacala community (Alfredo Colque)	Local authority	Role in Scale Up	11/03 – virtual
Local Authority Chita community (Rubén Mamani)	Local authority	Role in Scale Up	12/03 – virtual
Farmer of Sevaruyo community (Marcial Ordoñez)	Farmer	Role in Scale Up and Private Industry	13/03 - virtual
Farmer of Chita community (Juan Callizaya)	Farmer	Role in Scale Up and Private Industry	12/03 – virtual
Farmer of Chita community (Ever Villca)	Farmer	Role in Scale Up and Private Industry	12/03 – virtual
Farmer of Chita community (Nilda Paucar)	Farmer	Role in Scale Up and Private Industry	12/03 - virtual
Farmer of Chacala community (Teodocia Vásquez)	Farmer	Role in Scale Up and Private Industry	11/03 - virtual
Farmer of Chacala community (Gumercindo Callapa)	Farmer	Role in Scale Up and Private Industry	11/03 – virtual

MÉXICO			
Manager of Hub Pacifico Sur-IDP CIMMYT (Abel Jaime Leal González)	Partner in proposal	Researcher	16/03 - virtual
Autonomous University of Mexico Collaborator (Cristian Reyna)	Partner in proposal	Researcher	11/03 - virtual

V. Evaluation matrix

Questions and Proposed Evaluation Tools	Paragraph in report	Project team interviews	SSI A: NARS,	SSI B: Agency, NGO, Policy	SSI C: Farmer	Governance Assessment	Organizational Timeline	Quality of Science Analysis	Beneficiary Assessment	Cost-benefit Analysis
Relevance and coherence										
Was the project design appropriate to meet the intervention's objectives? - -Was the project adjusted during implementation to any changes in context to retain continued relevance? Was the adjustment necessary	51, 54	✓	✓			✓	✓			
What changes in the overall context (e.g., policy framework, political situation, institutional set-up, economic shocks, civil unrest) have affected or are likely to affect project implementation and overall result	53	✓	✓			✓	✓			
Have constraints to outcomes and impacts been considered in the project design?	67	✓								
Is it evident that the project builds on the latest scientific thinking and research results	55	✓								
To what extent is the project competing with other programs conducting similar types of research, and what efforts are being made to avoid duplication or promote synergy	55	✓								
Do scientists participating in the project understand research and development activities	72	✓								
Who are the main users of project outputs? Is there evidence of demand for project outputs? Is there evidence of real value added	64	✓	✓	✓	✓					
Effectiveness (Goals)										
What is the change in yield gaps of wheat and barley among CLCA farms in Tunisia and Algeria?	61	✓								
What is the change in weaned lambs among CLCA farms in Tunisia and Algeria?	61	✓								

What is the change in total yield of cereals and legumes among CLCA farms in Bolivia and Mexico?	61	✓								
What is the change in liveweight livestock among CLCA farms in Bolivia and Mexico?	61	✓								
Effectiveness (Objectives)										
How many KM models have been produced that include formative research, tools, and products?	85	✓								
How many evidence-based policy briefs have been produced?	66	✓								
How many national innovation systems have been developed which have led to uptake of CLCA technologies?	61	✓								
What has been the change in soil organic matter on CLCA farms?	61	✓								
What has been the change in water use efficiency on CLCA farms?	61	✓								
What has been the change in body condition score among livestock on CLCA farms in Tunisia and Algeria?	61	✓								
What has been the change in average daily gain among livestock on CLCA farms in Tunisia and Algeria?	61	✓								
What has been the change in wheat production cost on CLCA farms in Tunisia and Algeria?	61	✓								
What has been the change in fuel cost for wheat production on CLCA farms in Tunisia, Algeria, Bolivia, and Mexico?	61	✓								
Effectiveness (Outcome 1)										
How many farmers that have been exposed to the CLCA farmer-led extension systems?	62	✓								
How many farmers have adopted CLCA farming systems?	63	✓								
Effectiveness (Output 1.1)										
What are the changes in barley and wheat yields among CLCA farms in Tunisia and Algeria?	61	✓								
What are the changes in forage biomass among CLCA farms in Tunisia and Algeria?	61	✓								
How many livestock have been impacted by CLCA practices in Tunisia and Algeria?	61	✓								
What are the changes in fecundity rate among sheep on CLCA farms in Tunisia and Algeria?	61	✓								

What are the changes in the amount of dry matter (DM) fodder produced in Mexico?	61	✓								
How many beneficiaries have participated in knowledge sharing on CLCA practice management?	84	✓								
Effectiveness (Output 1.2)										
What areas have had soil and water conservation practices applied?	81	✓								
Effectiveness (Outcome 2)										
How many partners have adopted CLCA tools and methodologies for reliable decision-making?	86	✓								
Effectiveness (Output 1.3)										
How many analyses have generated costs, benefits, and market viability of CLCA options?	83	✓								
How many farm-level models developed that include multi-criteria assessment and trade off analysis for different farm types and agro-ecologies have been developed?	84	✓								
How many simulation tools of optimized CLCA systems have been produced?	84	✓								
Effectiveness (Output 1.4)										
How many ICT-based M&E tools have been developed that include algorithms for data storage and analysis?	86	✓								
How many participatory evaluations have been conducted in CLCA intervention countries?	86	✓								
How many surveys conducted to gather feedback from decision-makers and private market actors?	86	✓								
Effectiveness (Outcome 3)										
How many local innovation systems have been developed?	87	✓	✓	✓	✓					
Effectiveness (Output 2.1)										
How many knowledge and learning structures within which IFAD's toolkits on HHMs have been tested for proof of concept and adaptation?	87	✓								
Effectiveness (Output 2.2)										

How many CLCA intervention countries in which there is provision of efficient and effective support by extension/advisory services to beneficiaries?	89	✓								
How many CLCA guidelines developed for extension and advisory services developed with partner organizations?	90	✓								
How many private machinery service providers supported by CLCA?	90	✓								
How many individuals participating in CLCA courses, workshops, or field days?	93	✓								
How many groups using CLCA-generated methodologies and knowledge?	93	✓								
How many of research questions formulated that feed back to component 1?	89	✓								
Impacts, innovation, scaling up and likely sustainability										
What have been the Institutional commitment to project-related investments. Eg. Have resources been leveraged from NARES partners?	70	✓	✓							
How much South-South collaboration has occurred? What more can be done?	54	✓	✓							
Do project activities benefit from the engagement, participation and ownership of local communities, grass-roots organizations and the rural poor, and are adopted approaches technically viable?	106	✓	✓	✓	✓					
Is there potential for substantial outcomes and impacts (both planned & unplanned) in the next two years?	112	✓	✓	✓	✓				✓	✓
To what extent are positive outcomes demonstrated at pilot or small-scale level likely to be sustained and out scalable	118	✓	✓	✓	✓				✓	✓
Efficiency and governance										
How does the project expenditure compare to the budget- whole budget and per deliverable?	98	✓				✓	✓			
Have any re-allocations been done? What was the rationale? What are the implications of the reallocations to the budget structure and cost-effectiveness?	98	✓				✓	✓			
To what extent do the governance and management arrangements permit and facilitate the effective participation and voice of the different categories of stakeholders?	103	✓	✓			✓	✓			
How effective is contract management? Doe the PMU monitor the delivery of agreed outputs and is this delivery linked to payments? What actions can/does the PMU take in the case of non-delivery of agreed outputs?	104	✓				✓	✓			
To what extent are the lines of accountability within the project well-defined, accepted, and being followed? Are there any significant gaps in programmatic accountability?	103	✓				✓	✓			

To what extent are the program's decision-making, reporting, and evaluation processes open and available to the general public, subject to confidentiality requirements in scientific research and in human resource management?	103	✓				✓	✓			
How effective and efficient have been the criteria and the procedures for allocating the projects resources? How have the resource allocation processes, and timing affected the implementation of research activities?	103	✓				✓	✓			
Is the level of collaboration and coordination appropriate and efficient for reaching maximum synergies and enhancing partner capacity?	54	✓	✓			✓	✓			
Are implementation and sustainability related risks adequately identified and managed?	94	✓				✓	✓			
Is the management of Intellectual property used or generated by the project appropriately managed?	94	✓				✓	✓			
Does the quality of outputs to date reflect value for money? What can be done for the remainder of the project to enhance impact	99	✓				✓	✓			
Are the internal processes and conditions, including research staff and leadership quality, adequate for quality assurance	117	✓				✓	✓			
M&E Approach										
Is the monitoring and evaluation system efficient for recording and enhancing processes, progress, and achievements?	105	✓								
Do the impact pathways logically link activities to impacts?	56-57	✓								
Are the proposed indicators to measure increased water use efficiency in rainfed and irrigated systems and reduction of erosion in soils with steep slopes appropriate?	56	✓								
Are the proposed indicators for measuring comprehensive trade-off models between competing uses for crop residue biomass developed and simplified for wider use? What needs to be done to deliver this output.	82	✓								
Has there been accurate evaluation of the social, economic, and ecological impacts of CLCA packages	82	✓								
Cross Cutting themes										
Have gender and youth issues been adequately considered in research design in terms of relevance to and effect on women/youth?	124	✓	✓							
Has gender been adequately considered in the impact pathway analysis, in terms of the differential roles of women and men along the impact pathways, generating equitable benefits for both women and men and enhancing the overall likelihood enhancing the livelihoods of women?	124	✓								

Does research on gender and youth have the potential to make a significant difference (or is it largely addressing marginal issues)?	125	✓								
How gender and youth research being embedded in on-going processes and scale-up and out	125	✓								
Have natural resource management and climate resilience and Productive agricultural technologies issues been adequately considered in research design in terms of relevance to and effect	128	✓								
To what extent has the project management unit developed partnerships with the entities highlighted in the proposal and other relevant entities? To what extent is the project facilitating knowledge management within these established partnerships	122	✓	✓	✓						

VI. Interview templates

QUESTIONNAIRE A

Partner NARS Scientists and Extension Officers, Universities

Mid-Term Evaluation of the CLCA Project

All information will be treated in strict confidence

This questionnaire forms part of the mid-term evaluation of the IFAD CLCA project. A summary of results will be made available to any interested parties in the evaluation report.

Name:
Organisation:
Position:
Gender (M/F) Age <25 years Y/N
Interview date:

A.1. What do you consider unique about the CLCA project?

A.2. What role have you had in project design?

A.3. What do you consider the best output of the CLCA project so far? Please provide at least one specific example

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A.4. Who are the users of the CLCA outputs? Do you think there is demand for these outputs?

A.5. What is the value added of the IFAD supported program?

A.6. Are the benefits of the CLCA project research clear to you?

A7. How do you think farmer CLCA practices will change?

A.8. What are you doing to support adoption of CLCA outputs?

Who is being targeted and how?

A.9. What do you think will be the most significant impact of CLCA in the next 2 years (if any)? How will it be achieved in your view? How will it be sustained?

A.10. In your opinion are there any issues or challenges facing CLCA implementation and potential impact? Do you have suggestions for solving these?

A.11. What do you see as the strengths of the CLCA approach?

A.12. What role do you have in work planning for the CLCA project?

Do you consider this input sufficient, or how should it change?

A.13. Have activities been built on lessons learned in the past? If not, what could be improved for further implementation

A.14. What changes, if any, would you like to see in the remaining period of the CLCA project, and why?

Notes:

QUESTIONNAIRE B

Development Agency, NGO, Policy Maker

Mid-Term Evaluation of the CLCA Project

All information will be treated in strict confidence

This questionnaire forms part of the mid-term evaluation of the IFAD CLCA project. A summary of results will be made available to any interested parties in the evaluation report.

Name:
Position:
Organisation:
Gender (M/F) Age <25 years Y/N
Date of interview:

B.1. Does the project target key CLCA issues in your opinion? If so what issue(s)?

B.2. What contribution have you made to designing the CLCA project and implementing activities?

B.3. Do you think project outputs will be adopted? What will be required to achieve this?

B.4. What do you think is the most important output of the CLCA project? Please provide an example and outline why?

B.5. Do you anticipate that the research will result in significant impacts? If so, which people will benefit and what types of benefits will they gain. When may this happen?

B.6. In your view, will youth and women benefit from the CLCA project – and what kinds of benefits will they be?

B.7. Do you think the outcomes and impacts achieved by the CLCA project will be sustainable without support from the project? If yes, how. If not, what can be done.

B.8. In your view, what can be done for the remainder of the project to maximise CLCA project effectiveness and potential impact

QUESTIONNAIRE C

Farmer, Private Industry or Association

Mid-Term Evaluation of the CLCA Project

All information will be treated in strict confidence

This questionnaire forms part of the mid-term evaluation of the IFAD CLCA project. A summary of results will be made available to any interested parties in the evaluation report.

Name:
Position:
Organisation:
Gender (M/F) Age <25 years Y/N
Date of interview:

C.1. What do you consider most useful about this project?

C.2. What contribution have you made to designing the project?

C.3. Have you attended field days or training sessions? What was good and bad about these days/sessions? What could be improved?

C.4. Have you or your community benefited from the project? If yes, please outline how? If not, please explain why/

C.5. Do you anticipate that the project will result in significant impacts?

If so, which people will benefit and what types of benefits will they gain. When may this happen?

C.6. In your view, what can be done for the remainder of the project to maximise project impact