Livestock CRP Priority Country Project

2019-2021

Country Project Plan – *Ethiopia*

This plan outlines key components of what the Livestock CRP will be proposing as a 3-year project to consolidate CRP research to date and translate it into a pilot integrated package of interventions. The project will generate evidence needed to attract development investment to take the intervention to scale by national development partners. The plan is expected to benefit from input from national partners and to be adapted accordingly as the detailed plan is finalized.

Project Title: SmaRT – Small Ruminant value chain Transformation in Ethiopia

Based on the qualitative value chain assessment, a common vision for the SmaRT program in Ethiopia was formulated based on the visions developed by participants in three multi-stakeholder workshops which discussed site-specific findings from the rapid value chain assessment.

Vision: By 2023, people in Ethiopia benefit from equitable, sustainable and efficient sheep and goat value chains: *their animals are more productive, livestock markets work for producers, consumers and business, there are more, more affordable and healthier small ruminant products, and the livelihoods and capacities of people involved in the whole chain are improved.*

The proposed country project is retaining this vision.

Project Objective(s)[1]:

This section can include overall project objective, specific objectives and/or appropriate research questions

The overall objective is

- To consolidate, implement, evaluate and promote SmaRT pack at producer level while ensuring equitable access to input supplies and services and political support.

Specific objectives include:

- to increase sheep and goat productivity at individual animal and farm level in the selected communities
- to generate more income at household level accessible to both men and women
- to increase contribution of SR meat to household food security
- to assess environmental impact of proposed interventions
- to develop strategies to ensure access to supplies and services required to sustain the integrated intervention packages after 2021
- to further enhance capacity and skills of target beneficiaries and implementing partners
- to assess scalability of integrated intervention packages and develop clear pathways for scaling.

[1] *e.g. Catalyze uptake of dairy technology packages for improved livelihoods and environment sustainability in Tanzania.*

Details and Justification for the Integrated Package:

Description of proposed integrated intervention, including product lines/best bets (please indicate if/where there is evidence to support the choice, including proof-of-concept or previous piloting of intervention, and/or the best-bet protocol could be applied here)

Overall Concept	The country project focusses on Small Ruminant value chains (SRVC) which are supposed to supply a growing market in Ethiopia with quality products. Our rapid VC assessment (VCA) in 2012/2013 showed that the overall performance was poor. The supply side was considered as the most limiting factor. Low productivity was found to be caused by inadequate and poor-quality feed supply, high incidence of diseases leading to high morbidity and mortality, absence of organized smallholders breeding programs, and a lack of technical and business capacity of producers, research and extension support systems. Poor VC performance was also attributed to the lack of innovative institutional arrangements to enhance poor farmers' access to input and marketing services. Linkages between farmers and other value chain actors were found to be weak leading to inadequate access to quality inputs, credits, technical knowledge and business skills. Based on the rapid VCA, ICARDA, ILRI with partners have been pilot-testing and validating productivity-enhancing best-bet technologies as well as institutional interventions to address specific value chain constraints, first in the framework of the CGIAR Research Program Livestock and Fish, and since 2017 through CRP Livestock. The tested interventions included improved feeding, genetics, herd health and marketing as well as facilitating community action. The testing was accompanied by capacity building of farmers and other value chain actors. These best-bet technological interventions were tested in small scale pilots and implemented separately. It is assumed that full integration of the piloted best-bet interventions at the production node will result in higher gains and positive outcomes for farmers and other actors. Thus, the proposed country project aims at improving livelihoods of women and men farmers through consolidation, testing and promotion of SmaRT pack at producer level while facilitating equitable access to input supplies and services through community action and political support. It will aim at a high number of households at selected VC sites implementing the 'whole' integrated package, called SmaRT pack. Adopters of SmaRT pack will be compared to non-adopters in control sites. The program will also work closer with service providers to ensure sustainability of support for producers. One institutional mechanism to facilitate closer linkages will be to set up multi-stakeholder platforms at community and district level. The SmaRT project will work with the CLEANED team to assess environmental impact of SmaRT pack adoption. To improve environmental footprint of SR, a new intervention on improved management of communal grasslands will be tested and integrated into the community action plans to reduce degradation and increase feed supply from grasslands.
Flagship Components:[2]	

[2] Here we only present an overview of the planned interventions/activities. More details are given in Annex A.

Genetics	Major challenge: SR producers in Ethiopia had little or no access to genetically improved sheep and goat breeding animals. There was little capacity and skills and no supporting infrastructure in the national system to support breeding programs for smallholder sheep and goat producer. ICARDA and ILRI have worked on community-based breeding programs in Ethiopia since 2010. Successes and still existing challenges are well documented. The focus needs to be now on improved genetic material from CBBPs can reach the base population and how CBBP can be best outscaled. Smart pack interventions: (1) Access to improved sheep/goat genetics through CBBPs and selected breeders in new target villages, (2) Fully certified breeding sires to support the business model of CBBPs (links to Health and LLAFS), (3) Fertility improvement package to enhance sheep and goat reproduction
Health	Challenge: Ineffective disease control resulting in high morbidity and mortality of young and adult animals was identified as a major constraint to improving SR productivity. Impact of small ruminant diseases were described in a hh survey in terms of economic and financial loss, loss of productivity, impact on human health, migration for other jobs, wastage of time treating the animals among others. Farmers have limited knowledge about best practices in husbandry, disease prevention and control, poor access to quality veterinary inputs (including use of antimicrobials) and limited access to advisory services. Based on findings from la iterature review, participatory epidemiology and serosurveys, best-bet interventions on parasite control (gastro-intestinal tract parasites and coenurosis), reproductive and respiratory diseases were designed and tested. Impact has not been fully assessed yet, but given the positive effects observed so far, these interventions are included into SmaRT pack. SmaRT Pack interventions: (1) Development of Vaccination and Treatment Calendar for the Common SR Diseases (2) Implementation of Integrated Herd Health Approach to Reduce the Impact of Respiratory Disease (3) Community Based Strategic Parasite (internal parasite or/and coenurosis) Control (4) Enhancement of the Reproductive Performance of Small ruminants (5) Health certification of the breeding rams
Feed & Forages	Major challenges: Inadequate and seasonal variability of feed supply, as well as insufficient and/or non-affordable commercial feeds. The producers and livestock extension agents lack knowledge on feed formulation and feed quality so that available feed resources are inadequately utilized. The commercial livestock feed industry in Ethiopia focuses mostly on the chicken and dairy sector. There is also no functional feed quality control which results in low trust of producers in commercial products. SmaRT Pack interventions: (1) Strategic supplementation of reproductive animals based primarily on locally available feed resources, (2) Business-oriented sheep fattening (champion female and male farmers and youth groups),

	(3) Forage-based options for strategic supplementation and fattening in suitable sites
Environment	Major Challenge: in some VC sites communal grasslands are supposed to contribute significantly to goat and sheep diets. Given that many grasslands are severely degraded due to inadequate grazing management, their contribution has decreased and are one cause of inadequate feed supply. At the same time grassland degradation is a serious environmental concern. This constraint has not yet been addressed through a best-bet intervention so far but we see a good potential of addressing this constraint in the country program as the community action for sustainable grassland management can be integrated. Another missing element in SmaRT program has been to assess intervention related to their environment al impact so this will be addressed by the flagship in 2020-2021. Interventions: (1) Additional best-bet intervention on sustainable use of communal grass lands; (2) Application of CLEANED to assess environmental impact of adoption of SmaRT pack
Livelihood Agri-Food Systems	Major Challenge: The overall poor performance of the Ethiopian SRVCs can be also attributed to the lack of innovative institutional arrangements to enhance poor farmers' access to input and marketing services. The poor marketing infrastructure ranges from a lack in physical structures, poor transportation facilities, to the absence of good quality communication infrastructure. Most livestock owners are unaware of competitive market opportunities which leads to non-competitive prices and low market margins for producers. Linkages between farmers and with other value chain actors are weak resulting in inadequate access to quality inputs, credits, technical knowledge and business skills. We tested three best-bet interventions related to marketing, among them market information systems and market facilities (physical structures on existing livestock markets). Both interventions had positive effects but need to be addressed through larger regional or national programs. For the country program, we integrate collective action (third best-best tested) through marketing models into SmaRT pack. We also want to further promote and facilitate community action which is already supported by the breeding cooperatives through setting up platforms at community and district level to coordinate actions and facilitate linkages with other VC actors. SmaRT Pack interventions: (1) Develop and implement marketing models addressing the four key components of the small ruminant value chain; i.e., the product [the live animals], the price pattern, the promotion mechanisms and options, and the physical aspect of the markets [i.e., location and infrastructure]. (2) Community and district level multi-stakeholder platforms to support collective action and linkages with input and service providers; (covered under shared activities) Supporting activities (3) Impact assessment for SmaRT pack (covered by ICARDA's share under LLAFS core): Baseline for SmaRT pack adopters and additional control

	farmers (begin 2020) and endline impact assessment for 4 VC sites (2021) (4) Policy advocacy through national level partnership and stakeholder networks and policy briefs (2020-2021) (5) Scaling Plan for SmaRT pack (2021)
Cross-cutting Components:	
Gender/Capacity Development	Key Challenge: Inherent individual, community and institutional level social norms and practices hamper rural women's empowerment in Ethiopia. Women's participation in decision-making and control over resources, assets, benefits and services are limited, affecting HH food and nutritional security. Addressing restrictive norms requires changes in knowledge, attitudes and practices among community groups and partner organizations. SmaRT pack interventions: (1) Community conversations to support active involvement of women in health interventions, breeding programs, feeding and fattening (2) Gender capacity development for the research and extension partners involved in SmaRT pack implementation (ongoing coaching program will be rolled out in all Smart pack sites)
Youth	Creating job opportunities for unemployed youth is high on the agenda of the Ethiopian government, and government programs have been initiated to help youth groups to start up enterprises and ease their access to loans. SmaRT pack includes an intervention under F&F FP which aims at creating business opportunities through sheep fattening for youth groups. AS a cross-cutting activity the program is developing and evaluating the right mix of support services and capacity development.
Capacity Development	A number of capacity development activities targeting researchers, extension agents, producers and other VC actors are embedded in the interventions described above. However, a cap dev plan needs to be designed to effectively coordinate these activities.

Theory of Change:

For the initial submission this only needs to outline the key outputs, outcomes being targeted (what and to who) and what impacts these will lead to. Showing the initial ToC/IP changes over time is helpful to identify the points for monitoring. For full submission the ToC will also include key monitoring & evaluation indicators for each stage in the process and the assumptions (along with their available or planned evidence).

Major outputs

- SmaRT Pack consolidated, implemented in old and new intervention sites and effect on productivity assessed
- Opportunities for market-oriented services and inputs for sheep and goat producers by current and new private input suppliers & service providers identified
- Environmental impact of adoption of Smart Pack assessed

- Ex post impact assessment of adoption of SmaRT pack (focusing on gender inclusiveness, changes in KAP and income)
- National and regional level partnership and stakeholder networks established and informed through meetings and policy briefs

Expected longer-term changes/outcome:

- Sustainable increase of small ruminant productivity through improved genetics, feed and health (while lowering environmental footprint)
- Continuous supply of small ruminants and their products from target villages
- Implementation support and promotion of SmaRT Pack is fully integrated in the extension system
- Improved uptake of SmaRT pack and new farmers outside project move towards SmaRT pack
- Businesses of new and current private input suppliers & service providers grow and reach more people outside the project villages
- Women actively participate in the whole VC – empowered by equitable access to services and higher involvement in decision-making
- National and regional Government and politicians fully support SmaRT Pack

Impact/ultimate outcomes

- Increased income for SR producers
- Functional community-and district- level platforms make private and public services and input supplies available to SR producers
- SmaRT pack becomes part of development strategy of the government

The ToC is summarized visually in the Figure 1.

Vision: Equitable, sustainable and efficient small ruminant value chains benefiting all actors

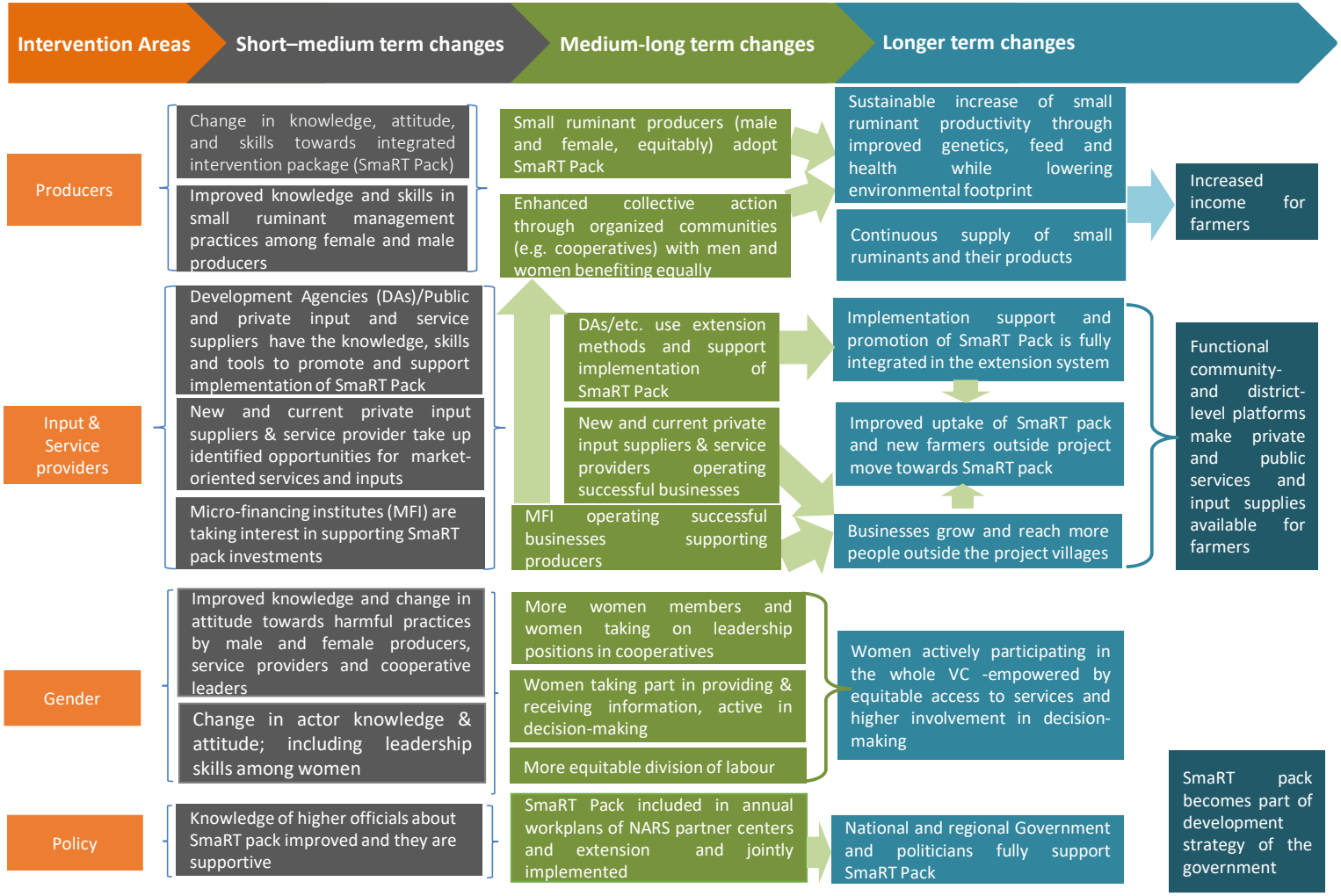


Figure 1. Theory of Change for Ethiopia SmaRT Program

Main Outcomes and Key Monitoring & Evaluation Indicators:

Use if need space to articulate the Outcomes from the ToC in more detail and to identify the key indicators to be measured on each outcome. The MELIA team will support in helping to identify common indicators across the countries for the full proposal.

We shall focus on monitoring and evaluating medium-long term and longer-term changes as some of the shorter-term changes are already ongoing. Furthermore, the medium- and longer-term changes will be decisive for the success of the project. Many outcomes will be measured at the level of producers and communities and include gender inclusiveness, but a number of outcomes are related to input suppliers and service providers. Special emphasis will be given to extension services as these present a readily available resource already present at the sites. The indicators selected below present a mix of livelihood impact, process/efficiency and performance indicators which will require specific instruments to be developed jointly with the other country projects.

Changes	**Outcome**	**Indicators**
Medium-long	SR producers in target sites adopt integrated intervention packages and increase their SR productivity and incomes	Level of adoption in intervention villages Completeness of SmaRT pack adoption Number and weight of lambs/kids weaned per ewe/doe per year; Herd productivity (offtake per herd) Gross income from SR production
	Enhanced collective action through organized communities (e.g. cooperatives) with men and women benefiting equally	Type and frequency of collective actions Proportion of women involved in collective actions Volume of inputs/services/animal sales transacted through collective action
	DAs/etc. use extension methods and support implementation of SmaRT Pack	No. of livestock development agents (DAs) trained and involved in implementing SmaRT pack No. of farmers trained/serviced by DAs
	Service suppliers (DA, NGOs, vet services, private feed suppliers) are better linked to producers, promote and support integrated intervention packages	No. and type of input providers supplying inputs in a VC site No. of farmers accessing (improved) inputs Volume of inputs/services transacted No. of farmers consistently served in a given period
	MFI operating successful businesses supporting producers	No. and type of MFI serv. providers accessible in a VC site No. of producers in need of- and have accessed credits
	More women members and women taking on leadership positions in cooperative	Changes in no. of women members in cooperatives Changes in no. of women taking on leadership positions
	Women taking part in providing & receiving information, active in decision-making	Changes in knowledge, attitudes and practices among male and female community members

Changes	Outcome	Indicators
	More equitable division of labour	Work sharing arrangements before and after community conversations and husbandry trainings
	SmaRT Pack included in annual workplans of NARS partner centers and extension and jointly implemented	Proportion of workplans of research centers and district offices including SmaRT pack implementation; No. and disciplines of staff involved in implementation and frequency of field visits
Longer term	Sustainable increase of small ruminant productivity through improved genetics, feed and health (while lowering environmental footprint)	Herd productivity; Price per lamb/kid and adult animals No. of animals rejected at markets due to poor quality or other reasons Reduced grassland degradation in selected sites Environmental impact of SmaRT pack
	Increased household incomes	Gross income from SR production Total household income Total cost of inputs and services per year
	Continuous supply of small ruminants and their products from target villages	Market orientation (Volume of product sold / volume of product produced) Volumes transacted by household/communities, Changes in price of products obtained by producers accounting for seasonal price variability
	Implementation support and promotion of SmaRT Pack is fully integrated in the extension system	No. of farmers trained/serviced by Development agents (DA) Changes in Knowledge, Attitude and Skills of DAs
	Improved uptake of SmaRT pack and new farmers outside project move towards SmaRT pack	Level of adoption in intervention and neighbouring villages Completeness of SmaRT pack adoption
	Businesses of new and current private input suppliers & service providers grow and reach more people outside the project villages	Type and number of actors, product flows in a value chain (using value chain mapping) Number and types of business linkages Volume of inputs/services transacted Jobs created
	Women actively participating in the whole VC – empowered by equitable access to services and higher involvement in decision-making	Changes in knowledge, attitudes and harmful practices (cultural norms) among male and female producers, service providers and cooperative leaders
	Functional community-and district-level platforms make private and public services and input supplies available for farmers	Type and no of stakeholders attending platform meetings and actively involved in agreed action plans No. of linkages among stakeholders created No. of fields events Information sharing among stakeholders

Changes	Outcome	Indicators
	National and regional Government and politicians fully support SmaRT Pack	Volume of public investment, Level of support from relevant offices at district and zonal level
	SmaRT pack becomes part of development strategy of the government	SmaRT pack included in new investment project proposals; MoA actively looks for funding of outscaling SmaRT pack

Overall Evaluation Approach

We recognize that over 2.5 years there is limited opportunity to see impact; even if it is possible to utilize a (quasi-) experimental design. Therefore, countries agreed to have a common over-arching evaluation approach using Contribution Analysis applied to the ToC. Embedded within this may also be a more detailed research design providing the opportunity for before/after and with/without comparisons.

All elements are supported by the MELIA team who can work together with your team to develop these sections.

Research Design

Here you can articulate the overall research design being proposed, including the use (or not) of counterfactuals, before/after, inclusion of 'mini-experiments' or components of research etc.

The core treatment to be tested in the country project is SmaRT Pack. The package will be consolidated in the current target villages, and implemented as integrated package in the new target villages.

For the country program we selected three sheep and one goat value chain (VC) sites based on the ability of partners for rapid implementation and the potential to achieve changes in new villages in 2 years. In each VC site two target villages were established in 2010 and 2012. In 2014 we used the quantitative VC assessment as a baseline and for this purpose identified two control villages in each of the VC sites.

The testing will be done in selected VC sites where target and control villages have been identified:

- 4 value chain sites: Doyogena sheep, Bonga sheep, Menz sheep and Abergelle goat
- In each site:
    - 2 (current) target villages each established in Doyogena and Abergelle in 2012 and in Menz and Bonga in 2010
    - 1 new target village (was a control village in Doyogena, Menz and Abergelle in the baseline and mid-term impact assessment)
    - 1 control village (kept from baseline and mid-term impact assessment)

    (For Bonga we have selected one new target village and one control village and will conduct a baseline in the two villages)

Research Questions

There may be overall research questions which are to be answered for the integrated package and specific research questions for individual or clusters of interventions.

Key research questions:

- Does uptake of SmaRT pack (the complete intervention package) increase herd productivity and household income?
- What is the environmental impact of uptake of SmaRT pack by producers?
- What are the costs and time required to make SmaRT pack available to producers in the new target villages?
- Which input supplies and services are critical for SmaRT pack adoption and sustainability?

Specific questions

1. To what extent will the multi-stakeholder platforms (MSPs) at community- and district level be effective in facilitating access of producers to supplies and services available at these levels?
2. What strategy or combinations of strategies work best for soliciting support from policy-makers (briefing meetings, policy briefs, share fares, field visits, policy champions, media, etc.) ?
3. Does any of the existing MFI provide loans that are accessible to SR producers and youth groups?
4. To what extent are the two gender interventions effective in increasing gender equity?

Methodologies

Describe the quantitative, qualitative or mixed method aspects and specific activities (e.g. household survey, FGD, KII, animal level measurements, participatory testing, modelling etc.). These will likely be developed as we identify the common indicators to measure in the ToC.

For the overall impact assessment of SmaRT pack adoption the benchmarking VCA tool developed by L&F for producers and other VC actors will be applied; at producer level adopters in intervention villages will be compared to non-adopters in control villages; a brief baseline will be also conducted with other VC actors active at the sites or involved at zonal, regional or national level. The same tool was applied at the start of best-bet implementation in 2014, and a shortened version from Jan to May 2019 and will be repeated in the second half of 2021.

To assess productivity change, animal level data will be recorded in all SmaRT pack households in the target villages with the mobile app developed for CBBPs by specialized enumerators. The CBBP members in the old target villages are already involved in continuous recording schemes related to the selection traits.
Related to improved herd management through ultrasound application, the utilization and results will be monitored by service providers; a ME scheme was already set up in some location which will be refined for the country project.
Sheep performance and income from sheep fattening is monitored by data collection on each batch of sheep fattened by champion farmers and youth groups throughs specialized enumerators.
For the Herd health interventions, protocols were developed for each best-bet, and number of animals treated, morbidity and mortality (cause of death where possible) and cost of treatments are already being recorded.
In addition, Knowledge, Attitude and Practice (KAP) changes within the community need to be monitored and assessed. This has already been tested in relation to Community conversations

around animal health; the scope needs to be expanded to cover all expected KAP changes related to SmaRT pack and supporting interventions.
An additional ME system needs to be designed to capture changes in access to and use of supplies and services and changes in available supply and service providers.

Study Area and Target Population

Describe here the focus population of the project, or its activities, (e.g. pig retailers) and the study area (specific locations and/or coverage areas – e.g. dairy cattle keepers selling milk to hub X). If site or population selection is needed describe the process and final selection, include selection of counterfactual sites / population if appropriate. Add links to any documents if using historical site selection.

The country program will retain its focus on SR producers in rural areas prone to poverty. At the same time, more emphasis will be given to working with input and service suppliers, in particular the extension system, entrepreneurs, and NGOs.
The original site selection process was done through a lengthy multi-stakeholder process at national and regional level using GIS-based and other criteria. This led to the selection of seven VC sites (Menz, Horro, Doyogena, Atsbi, Abergelle, Borana, and Shinelle). The target districts and villages were selected together with research centers; compliance with the original selection criteria was confirmed through site visits with checklists. Site descriptions are available in the rapid VCA reports and related posters (posters were updated for a WS in 2017); for most of the highland sites FEAST (feed assessment tool) reports are also available.
Mid-2015, after conducting the quantitative VCA, the Shinelle goat and sheep VC site (Somali region) was discontinued because it became clear that the designated partner research center was not able to provide reliable support for project implementation and despite our efforts no other reliable implementing partner could be found.
In 2017 Atsbi sheep VC site was dropped because of low performance of the partner research center (Mekelle); this site was replaced with the Bonga sheep VC, which had been a very active and successful CBBP site since 2010 and had received significant support from the regional government and SARI, the regional agricultural research institute.
From these six VC locations the four fastest advancing sites were selected for the specific design of the country program while the other two VC sites will be continuously supported by the FPs already active in the sites.

Sampling

Identify the sampling strategy including hierarchies and stratification, sample size and justification. The strategy should be formulated for each of the key monitoring & evaluation indicators identified in the ToC and likely will need to be defined at the activity level.

The core of the Ethiopia country project is consolidation and implementation of SmaRT pack and to facilitate its adoption by sheep and goat producers through an enabling environment in four selected VC sites. Here, we focus on the sampling strategy to measure impact of SmaRT pack adoption.

Planned sampling strategy and size:

Baseline & midline surveys in 2014 and 2019				
For each VC site	Intervention site	Intervention site	Control	Control
	Village 1	Village 2	Village 3	Village 4
No of hh	A total of about 75 randomly selected hh were interviewed		A total of about 75 randomly selected hh were interviewed	
Impact assessment for SmaRT pack				
For each VC site	Interv. Site (village 1)	Interv. site (village 2)	New interv. site (former control village 3)	Control (village 4)
Minimum no of hhs required	>30	>30	>60	>120
Planned no of hh	50 SmaRT pack adopters	50 SmaRT pack adopters	100 interested/ volunteering hh	200 randomly selected

Once community- and district level multi-stakeholder platform will have been established, we shall conduct baselines on knowledge, attitude and practices (KAP) of VC actors active in the sites, which will be repeated at the end of project. Some of them were already interviewed in the recent midline impact assessment. From the previous surveys it is apparent that the number of service and input suppliers active at the sites including district level is small, so all (that can be traced) will be included in the survey.
This survey will be also done with relevant input and service suppliers operating at regional and national level.

Tools

List the tools to be used by the project – these will be linked to the key indicators identified earlier. We aim to utilize gender-disaggregated tools wherever appropriate.

1. Household level baseline and endline surveys – using a revised version of the benchmarking tool developed under L&F, the survey tool needs to be checked for its ability to collect required data to calculate common indicators like WELI
2. Farm level technology adoption survey tools
3. Knowledge, attitude and practices survey tools for communities, input and service suppliers (can be developed together with Uganda)
4. Qualitative interview tools for focus group discussions and key informant interviews to discuss and agree on content and aspects of the marketing models,
5. CLEANED tool
6. Scaling potential tool (will be led by Iddo and is planned for 2021)
7. Recording of animal level data according to research protocols and agreed selection traits

Resources

Budget outline: use worksheet to outline the budget from each flagship and management, and how it will be used. This is intended to serve as a check that activities are sized to available resources and to brainstorm the various costs that need to be anticipated. Clearly identify expected level of effort (FTE) for the team and supporting researchers.

	Name	Institution	Flagship / Cross-cutting Affiliation*	Discipline
Posted in-country				
Leader	Barbara Rischkowsky*	ICARDA	LLAFS	SR management and production systems
	Siboniso Moyo	ILRI	CGIAR site integration	Geneticist
	Abiro Tigabie	ICARDA	Project coordination/ shared activities	Socioeconomist
Supporting Scientists	Aynalem Haile*	ICARDA	Genetics	Breeder
	Tesfaye Getachew Mengistu	ICARDA	Genetics	Breeder
	Barbara Wieland*	ILRI	Health	Herd health
	Mesfin Mekonnen	ILRI	Health	Veterinarian
	Jane Wamatu*	ICARDA	Feed & Forages	Nutritionist
	Melkamu Derseh	ILRI	Feed & Forages	Nutritionist
	Girma Tesfahun Kassie	ICARDA	LLAFS	Market economist
	Woinishet Asnake	ICARDA	LLAFS	Economist
	Wole Kinati	PhD	LLAFS/Gender	Gender
	Mamusha Woldegiorgis	ILRI	Cap Dev/Gender	Cap Dev & gender
	Iddo Dror	ILRI	Cap Dev/Scaling	Cap Dev
	New Cap Dev	ILRI	Cap Dev	Cap Dev
Posted out-country				
Supporting Scientists	Mourad Rekik	ICARDA	Genetics	SR physiologist
	Jason Sircely*	ILRI	L&E	Rangeland Ecologist
	An Notenbaert	CIAT	L&E	CLEANED team
	Jessica Mukiri	CIAT	L&E	CLEANED team
Other support	Jane Poole	ILRI	MEL	Data management, MEL
	Enrico Bonaiuti	ICARDA	MEL	Data management, MEL

Indicate the Flagship focal point with *

Calendar of Activities

Add Gannt chart of major activities, identifying key milestones (e.g. planning process; team meetings, including planning and review; stakeholder engagement events; implementation of field activities; key program products: partner landscaping, situational analysis update; analysis and write-up phase; M&E related activities; Involvement of key staff

See attached Gannt chart - Excel file

Annex A – Implementation Plan

This section can be used to describe in more detail the implementation plan for the project. This would include data management plans, training for field activities, analysis plans, dissemination plans for research outputs and ethical clearances required

Implementation Plan for the FP activities

Livestock Genetics

Dissemination of improved genetics from CBBPs to new villages

CBBPs have been established in various villages of Ethiopia. Both technical and socio-economic evaluations showed that the pilot CBBPs are technically feasible, result in genetic gain of selected traits and are financially rewarding. Improved genetics from the CBBPs need to be disseminated to the base. The focus for the new intervention villages would be to establish sire groups in villages, disseminate improved sires from established CBBPs (through either natural mating or AI) and arrange for communal use of the sires. The whole process would be closely monitored.
Output: Community-based breeding programs outscaled to new intervention sites
Activities:

- Rapid assessment of the breeding objectives and goal traits of sheep/ goat producers
- Enumerator recruitment and cap dev in the area of husbandry practices, data recording, and day to-day follow-up
- Formation of farmer breeding groups and facilitation of sire management and communal use modalities
- Breeding data collection, analysis and selection of sires based on estimated breeding values on small group of 'core breeders' farmers
- Create an enabling environment (Organizational structure, better feeding, health care and overall improvement in husbandry practices)
- Monitoring and evaluation of the breeding program

Institutionalization of certification of improved rams and bucks

During the CRPs 1 and 2 we have worked extensively on designing breeding strategies, mainly CBBPs in different production systems. Improved genetics needs to be disseminated to the base population. To achieve this, breeding sires need to be certified so that they are of top genetic merit, have sound reproductive performance and are free of reproductive diseases. The last few years, we have been working on identifying the technical requirements and institutional set up needed for certification of improved sires. Preliminary guidelines have been prepared. Now, the main objective of the exercise is to identify partners and institutions and jointly implement the certification process in all CBBPs.
Output: Certification of improved sires institutionalized and implemented
Activities:

- Workshop with national and regional partners on certification of sires;
- Consultation with communities on the importance of certification;
- Identify an institution to be entrusted with the certification process and implement certification;
- Finalize the certification milestones (genetic, reproductive, sanitary) in compliance with Ethiopia livestock law and other regulations;
- Policy lobbying to embed the rams and bucks' certification in the routine livestock development programs.

Fertility improvement packages fully implemented to enhance reproduction of sheep and goats in CBBP's in Ethiopia

Animal production is highly subordinated to the success of reproduction. Reproductive outcome, of small ruminants in fragile environments is particularly vulnerable to poor management, inadequate nutrition, poor herd health management issues in addition to the fact that prevailing breeds have little or never been selected for enhanced reproductive efficiency. A major factor here is infertility because females that fail to reproduce are effectively producing only methane. Other infertility-related aspects are delayed puberty to first conception, extended postpartum anestrus, and postnatal mortality. The productivity and profitability of meat and milk production from small ruminants depends on the reproductive performance which also accounts for the efficiency of the breeding programs. Indeed, each female failing to lamb represents a waste of the efforts to breed for improved generations.

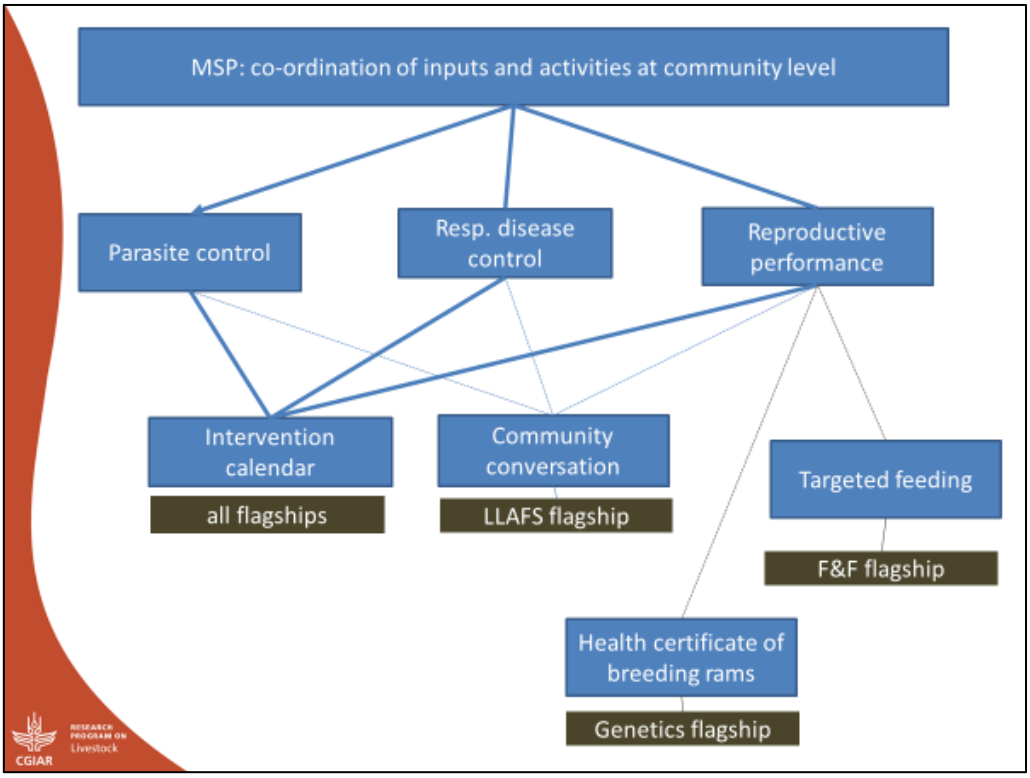
Output: A reference integrated program on the best-bet approaches to boost the reproductive performance of sheep and goats within CBBP's is implemented

In this activity, we plan to accomplish the following in the four VC sites:

- *Consolidating and implementing an effective recording scheme for reproductive traits.* Reproductive performance of the flocks, focusing on community selected traits, shall be collected continuously with the establishment of the breeding programs. These data would be used to select candidate rams and ewes based on estimated breeding values. Data will be captured using the Mobile Recording Schemes in place and summaries of flock reproductive performances will be provided to all farmers to stimulate healthy competition among them.
- *Males breeding soundness examination; fit males for fertility:* The examination of rams and bucks for mating ability is an important step towards improving flock fertility. The impact of addressing the rams' reproductive performance is important as a ram can mate up to 20-40 ewes per year and many more if enrolled in artificial insemination. This activity aims to increase the awareness of farmers in evaluating the mating ability of male animals and how to select and/or purchase breeding males. Prior to the mating season, males will be examined for the integrity of their reproductive organs, maximum mass of testis, apparent clinical signs, an estimation and assessment of their age and overall health condition including infection with epididymitis. Where possible, males will be assessed for semen production and viability. The data will serve to make recommendations to the farmers on the suitable males to retain in the flocks and the ones to be culled. Documenting and tracking the source of the males will also help in assessing the likelihood of inbreeding.
- *Pregnancy diagnosis and other applications of ultrasound:* Ultrasound machines may not seem to fit preconceived ideas for use in low input systems, but they do not contravene environmental priorities and, most importantly, they are non-invasive and non-hormonal. In small ruminants, skilled operators with modern instruments, which are today cheaper and more accessible, can, provide three important types of information. First, the identification of pregnant and barren ewes at an early stage of pregnancy; this represents an important decision tool to farmers on whether to retain or cull them. Second, the identification of females bearing single and multiple litters (>2) allows the use of specific strategies to manage their different requirements during pregnancy and after parturition. Third, the estimation of the age of a fetus to within 2 weeks is probably sufficient to allow the use of precisely timed nutritional supplements for those stages of fetal development that occur after ultrasonography, or for lactogenesis. Furthermore, and in the particular case of Ethiopian breeds, the current synchronization protocols to carry out artificial inseminations are all based on the use of prostaglandins. Therefore, screening ewes for pregnancy will avoid selecting pregnant ewes for synchronization and will prevent causing undesired abortions.

Livestock Health

Five activities are proposed, building on work conducted in the CRP sites so far (Figure 1). Some herd health activities directly interface with Genetics and Feed & Forage FP.



Development of Vaccination and Treatment Calendar for the Common SR Diseases

The calendar for health interventions will be developed in coordination with other flagships. Establishment of the calendar for the new intervention villages and updating of the calendar for the old intervention villages will be conducted. This will be done through the community-level MSPs.

Specific Objectives

- To develop the vaccination calendar for the common infectious diseases
- To develop deworming calendar for the internal parasitosis
- Capture other health related activities in the calendar

Implementation of Integrated Herd Health Approach to Reduce the Impact of Respiratory Diseases

Respiratory diseases have been identified as a key health constraint in the VC sites and require a systematic approach to control them This activity builds on experiences in old VC sites.

Specific Objectives

- To review previous work
- To roll out a gender sensitive herd health package around systematic vaccination to the incidence and impact of respiratory disease in small ruminants.
- To improve the awareness of farmers about respiratory disease and increase their capacity to recognize disease situations and give appropriate information/animal disease data
- To increase men and women farmers' participation in small ruminant respiratory disease management

Approach

The strategy for implementation of integrated herd health approach is divided in to three different components that are implemented consecutively and/or in parallel: 1) training of male and female farmers and development agents to create awareness and engage communities engagement, 2)

establish intensive surveillance/longitudinal monitoring systems in the small ruminants flock and investigate the cost, benefits, and impacts of preventive measures in providing protection from the disease and clarify if several miscellaneous causes of respiratory diseases are involved (based on flock clinical, post mortem and laboratory diagnosis), and 3)applying the existing vaccination and treatment options for prevention and control of major respiratory diseases in small ruminants (Pasteurellosis, CCPP, PPR, lung worm, sheep and goat pox). The whole process may require giving attention to the detail - what is happening in the village flock, changes in gender relations and identifying the important areas and making adjustments.

Study protocol

1. Training for farmers and enumerators/development agents

The 100 farmers per village will be enrolled for the close monitoring (ideally 50 men and 50 women farmers, including both young and adults in each group). Women from male and female headed households for training will be selected for the training.

2. Longitudinal investigation of respiratory disease cases

This will be based on monitoring of small ruminants for clinical cases and collection of samples from live diseased animals and respiratory pathological lesions during post-mortem to refine our understanding of pathogens involved in the respiratory disease complex.

3. Setup effective vaccination and preventive treatment practice for major respiratory diseases

The specific targets here are to improve the vaccine handling, administration, timing/schedule and coverage compared to the usual practice. It is important to engage most of the households who keeps small ruminants in the study village (not only the target households). The regular vaccination practice for pasteurellosis, CCPP, PPR, sheep and goat pox and strategic deworming for the lungworm will be conducted.

For the sustainability of vaccination and treatment of the animals, the MSP will be used in which different stakeholders will develop ownership and develop institutional arrangements that ensure access to vaccines and dewormers, cross learn, jointly plan and monitor the progress of the program.

4. Laboratory investigation of diseases

Serological study before and after vaccination will be done for CCPP (two times per a year) and pasteurellosis (up to 3 times per a year). Isolation and identification of pathogen in respiratory disease complex will be conducted for different respiratory diseases like pasterurellosis, CCPP, PPR and lungworm, budget permitting.

Community-based Strategic Parasite (internal parasite or/and coenurosis) Control

Parasite are another key health constraint and need control approaches at community level in order to have significant impact in reducing disease burden. Experiences so far have been promising in increasing productivity and uptake by farmers has been good.

Specific Objectives

- To set up a timetable for strategic interventions to control internal parasites (site specific)
- To introduce the concept of community based anthelmintic treatment practice
- To demonstrate farmers about performance measurement score on how to identify the presence of parasite infection which allows them to monitor their herds
- To assess the performance of participatory/community based strategic helminth control programmes over time (incl. cost-benefit)
- Monitor the effect of anthelminthic medication on taenia spp and other intestinal parasites with zoonotic importance.
- Through the MSPs, define options with the local community to establish a sustainable system for deworming programs.

Study protocols

The training on parasite control will be organized for the 100 farmers per village and extension workers. Existing extension/information material will be used (p.e. Coenurosis info leaflets and poster in local language).

Strategic anthelmintic treatment will be established for small ruminants and dogs. Performance measurement data like BCS, FAMACHA score, Body weight and FEC will be collected.

Baseline survey of coenurosis and gastro-intestinal parasite burden in small ruminants will be conducted. Additionally, coprological survey of dog's feces for multiple parasite burden will be done in sites where coenurosis is a target parasite. Reduction in worm burden will be monitored over time, combined with assessment of the incidence of the disease and survey on the knowledge and attitude of the community after control program of the disease being implemented will be conducted.

Enhancement of the Reproductive Performance of Small ruminants

Awareness of communities will be raised through trainings The training will be on causes, control and prevention methods for reproductive health problems in small ruminants, health care around reproduction, identification of causes of abortion and on the handling of new-born animals and young stock. The activity builds on recent findings on causes of reproductive failure in CRP sites and includes a new focus on management of young stock mortality (through a PhD at SLU).

Another important aspect of enhancing reproductive performance is nutrition during late pregnancy (day 90-145) which influences lamb birth weight and viability, colostrum supply, lambing difficulty, mothering ability, ewe mortality and subsequent lamb growth rates. Therefore, appropriate feeding during the final 6-8 weeks pre lambing is vital. The herd health team has teted this in one VC site with good results, therefore this intervention will be included into **Smart nutritional strategies for sheep under Feed & Forages.**

Health certification of the breeding rams

This activity involves physical examination of the ram for the breeding and laboratory analysis for testing for the known reproductive diseases (e.g. Brucellosis, Chlamydia; Toxoplasmosis, Q-fever, Border Disease, etc.) and other common diseases (e.g. Foot and Mouth Diseases, Sheep Pox…). The ram certification will also include a standard vaccination record. This activity will be conducted in close coordination with the Genetics flagship.

Feed & Forages

Development of feeding and management calendars across 4 target sites

- Seasonal availability and quality of local feed resources and supplements will be documented.
- Seasonal feed processing practices will be documented.
- Seasonal feeding practices and feeding management will be documented.

Development of smart nutritional strategies for sheep (interface with breeding and health FP).

- Develop and implement nutritional flushing to enhance ewe reproductive performance and young survival
- Identify context specific cultivated forage and utilization options and establish farmer research groups for subsequent on-farm interventions
- Train farmers and development agents on forage-based options for breeding sheep and fattening rams.

The first activity will include nutrition during late pregnancy (day 90-145) which influences lamb birth weight and viability, colostrum supply, lambing difficulty, mothering ability, ewe mortality and

subsequent lamb growth rates. Thus, targeted feeding of pregnant ewes or does will be applied for the control of non-infectious reproductive diseases and therefore directly interfaces with Herd health strategies. The ration for the targeted feeding will be prepared from locally available feeds and it will be conducted in coordination with the feed and forage flagship.

Development of business skills in sheep fattening

- *Development of business cases for sheep fattening*. Production and market data will be collected from youth group members. Profitability of sheep fattening per site will be analysed.
- *Development of training manuals for sheep fattening* (interface with LLAFS, CapDev and gender). Detailed and standard training material that has instructional illustrations, participatory exercises, and case stories will be prepared for sheep fattening activities; Translate the training manuals into three different Ethiopian local languages of Amharic, Oromiffa and Keficho**.**
- *Strengthen partner platforms for enhanced synergies, collaboration and gender sensitivity* (interface with LLAFS, CapDev and gender). Will work closely with project partners to clearly understand their role and responsibility; Advice and support will be given to establish synergy between partners so that they are able to collaborate with each other; Technical assistance for partners to design modality to assess the project performance periodically will be provided.

Livestock Livelihoods Agri-Food Systems

Development of marketing models

This activity intends to develop marketing models for small ruminants in four study sites.

- Study the capabilities and production/marketing culture of value chain actors, the behavior of buyers of products, the characteristics and behavior of competitors, and potential partners for collective action.
- Develop marketing plans that analyze the four key components of the small ruminant value chain; i.e., the product [the live animals], the price pattern, the promotion mechanisms and options, and the physical aspect of the markets [i.e., location and infrastructure].

Establish community- and district-level multi-stakeholder platforms (MSP)

To plan and implement community-based interventions, Multi-stakeholder Platforms (MSP) at community level will be established to facilitate ownership and leadership of the community, cross-learning among villagers, experts, and service providers at community level, to allow joint planning and monitoring progress by the villagers and other stakeholders through strengthened linkages. One aspect of monitoring is the economics of the interventions and their impact at community level. These MSP will be complemented by district-level MSP to create an enabling environment for uptake of SmaRT pack.

- Establish community-level MSP in the villages of the 4 VC sites to implement the concept of community-based prevention and control of diseases, community-based breeding, communal management of grazing land, and collective action on marketing; support for sheep fattening youth groups is also supported by community action.
- Establish district-level MSP in the 4 VC sites to foster cross-learning among communities/villages and to facilitate linkages with vet and extension service providers, MFI and input suppliers that work at district, zonal and regional level.
- Test the organization and operation of the MSPs, document, package and disseminate the village-level MSP model as an extension package and scale it up to kebele and woreda level by the extension system

Livestock and Environment

Community-based grazing land management (testing of a new best-bet intervention)

The main objective is to determine opportunities for restoration/planned grazing to support livelihoods and incomes. This activity will be conducted in two sites where communal grazing is a major contributor to livestock feed, namely in Menz (Amhara) and in Abergelle (Amhara/Tigray).

Step 1: Characterization

The first stage in community grassland mangement will be to sytematically assess the social contexts surrounding these lands. The main reason for starting with characterization are the general gaps knowledge around planned grazing, restoration, and other management strategies in communal grasslands of the Ethiopian highlands (excepting studies on exclosure or area closure). This work will mostly be conducted with focus group discussions with user groups of specific grasslands in the work sites, and key informant interviews with a various local stakeholders (government, community, user groups, NGO) in 2019.

Characterization will begin with access rights—who can use highland grasslands, and for what purposes. The uses of highland grasslands and their roles in local livelihoods, including gendered and youth-related benefits, and finally market linkages (possibly with links to animal disease, feasibility-depending), will be recorded. We will thoroughly investigate management of these lands, including responsibility for management and de facto users, and how they are otherwise managed directly and indirectly, including via rules, by-laws, and strategies (formal or informal), and among different pasture types and seasons of the year (possibly linking to animal disease). The last major area of characterization is the legal status and governance of these lands, existing institutions (mostly existing user groups) and government policies pertaining to their management. Across all of these areas of characterization, we will triangulate from several sources how decisions are made, and who makes them. We plan to conduct this work in approximately 10 communal grasslands per site.

This sub-component will result in the a grassland management characterization report, summarizing the research findings in terms of grassland uses, rights, managers, legal status, and decision-making. The methods applied will be refined and used to prepare a manual on grassland management characterization for Ethiopian highlands.

Step 2: Grassland monitoring

To assess the status, management opportunities, and—potentially—changes in grassland condition, grassland monitoring plots will be established in a subset of grasslands (likely 3 out of 10 per site) with active project participation and conducive conditions otherwise. NARS and user group members (i.e., community) will be trained to collect Land PKS data (www.landpotential.org), and submit to online platforms. The baseline is proposed to take place in the early dry season 2019, with outcome assessments I and II at around the same time in the 2 subsequent years.

This sub-component will firstly result in a grassland baseline dataset and report summarizing the baseline data from 6 grasslands in 2 sites, with a summary of general implications for their management. Outcome assessments I and II will each similarly result in a dataset and report. The ultimate deliverable from this sub-component is a grassland management technical report, based on sampling data from 6 grasslands in 2 sites and local management ideas, describing grassland management options for similar grasslands in Ethiopia. The final deliverable is a grassland management policy brief geared toward woreda, regional, and national level government.

Step 3: Community-based natural resource management

Community management of grasslands will begin in 2020 with participatory prioritization of management objectives for each of 20 grasslands. Based on the results of the prioritization

exercise, a grazing planning protocol will be finalized for use with grassland user groups to create an initial management plan, largely based on the existing management system. Future visioning will be used to assess possible alternatives, and especially ways to improve the current system in a practical manner—using options ranging from planned grazing to intensive restoration efforts. The ideas from the visioning sessions will form the basis, where feasible, of restoration/grazing management action research trials (possibly linking to animal disease), ideally but not necessarily where tracked with the monitoring under Sub-component B. Since the future of these lands (both for livelihoods and for the environment) depends greatly on the institutions responsible for managing them, we will host discussions on possible legalization of community management efforts, where appropriate.

This sub-component will result in a community prioritization report summarizing management goals for grasslands for multiple purposes in the eyes of the community (user group), and from these results a management options assessment tool for matching community priorities to grazing management options will be geared toward woreda and kebele government. The grazing planning process will result in a community grazing planning report summarizing community grazing planning for multiple purposes. A grazing management planning field guide, prepared for our grazing planning implementation in early 2020, will be revised to form another woreda-to-kebele level planning tool. For each restoration/grazing management action research trial implemented, a protocol for its implementation will be prepared, along with a participatory assessment report including both qualitative and quantitative data the working grasslands along with community responses and perceptions of the trials. A community grassland management policy brief will be prepared based on discussions on movement toward appropriate legalization, geared mostly for regional and national government. The keystone deliverable for the natural resource management component will be an overall implementation guide, synthesizing each element in the process used to conduct participatory community management of grasslands in the Ethiopian highlands, describing challenges and lessons learned, and providing a wide array of management options.

Application of CLEANED to assess environmental impact of adoption of SmaRT pack in Ethiopia

The CLEANED (Comprehensive Livestock Environmental Assessment for Improved Nutrition, a Secured Environment and Sustainable Development along Livestock and Fish Value Chains) Excel and R tools is a rapid ex-ante environmental impact assessment tool that allows users to explore multiple environmental impacts of livestock value chains. It models the impact of changes in the livestock production systems and value chains along several pathways on land use, productivity, economics, water impacts, greenhouse gas emissions, biodiversity and soil health. CLEANED X was developed by CIAT and CLEANED R by ILRI.

The CLEANED tool allows for site specific analysis with minimal data requirement a challenge in many developing countries. The model works by first putting in data for the analysis of a baseline livestock enterprise, after which the excel model automatically calculates environmental, climate and economic impacts. The user can explore the results and further assess alternative interventions/scenarios[3].

For the small ruminant value chain in Ethiopia it was proposed to model 2 or 3 sites with representative farm typologies using CLEANED with the baseline compared to a scenario of SmaRT pack adoption. 2019 and part of 2020 will be mainly dedicated to further development of the tool, while in 2020 partners will be identified and trained. Actual application was planned for 2021 with characterisation of livestock production systems in study districts, tool parametrisation, scenario development, feedback sessions with country team and partners, followed by refined analysis and sharing of results.

[3] https://cgspace.cgiar.org/handle/10568/78475
https://cgspace.cgiar.org/handle/10568/56664

As the CLEANED methodology is also used in the other focus countries, it provides opportunity for a cross-country synthesis paper.

Cross-cutting Gender

The substantial contribution that women make to agriculture often goes unrecognized and undervalued as a result of the inherent individual, community and institutional level social norms and practices hampering rural women's empowerment in Ethiopia. Women's participation in decision-making and control over resources, assets, benefits and services are limited, affecting HH food and nutritional security. Addressing restrictive norms requires changes in knowledge, attitudes and practices among male and female producers, service providers, cooperative leaders. and partner organizations. The gender component of SmaRT pack is expected to bring about these changes. Partners will engage in gender sensitive interventions in the target communities. This is expected to lead to more inclusion of women and youth in breeding cooperatives, leadership positions and other community groups; so that more women and youth adopt SmaRT pack; which leads to narrowed gender productivity gap; increased income and control over it amongst women and youth; and improvement in dietary diversity and nutrition within households as a result of the increased income.

Gender capacity development of implementing partners

In order to achieve changes in knowledge, attitudes and practices among community groups and partner organization, implementing partner organizations need institutional gender capacities but they are currently lacking. Livestock CRP has designed and tested tailor-made gender capacity development (GCD) for partner organizations (gender capacities at individual and institutional levels) to enhance gender mainstreaming capacities.

GCD involves a series of activities which includes rapid baseline gender capacity assessment, feedback sessions to prioritize capacity needs, design of modules, training workshops (tailor made implementations of the modules) coupled with coaching and mentoring activities. The manual for the tailor-made GCD interventions cover four thematic areas: (1) gender analysis for value chain development; (2) gender strategy development; (3) gender responsive organizations; and (4) monitoring and documentation. Based on our lessons, implementation of the GCD intervention for partners will follow a quick capacity assessment and feedback sessions to establish baseline, implementation of two rounds of training workshops complemented with experimental learning, coaching and mentoring activities. GCD for partners will be rolled out to Bonga, Menz and Abergelle VC sites in the country program.

Community Conversations as a gender transformative approach and to create awareness and share knowledge

Community conversations (CC) showed promising results as a gender transformative approach through improving gender capacities at HH and community levels to transform constraining gender relations in livestock production through strengthening individual and collective agency. So far, they covered topics such as livestock husbandry, ownership and control over livestock assets, prevention of zoonotic diseases. In addition, new modules on animal welfare and antimicrobial resistance are being developed by the Livestock Health team in 2019. In addition, CC will be used to identify community women and men champions (in gender relations and economic gains) to teach others and as forums for sharing best practices/experiences. The CC engages communities in open dialogues on gender norms, behavior and practices by creating safe space for radical and incremental change. It helps to capitalize on local resources to develop context specific knowledge products.

To achieve rolling out of CC to all selected VC villages, a training of trainers will be conducted, which will also be the first step towards integrating the approach into the extension system. CCs will be

continued in Menz and newly implemented in Bonga, Horro and Abergelle sites. This will be facilitated by a CC guideline developed by the ILRI and ICARDA gender team. The manual will be adapted and translated into local language so that local facilitators can easily use the CC guide to implement.

Specific activities include;

- Develop training of trainers materials on conducting community conversations.
- Bring a more equitable and balanced livestock husbandry role sharing and value among household members
- Change knowledge, attitudes and practice of community members about the causes, transmission pathways and prevention and control of major zoonotic diseases.
- Explore institutional and structural factors that influence the ability of women and men to access information and advice and to make decisions related to Breeding, Health, Feeding and marketing to avoid
- Enhance awareness of community members on risk of zoonotic diseases, animal welfare issues and rational use of antimicrobials

This intervention is expected to closely interface with Genetics, Health and Feed & Forages and LLAFS.

Annex B – Other major activities

Describe other major activities ongoing or planned in-country, by flagship and partner

Other important activities are

- Partnership landscaping (by SmaRT team with MELIA)
- Assessment of impact of SmaRT pack adoption (in 2020 and 2021 by ICARDA under FP LLAFS in collaboration with MELIA team)
- Willingness to pay for certification of rams and bucks (by ICARDA under FP LLAFS in 2020)

Willingness to pay for certification of rams and buck

We will elicit preferences for certification as a marketing function and for certified breeding rams in four project sites in Ethiopia.

- The certification scheme is to be designed in detail by ICARDA and its research and development partners. The willingness to pay for the scheme will be quantified based on data to be generated through choice experiments.
- This will be complemented by the elicitation of preferences and estimation of WTP for certified rams to see how consistent the value chain actors are in attaching monetary value for the certification as a function and as an attribute of a product.