RESEARCH PROGRAM ON Livestock

More meat, milk and eggs by and for the poor

Capacity needs assessment of Livestock CRP

Edwin Kangethe, Leah Symekher, Mamusha Lemma, Philip Sambati and Iddo Dror

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Patron: Professor Peter C Doherty AC, FAA, FRS
Animal scientist, Nobel Prize Laureate for Physiology or Medicine–1996

Box 30709, Nairobi 00100 Kenya
Phone +254 20 422 3000
Fax +254 20 422 3001
Email ilri-kenya@cgiar.org

ilri.org
better lives through livestock

ILRI is a CGIAR research centre

Box 5689, Addis Ababa, Ethiopia
Phone +251 11 617 2000
Fax +251 11 667 6923
Email ilri-ethiopia@cgiar.org

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Acronyms

2G	Second-generation cellular technology
3G	Third-generation cellular technology
4G	Fourth-generation cellular technology
ACGG	African Chicken Genetic Gains
ADENOCH	Development Association of North Chinandega
ADGG	African Dairy Genetic Gains
ADPLAC	Agricultural development partners linkage advisory council
AI	Artificial insemination
ASF	African Swine Fever
ASSP	Agriculture Sector Strategic Plan
ATA	Agricultural Transformation Agency
AVFA	Agence de la Vulgarisation et de al Formation Agricole
BICU	Bluefields Indian and Caribbean University
BMZ	The Federal Ministry for Economic Cooperation and Development
CABI	CAB International
CAO	Chief administrative officer
CapDev	Capacity Development
CAPROPALMA	Palma Producers Chamber
CAPs	Drinking Water Committees
CBO	Community Based organisation
CDC	Cukra Development Corporation (palm)
CGIAR	Consultative Group on International Agricultural Research
CIAT	The International Center for Tropical Agriculture
CMR	Coordinator of Rural Women
CNA	Capacity needs assessment
COAGRO	Farming Cooperative
COMPOR R.L	Multi Sectoral Cooperation of Organic Producers of The Rama
CONACOOP	National Council of Cooperatives
COOPROCAR R.L	Cooperative of Producers and Distributors of Cacao and Meat
CRP	CGIAR Research Program
CSOs	Civil Society Organisations
CTTBD	Centre for Tick and Tick-Borne Diseases
DADS	District Administrative Secretaries
DEDs	District Executive Directors
DFID	Department for International Development
DSIP	Agricultural Sector Development Strategy and Investment Plan
DVO	District veterinary officer
EC	European Commission
ECF	East Coast Fever

EIAR	Ethiopian Institute of Agricultural Research
F2F	Face to face training
FAO	the Food and Agriculture Organization of the United Nations
FECODESA	Management of the Federation of Cooperatives for Development
FGD	Focus Group Discussion
GALVmed	Global Alliance for Livestock Veterinary Medicine
GDP	Gross Domestic Product
GIS	Geographic information system
GoT	Government of Tanzania
GTP	Growth and Transformation Plan
HRD	Human resource development
ICARDA	International Center for Agricultural Research in the Dry Areas
ICT	Information and communications technology
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IITA	The International Institute of Tropical Agriculture (IITA)
ILC	International Land Coalition
ILRI	International Livestock Research Institute
INRAT	Institue National de la Recherche Agronomique de Tunisie
IP	Innovation platform
ISDN	Integrated Services Digital Network
IT	Information technology
ITM	Infection and Treat Method
IVR	Interactive Voice Response
KII	Key informant interviews
KPI	Key Performance Indicators
LGAs	Local Government Authorities
LIVES	Livestock and irrigation value chains for Ethiopian smallholders
LMP	Livestock Master Plan
LWI	Living Water International
MandE	Monitoring and evaluation
MAAIF	Ministry of Agricultural Animal Industry and Fisheries
MARENA	Ministry of Environment and Natural Resources, Environment
ME	Monitoring and évaluation
MEFCCA	Ministry of Family Community Economy
MoA	Ministry of Agriculture
MoLF	Ministry of Livestock and Fisheries
NAADS	National Agricultural Advisory Services
NAGRC and DB	The National Animal Genetic Resources Centre and Data Bank
NAHDIC	National Animal Health Diagnostic and Investigation Center
NAIC	National Artificial Insemination Center
NaLIRRI	National Livestock Resources Research Institute

NARC	National HIV/AIDS Research Committee
NARO	National Agricultural Research Organisation
NDA	National Drug Authority(U)
NGO	Nongovernmental Organisation
NICAVISTA	Directive to boost African palm cultivation
NIT-Somotillo	Territorial Innovation Nucleus
NLUPC	National Land Use Planning Commission
NWG	National Working Group
OEP	Office d'Elevage et Paturage
PAID	Public-private Partnership for Artificial Insemination Delivery
PaSoS	Sustainable Landscapes
POs	Producer organizations
RACCS	Autonomous of the South Caribbean Coast
RARI	Regional agricultural research institutes
RCT	Randomized controlled trial
RVF	Rift Valle Fever
SERENA	Secretary of Natural Resources
SMCSPS	Cooperative Central de Semence et Plantes Selectionnes
SMS	Short Message Service
SNNPR	Southern Nation, Nationalities and Peoples region
SNV	Netherlands Development Organisation
SPVCD	Smallholder pug value chain development
SRMP	Sustainable Rangeland Management Project
SUA	Sokoine University of Agriculture
TALIRI	Tanzania Livestock Research Institute
TBD	Tick Borne Diseases
TDB	Tanzania Dairy Board
TFDA	Tanzania Food and Drug Authority
TMB	Tanzania Meat Board
URACCAN	University of the Autonomous Regions of the Coasts of Nicaragua
USAID	United States Agency for International Development
VEDCO	Volunteer Efforts for Development Concerns

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Executive summary

Capacity development is a core enabling factor in the delivery of the 5 Livestock CRP flagships. One of the strategic capacity development actions for the Livestock CRP is to design evidence based capacity development interventions based on capacity needs analysis. To come up with a sound capacity development strategy for the Livestock CRP work in the priority countries, the CRP Strategic Investment Fund (SIF) funded capacity needs assessments in five countries in 2017, namely, Ethiopia, Nicaragua, Tanzania, Tunisia and Uganda. Data were collected from October to December 2017 through 34 KIIs, 17 FGDs and 103 individual interviews conducted at the national and district levels drawing participants from a range of partners such as CGIAR centres, public agencies, private sector and development organisations in the respective countries. This executive summary presents the key findings and recommended interventions structured into four capacity areas – partnerships, knowledge, implementation and policy.

To guide the assessment work, a capacity assessment framework and related tools were developed for the Livestock CRP program through a review of program documents, theory of change and impact pathways. The tools and methodology were further adapted to match country contexts. A mix of desk review, interviews and surveys brought together qualitative and quantitative data to better understand capacity development context in the Livestock CRP flagships at 3 levels of interest—systemic, organizational and the individual levels.

The CNA assessments focused on four core capacity areas (knowledge, partnership, implementation and policy) that cut across individual, organizational and institutional levels of capacity and the Livestock CRP flagships. While country assessment reports focused on the active flagships in those geographies, the assessments addressed capacity issues applicable to the Livestock CRP as a whole, as the Livestock CRP flagships share common partners and intervention sites. Where applicable, findings and recommendations specific to Livestock CRP flagships are presented.

Key findings

Knowledge capacity

Ethiopia. There is limited capacity around training methodology, including pedagogy/ andragogy, monitoring and evaluation of training outputs and outcomes and other knowledge transfer strategies. There are few learning opportunities on knowledge sharing methods and tools available to the actors in the livestock sector. There is a general lack of skills in process-oriented learning, documentation and development of knowledge products.

Nicaragua. The San Seco II project demonstrated the use of various training methodologies (experiential and participatory learning, informal learning and transfer of learning). The PaSoS project demonstrated

less evidence of varied training methods outside the formal workshops leading to poor quality training and therefore limited access to knowledge. There is a gap in project management by partners in the livestock sector.

Uganda. There is a lack of adequate investment by the government in the livestock sector leading to limited capacity for outreach and extension. Inadequate refresher training opportunities and lack of access to information hubs due to prohibitive subsciprtion and internet costs in the districts has led to limited knowledge and communication skills which are critical in extension work. In addition, poor linkage between research and extension limits access to information by extension workers and their ability to reach out to farmers with relevant information and advisory support. There is low uptake of value chain toolkits due to lack of guidelines to operationalize them.

Tunisia. There is limited access to new knowledge by partners and government. There is a disconnect between training content and farmer's context.

Tanzania. Access to up to date information and knowledge sharing remains an impediment in livestock projects. Information remains scattered and in analogue form. Creating targeted awareness of technologies was also lacking and therefore hampered project objectives.

Partnering capacity

Ethiopia. Existing partnership mechanisms in the livestock sector are mainly through steering committees, advisory committees, and memorandum of understanding. Partnerships are often established through informal meetings and personal/individual networks instead of a guidance of partnership development frameworks. There is no evidence that Livestock CRP flagship projects have clearly articulated partnership strategies and guidelines. There is the evident limited capacity of partners in partnership skills.

Nicaragua. The PaSoS project has a huge capacity gap in partnership management including dialogue. The San Seco II project is less much affected and has a variety of partnership networks with clear roles.

Uganda. There's a lack of partnership framework and agreements leading to weak partnerships without real obligations. Most partnerships are occasional collaborations and are not adequately documented and rely on the goodwill of those involved to make them work. Government agencies are weak on forming and fostering partnerships resulting to working in silos in a sector that requires close partnership and collaboration.

Tunisia. Farmer cooperatives have a bad reputation in Tunisia due to negative historical experiences by the farmers where they were ruined due to poor management. There is also unnecessary competition among partners leading to less collaboration and in some case conflicts.

Tanzania. The capacity to sustain partnerships for effective delivery of project objectives was seen as a gap especially when project lifecycle is coming to a conclusion. Partnership skills such as effective communication, purposeful engagement, sustaining strategic partnerships were lacking.

Implementation capacity

Ethiopia. There is a weak supply system of farming technologies, inputs and services. The livestock sector is characterised by a limited access to relevant knowledge and skills and improved livestock technologies and services. Implementation is affected by limited skills in planning, implementation, financial and data management. There is high staff turnover affecting implementation at all levels.

Nicaragua. In the PaSoS project, there is a lack of participation by relevant stakeholders. There's limited project management skills (weak financial and business management capacity) amongst partners. There are barriers to women's participation in training.

Uganda. Planning processes are often non-inclusive of those who will be involved in implementation leading to poor implementation. Limited capacity to undertake baseline studies to inform priority activities during planning leads to plans that are not informed by the actual conditions of the farmers.

Tunisia. Training content and delivery methods failed to address farmers' needs. Partners lack project management skills and implementation is often affected by conflicting interests amongst partners. There is weak linkage between research and extension services.

Tanzania. End users have limited access to information and technologies. Lack of coordination between partners. Lack of resources such as liquid Nitrogen equipment hinders effective transportation of the ECF vaccine to the livestock keepers.

Policy capacity

Ethiopia. The livestock policy environment is somewhat unclear, disconnected and characterised by weak integration across different subsectors and commodities. However, there are several initiatives to revise and improve policies, strategies and institutional structures. In alignment with the second phase of the Growth and Transformation Plan (GTP II), the Ministry of Agriculture (MoA) has developed a Livestock Master Plan (LMP) which sets out investment options and interventions to develop the sector, mainly focusing on animal genetics, feeds and health services along with institutional support mechanisms.

Nicaragua. There is a lack of coordination of livestock related policy implementation by relevant government agencies and partners.

Uganda. The existing livestock polices are affected by weak policy enforcement and regulatory capacity by the responsible government departments leading to mediocre quality of inputs and services reaching

the farmers. There is a breakdown in disease diagnosis and control infrastructure manifesting as lack of coordination between concerned ministries and government agencies and consequent weak capacity in disease control.

Tunisia. There are relevant livestock policies in the country, but awareness by partners and some government agencies is poor. There is no policy related to the production of forage leading to lack of forage seed development and reproduction infrastructure supported by the government.

Tanzania. There are relevant policy statements but they lack specific policy directives and instruments towards enforcement and actualizing them. Conflict between existing policies hamper their implementation.

Recommendations

The various recommendations from the countries were summarised into recurring themes and are captured below.

1. Develop training methodology capacity
2. Develop partnership management capacity (support to the ongoing partnership work).
3. Develop capacity of extension workers to overcome barriers to communicating with farmers / pastoralists
4. Develop digital extension solutions to enhance current (low) extension capacities.
5. Develop and disseminate targeted advocacy messages (linked to the GLAD work)
6. Training on project management skills targeting implementation level staff

Specific and more detailed recommendations are captured below and mapped into the four key areas that were being assess—knowledge, partnership, implementation and policy.

Knowledge

Ethiopia. It is recommended that the Livestock CRP package tested and validated innovations and approaches into learning materials using instructional design and training methodology. Effort should be put to transform research products into extension materials, guidelines and videos which can be useful to farmers, extension workers, policy makers and private sector actors.

Nicaragua. In the San Seco II project, there should be more focus on informal and peer learning as a way of supporting learning outside of the workshop settings. The PaSoS project has a more diverse learning ecosystem that can further be improved by adding blended learning supports (social learning such as peer learning, on the job support / mentoring) as well as evaluation of learning and transfer of learning.

Uganda. Setup Knowledge centres in the districts for government livestock staff. District livestock staff should be targeted with soft skills like communication skills and adapting technical information for a general audience that often has limited education. Develop guidelines to operationalize value chain toolkit to enhance their use by the livestock sector partners.

Tunisia. Developing a training guide and conducting training workshops in training design, delivery and evaluation is much needed.

Tanzania. Equip project implemetors with partnership and project management skills. Invest and utilize electronic knowledge sharing techniques that allow all partners to have access to up to date data.

Partnership

Ethiopia. Develop partnership guidelines to guide project teams and partners. Organize training workshops on partnership development and management.

Nicaragua. Develop mentorship support for PaSoS project staff and partners on partnership dialogue skills.

Uganda. Adopt minimum framework and guidelines for partnership management across Livestock CRP flagships.

Tunisia. Train key partners in management of multi stakeholder platforms to initiate collaboration in the sector.

Tanzania. Establish mechanisms to promote sustainable partnerships, way beyond the life of the project, with government agencies fully equipped to sustain existing partnerships.

Implementation

Ethiopia. Create online and offline learning resources to increase partners' staff access to information and knowledge, such as through livestock knowledge centres. Develop planning, implementation, monitoring and evaluation, supervision and mentoring capacity of implementing partners.

Nicaragua. Use mobile learning (SMS, mobile voice services and radio) to support blended learning outside workshops and provide support through job aids and social learning (coaching and mentoring, peer learning, on the job support).

Uganda. Develop capacity for inclusive, participatory and evidence-based planning and advocacy to effectively engage and increase ownership and scaling capacity by implementing partners. Aware law enforcers and private actors through advocacy campaigns and training on implementation processes and mechanisms of the liberalization policy to avoid malpractices of inputs and service providers.

Tunisia. Effort should be put into forage seed production development and management. There is the need to adapt training methods and continue to include more practical lessons.

Tanzania. There is need to establish extension platforms that effectively mobilise and relay information regarding new vaccination sites of newly born calves that require the ECF vaccination. To secure rangeland for pastoralist communities, entrench joint land use planning as a tool to secure the gains evidenced so far to achieve sustainable rangeland management.

Policy

Ethiopia. Create alignment and coordination among partners to act in a coordinated and synergistic way. Incentivise private sector participation through improving the enabling environment towards privatization of livestock inputs and service delivery, such as animal health service delivery, animal feeds and animal genetics.

Nicaragua. Use policy dialogue and a set of resources (posters, policy briefs, guidelines, public versions) to improve access and targeted awareness of relevant policies and better understand evidence-based policies. Use job aids, training and other supporting materials that clarify policies at different levels.

Uganda. Catalyse formation of a pig development authority as a stakeholder vehicle to drive the pig sector policy initiatives. Facilitate dialogue at all levels to create awareness about the implementation modality of the liberalization policy for positive outcomes.

Tunisia. Initiate policy awareness campaigns and trainings for livestock related policies targeting relevant partners and government agencies. Develop policy briefs on forage and forage seed reproduction targeting sector actors and political government levels.

Tanzania. Facilitate engagement with various government agencies to push for the registration of the ECF vaccine in Tanzania. Further, advocate for ECF to be prioritized and its ultimate inclusion into the Ministerial circular. Initiate policy awareness campaigns between actors and bring harmony between existing conflicting policy documents.

Ethiopia country report

Executive summary

The overall objective of the capacity needs assessment (CNA) was to understand the current and desired capacity of Livestock CRP Flagship projects partners in Ethiopia as the basis for developing intervention strategy.

The CNA involved a desk review of relevant documents and a pre-assessment consultation with project leaders to clarify purpose and select key partners for the assessment. It addressed four capacity areas related to knowledge, partnership, implementation and policy using key informant interviews, focus group discussions, stakeholder analysis, and individual capacity assessments. Data were collected in October 2017 through five KIIs, three FGDs and 31 individual interviews conducted at the national level drawing participants from CGIAR centres, MoLF, EIAR, ATA, Land O'Lakes and Oromia and SNNPR research centres.

Key findings

The following is a summary of key findings by capacity areas:

Knowledge: The concept and practice of training is misunderstood. Training is taken for granted, and the commonly held perception is that anybody can be a trainer. There is inadequate or no follow-up activities to ensure that the knowledge acquired in training is applied in the workplace. Skills in training methodology, training follow up and learning application support strategies, and documentation and review of training processes are lacking. Capacity for process-oriented learning, research communication, documentation and application of knowledge needs strengthening at all levels.

Partnership: A stakeholder analysis identified key stakeholders such as MoLF, NAIC, NAHDIC, ATA, EIAR, Land O'Lakes, dairy processors association and regional livestock agencies and agricultural research institutes in the four major regions. National and regional research partners, MoLF and agricultural and livestock development offices at the local level are primary partners, which are critical to the delivery of Livestock CRP flagship projects. Beyond the use of project agreements and management structures such as a memorandum of understanding and steering committees, there is no evidence that Livestock CRP flagship projects have a partnership policy and strategy that defines and guides partnership objectives, prioritization of partners and review and documentation of partnership processes, activities and outcomes. Motivation and ownership is a particular partnership challenge at lower levels. Even when research for development projects are developed and launched through a series of consultative processes, the perception of "ours" and "yours" is evident.

Implementation: Implementation capacity gaps relate to service delivery, access to knowledge and information, financial management and motivation. In Ethiopia, the livestock sector suffers from a weak

supply system of reproductive technologies and livestock health services. Despite huge demand for private sector participation, several capacities and institutional constraints hinder the participation of the private sector. Another implementation challenge is access to knowledge and skills. Local level partners do not have easy access to the internet which constrains their capacity to access project generated knowledge and information. Financial flow and management capacity of research partners is also a major concern for Livestock CRP flagship projects. There is generally weak administrative support capacity (planning, training, financial management, financial reports) within partner research organizations.

Policy: Despite its importance, until recently, there have not been relevant policies to develop the livestock sector. Ethiopia has now given much emphasis to develop its livestock sector. However, the policy environment of the livestock sector is quite disconnected, and there is weak integration across the different subsectors and commodities. Key policy capacity gaps include policy awareness, policy implementation and matching to local needs, private sector participation, communication and coordination among key players, and maintenance of databases for the livestock sector.

Policy capacity is required at different levels in revising, designing and implementing policy directions, regulatory frameworks, and institutional arrangements considering the unique characteristics of the livestock sector. At the local level, there is limited awareness and capacity in policy translation and matching to local demands. The private sector needs incentives in terms of developing viable business models and creating access to productive resources and knowledge and skills particularly in business and entrepreneurship skills.

Recommendations

The following is a summary of the recommendations by capacity areas:

Knowledge: It is critical to change the mentality and perception about training delivery. Training programs should be given with a purpose and should be practice oriented linked to specific performance activity. There is capacity need to package tested and validated innovations, processes and approaches into learning materials using an instructional design methodology, including online learning resources and transformation of research products into extension materials, guidelines and videos which can be useful to farmers, extension workers, policy makers and private sector actors.

Partnerships: There is a need for the Livestock CRP partners to develop partnering capacity to better define context specific partnership models to strategically engage with key partners to bring impact at scale through research-based solutions. It is important to identify champions within key partner organizations and make sure that they are sufficiently capacitated and have access to knowledge and information and are equipped with communication and facilitation skills so that they play a key role in institutionalizing and creating critical mass within partner institutions to scale research outputs and innovative approaches.

Implementation: Innovative institutional arrangements and business models have to be developed taking the unique characteristics of the sector to incentivize and capacitate the private sector to increasingly participate in livestock value chain businesses (genetics, feeds and livestock health services). Innovative means of making research outputs accessible to local partners have to be sought. Efforts should be made to transform research outputs into different usable formats and make them accessible to development partners at different levels. Training and coaching for key administrative units and staff is critical to strengthen institutional capacity of research partners to deliver on partnership projects.

Policy: There is need for making the livestock policy landscape clear and strengthening coordination and integration among key players such as the Ministry of Trade, Ministry of Industry, MoLF, EIAR and private partners to develop a livestock development strategy that integrates cross-sectoral issues in a way that the different key players act in a coordinated and synergic way. There is a need to develop capacity for evidence-based policy making processes through policy dialogue and production of policy relevant research communication materials.

Detailed proposed interventions are found in Chapter 4 of this report.

SECTION 1. INTRODUCTION

The goal of the Livestock CGIAR research program (CRP) is to create a well nourished, equitable and environmentally healthy world through livestock research for development. Livestock CRP flagship projects are delivered through a partnership of national and regional research and development organizations. Partnering capacity of Livestock CRP flagship projects and research and development partners is seen as critical for the delivery of the Livestock CRP theory of change and impact pathways.

ILRI's Capacity Development team together with the Livestock CRP conducted a capacity needs assessment (CNA) of Livestock CRP flagship projects and their research and development partners at different levels. The assessment aims to identify existing and required capacities of Livestock CRP flagship projects and their national and regional research and development partners to co-generate research outputs and use the results to bring about development outcomes at scale.

With a focus on animal genetics, feeds and forages and animal health Livestock CRP flagship projects (African Chicken Genetic Gains, African Dairy Genetic Gains and Global hunger and food security research strategy), the assessment addressed capacity issues applicable to the Livestock CRP, as the Livestock CRP flagships share common partners and intervention sites. Results and recommendations are thus work for Livestock CRP flagship projects, as they address livestock research and development issues. Where it is applicable, findings and recommendations specific to Livestock CRP flagship projects are presented.

The assessment engaged both Livestock CRP flagship project leaders and their partner research and development organizations at different levels. National and regional research organizations are the primary Livestock CRP flagship projects partners, which are critical to the delivery of the impact pathways. While the assessment involved these primary partners, it also included development partners such as public agencies and international development projects. The Livestock CRP and its flagship projects' theories of change inform the capacity needs assessment which focused on four key capacity areas which cut across the flagship projects: knowledge, partnership, implementation and policy capacity.

Knowledge capacity assessment looks at existing and required organizational and individual capacities of Livestock CRP projects and partners' staff, focusing on skill sets that are required to effectively generate, manage, share and use project generated and organizational knowledge resources. Partnership capacity assessment looks at organizational and individual capacities for engaging in strategic partnerships and networks with national and regional research and development partners, both for cocreation of research outputs and transformation and utilization of the research outputs. Implementation capacity looks at implementation issues at the delivery level that could be addressed through knowledge and skills development interventions. Finally, policy capacity assessment identifies the capacity needs of national partners in formulating and implementing livestock policies and institutional arrangements in support of the delivery of Livestock CRP projects.

SECTION 2. DESIGN, METHODOLOGY AND PROCESS

Assessment methods and tools

The CNA was conducted in October 2017 using a general CNA framework which was developed to guide the assessment. The tools and assessment methodology were adapted to reflect local contexts based on a review of relevant project documents and consultation with key resource persons.

The assessment used key informant interviews (KIIs) and focus group discussions (FGDs) to assess organizational capacity and stakeholder analysis. KIIs were held with Livestock CRP flagship project leaders and individuals responsible for human resource development (HRD) and training programs within the Ministry of Livestock and Fisheries (MoLF) and the Ethiopian Institute of Agricultural Research (EIAR). Individual assessments were also used to assess exiting and desired capacity of the technical staff of key research and development partners (MoLF and regional research centres). They were followed by FGDs to help understand the context and underlying capacity problem issues.

During the KIIs with Livestock CRP flagship projects, assessment respondents identified relevant study reports which were then shared with the assessment team and reviewed to provide context and input for this report.

Respondent selection

Pre-assessment face to face meetings were conducted with Livestock CRP flagship project leaders to introduce the purpose and focus of the assessment. In addition to creating buy in for the assessment, it offers opportunities for project leaders to provide inputs and documents for a review.

Assessment participants were selected purposefully in consultation with Livestock CRP flagship project leaders. National and regional research partners and the MoLF are key partners participated in the assessment. Partners who are critical to the delivery of project objectives and individuals who have key roles in the Livestock CRP projects were selected for KIIs. Technical partner staff as well as those responsible for HRD and training programs were asked to complete the individual capacity assessments.

In addition, the CNA took the opportunity created by the gender training workshop to conduct individual capacity assessments and informal discussions with regional research partners in Oromia and SNNPR. The training workshop was organized for Livestock CRP partners, and it was held at the ILRI Office in Addis from 23 to 27 October 2017. Thirteen training participants from Bako, Yabello and Areka research centres were made to complete the individual capacity assessments. In addition, informal interactions were made with the participants during coffee and lunch breaks in order to understand the capacity context.

Data management and analysis

The report is based on analysis of qualitative and quantitative data from five KIIs, three focus group discussions, and thirty-one individual assessments. Data from KIIs and FGDs were analysed qualitatively, and MS Excel 2013 was used to manage and analyse quantitative data from the individual capacity assessments.

SECTION 3. FINDINGS

This section of the report presents the results by capacity areas.

Knowledge capacity

The knowledge capacity assessment addressed capacity issues related to training and knowledge management.

Training perception and practice

The concept and practice of training is generally misunderstood. Training is taken for granted, and the commonly held perception is that anybody can train. Often, training programs are delivered with no serious preparation, methodology and follow up strategies. Training activities are ad-hoc, lacking adequate training materials or job aids and in the form of lectures with related reports focusing on number of people trained.

Training activities are rarely targeted and customized to address performance problems. There is little to no follow up activities to ensure that knowledge attained in training is applied in the workplace (Table 1). As the table shows, 56% of the respondents at MoLF indicated that they generally lack skills in training methodology. Fifty-seven percent of the respondents indicated that existing training programs are not based on training needs analysis while 72% of the respondents indicated that there are weak or no training follow up strategies and activities.

There are also cases where the wrong people are targeted for training. Once people get trained, they end up doing other activities not related to the skills in which they were trained on. This is a challenge for skills transfer in the workplace. All this is due to a lack of skills in training methodology based on a sound assessment of learning needs and development of a training follow up strategy to support knowledge application.

Table 1. Percentage of respondents who assessed training capacity at MoLF (n = 18)

	Very little or none	Partially	Mainly	Very Much or Fully
Do staff have the required technical and managerial skills to do their work?	11	67	22	
Are there sufficient training/learning opportunities for staff?	33	61	6	
To what extent do existing training events prepare staff to respond to work requirements?	28	56	16	
Are existing training content and delivery methods defined based on individual staff learning goals and work requirements?	57	43		
Is there sufficient follow up strategy and knowledge application support after training?	72	28		
What skills level currently exist in training design, delivery and evaluation methodology?	56	39	5	

It is critical to change the mentality that anyone can train. Training programs should be delivered with a purpose and should be practice oriented and linked to specific performance activity. A case in point is the training facilitated by ICARDA on artificial insemination for small ruminants. This training is delivered in the form of on the job training linked with specific assignments for action and follow up support. The experience of ICARDA demonstrated the importance of linking training activities with performance improvement activities.

Another experience comes from the public-private partnerships for the Land O'Lakes' Artificial Insemination Delivery (PAID) program, which uses practically experienced people to deliver training programs using illustrations and visualizations such as posters, brochures and videos. FGD with PAID staff indicated that modular training would address the time constraints of women farmers. Instead of having them for two days training, they can take four half day training sessions to complete a course. These experiences indicated the need for documenting and packaging innovative training approaches to influence training programs of partners at all levels.

Training management capacity of research partners varies by administrative levels. At the national level, there is sufficient capacity. Key informant interviews with the Research Leadership and Capacity Building Department of the Knowledge Management Directorate of EIAR showed that there is an established and functional system for conducting training needs assessment, training delivery and documentation. This claim was partly supported with results of the individual capacity assessment of regional research partners which showed that training programs were informed by training needs analysis (Table 2). As the table shows, on average, 77% of the respondents from regional research centres indicated that existing training content and delivery methods were based on individual learning needs. However, capacity of regional research centres in training facilitation methodology including training follow up strategies is partially or non existent. Only 8% of the participants from regional research centres believed that there was sufficient training follow up strategy and learning application support.

Table 2. Percentage of respondents who assessed training capacity at RARIs (n = 13)

	Very little or none	Partially	Mainly	Very Much or Fully
Do staff have the required technical and managerial skills to do their work?	8	54	38	
Are there sufficient training/learning opportunities for staff?	38	38	23	
To what extent do existing training events prepare staff to respond to work requirements?	46	46	8	
Are existing training content and delivery methods defined based on individual staff learning goals and work requirements?	23	46	31	
Is there sufficient follow up strategy and knowledge application support after training?	69	23	8	
What skills level currently exist in training design, delivery and evaluation methodology?	46	54		

In the ACGG project, a number of training events have been facilitated at different levels for researchers, coordinators and field facilitators, but still capacity in training methodology and particularly evaluation of learning and training approaches needs strengthening. Skills in training follow up and learning application support strategies and documentation and review of training activities are not at a sufficient level. In general, apart from research and development partners, training methodology and management capacity needs to be strengthened within the CGIAR centres.

Long-term training in terms of graduate fellowships has been a key contribution of the Livestock CRP flagship projects. There is a particularly acute shortage of expertise in livestock genetic improvement (breeding and genetics). Complementary training programs need to be organized for graduate fellows in genetics and statistics. Capacity development for the national research system in terms of laboratory facilities and continuous training in molecular genetics and genetic analysis is also required.

Knowledge capturing and sharing

Individual capacity assessment results indicated that there is limited capacity and learning opportunities in knowledge sharing methods and tools at the MoLF (Table 3). On average, only 8% of the respondents indicated that they have sufficient access to information or training opportunities in knowledge management method and tools. Key informant interviews also showed that capacity for process-oriented learning, documentation and application of knowledge needs strengthening. Reports mostly contain outputs with little focus on the process and lessons learned elements. Documentation of planning, implementation and review processes is particularly important to strengthen institutional capacity. At a local level, research and development partners lack specialized units and expertise in capturing, transforming and sharing knowledge. Partners mainly have technical orientation, and they lack skills in facilitation of social learning and reflective practices, which are critical to research for development projects to capture knowledge in approaches and processes beyond technical knowledge.

Table 3. Percentage of respondents who assessed knowledge management capacity at MoLF (n = 18)

	Very little or none	Partially	Mainly	Very Much or Fully
Do staff have sufficient access to new knowledge, communication tools and learning resources?	34	55	11	
What skills level currently exist in knowledge management?	22	72	6	
Do staff have sufficient training in knowledge sharing tools, methods and techniques?	39	55	6	

Key informants from research partners indicated that there is a sufficient government commitment to bring change and scale evidence-based innovations. Individual skills are also there to a limited extent, but the challenge is the lack of organizational culture and accountability system conducive to knowledge generation, sharing and use to improve performance.

Existing knowledge sharing practices are routine such as field days, meetings and technical reports. Training and learning resources are needed for partners particularly at the local level in how to implement existing and integrate new knowledge sharing methods and tools. In the ACGG project, innovation platforms (IPs) serve as knowledge and information hub where producers, private and public sector partners come together to share knowledge, diagnose problems and find solutions to problems. The IPs operate at different levels and enable project partners to share new knowledge and information about innovations, inputs and markets. They enable project partners to take responsibility in identifying challenges and finding ways to address those challenges. Such innovation hubs will create opportunities for the private sector to engage in livestock value chain businesses.

Some partners have documentation centres. However, they are not kept up to date and managed properly in a way they support organizational learning and performance. In many cases, there are no responsible persons or units for knowledge management in partner organizations. There is also a lack of motivation and commitment to innovate and share knowledge. A key informant recalled that some research for development projects have made efforts to develop the knowledge and learning culture and capacity of partners. But many of these initiatives are short of long-lasting changes partly because partners did not make efforts to fix even small challenges. For example, there are many serviceable computers at the district level but are currently not in use due to lack of servicing. Computer technicians are available at Universities and communication and IT units, but there is no cooperation among institutions to use available expertise and resources.

Research communication

Key informant interviews indicated that national research partners relatively have better access to new knowledge as well as have the digital skills to access knowledge. For example, the EIAR's knowledge management directorate has established an elaborate system for knowledge capturing and sharing through websites and publications. National research staff have access to online and offline resources. The EIAR's Agrinet Portal is a typical example. In addition, key informants at EIAR indicated that there are sufficient training opportunities for research staff, including scientific writing, research methods and data analysis.

However, knowledge management capacity of regional research centres needs strengthening (Table 4). Only 23% of the participants believed that the knowledge management capacity exists while only 8% of them indicated that they had training in knowledge sharing tools, methods and techniques.

Table 4. Percentage of respondents who assessed knowledge capacity at RARIs (n = 13)

	Very little or none	Partially	Mainly	Very Much or Fully
Do staff have sufficient access to new knowledge, communication tools and learning resources?	31	69		
What skills level currently exist in knowledge management?	8	69	23	
Do staff have sufficient training in knowledge sharing tools, methods and techniques?	46	46	8	

Existing knowledge sharing mechanisms of Livestock CRP flagship projects and research partners include workshops, guidelines, fliers, fact sheets, review meetings, experience sharing events, field visits and websites. Research translation and communication capacity is needed for the Livestock CRP project and research partners. There is capacity need to package tested and validated innovations and approaches into learning materials using an instructional design methodology, including online learning resources, and transformation of research products into extension materials, guidelines and videos which can be useful to farmers, extension workers, policy makers and private sector actors.

Partnership capacity

Partnership enables efficient use of expertise and resources, coordination of activities and sharing of knowledge to solve technical and institutional challenges. In Ethiopia, Livestock CRP flagship projects work with a number of public and private partners at different levels often sharing common partners and intervention sites. A stakeholder analysis identified major partners such as MoLF, NAIC, NAHDIC, ATA, EIAR, Land O'Lakes, diary processors association, regional livestock agencies, and regional research institutes in the four major regions.

National and regional research partners, MoLF and agricultural and livestock development offices at the local level are primary partners, which are critical to the delivery of Livestock CRP flagship projects.

Existing partnership structures and strategies of Livestock CRP flagship projects include steering committees, advisory committees and project agreements in the form of a memorandum of understanding with key research and development partners at national and local levels. These partnership tools basically define objectives and roles and responsibilities of partnership parties. Beyond the use of these tools, there is no evidence that Livestock CRP flagship projects have clearly articulated partnership policy and strategy that defines and guides partnership objectives, prioritization of partners and how to review and document partnership processes and outcomes.

While Ethiopia's Transformation Agenda provides national development priorities, capacity for coordination and alignment of different livestock actors to deliver at one towards meeting the national agenda is limited. The expectation from key informants is that the MoLF would bring different livestock programs and actors in the country, facilitate review processes of existing knowledge, establish coordination and communication system, and develop a national knowledge management system.

Individual capacity assessment results showed that technical staff at the MoLF demonstrated very little or partial capacity in partnership skills such as negotiation, claim-making, communication and facilitation (Table 5). As the table shows, on average, only 13% of the respondents at the MoLF indicated that they have sufficient partnership and coordination skills. Key informants from CGIAR centres indicated that partnerships are mostly established through informal meetings and personal networks. Individuals matter in establishing and sustaining partnerships. The common practice is that partnerships are established with partners which are critically important for research, such as national and regional research organizations. It is important to identify champions within partner organizations and make sure that they are sufficiently capacitated and have access to knowledge and information and are equipped with communication and facilitation skills so that they play a key role in institutionalizing and creating critical mass within partner institutions to scale research outputs.

Table 5. Percentage of respondents who assessed partnership capacity at MoLF (n = 18)

	Very little or none	Partially	Mainly	Very Much or Fully
Do staff have relevant skills to support networking and partnership building?	44	50	6	
What skills level currently exist in negotiation and claim-making?	33	67		
What skills level currently exist in partnership and coordination?	29	56	15	
What skills level currently exist in communication and facilitation?	22	61	17	

Partnership issues vary by partners and levels. Motivation and ownership is a particular partnership challenge at the local level. A key informant from CGIAR centres noted that at times partners agree, but fail to deliver agreed roles. Meetings are not regular and lack follow up activities. Even when research for development projects are developed and launched through a series of consultative processes (site identification, problem analysis, benchmarking, workshops and partnership role definitions), the perception of "ours" and "yours" is evident.

Research partners have sufficient partnership capacity. Key informant interviews with CGIAR centres showed that research partners integrate partnership project as part of their organizational research programs. Livestock CRP project activities are integrated within partner research organizations which they are accountable for reporting. However, partnership capacity needs strengthening at the local level (Table 6). As the table shows, on average, only 15% of the respondents from regional research centres

indicated that they had partnership and coordination capacity. Functional skills such as negation, claim-making, communication and facilitation are much needed.

Table 6. Percentage of respondents who assessed partnership capacity at RARIs (n = 13)

	Very little or none	Partially	Mainly	Very Much or Fully
Do staff have relevant skills to support networking and partnership building?	54	23	23	
What skills level currently exist in negotiation and claim-making?	31	62	8	
What skills level currently exist in partnership and coordination?	23	62	15	
What skills level currently exist in communication and facilitation?	15	85		

Implementation capacity

Implementation capacity gaps relate to service delivery, access to knowledge and information, financial management and motivation.

In Ethiopia, the livestock sector suffers from a weak supply system of technologies, inputs and services. There is a dominant but inefficient public service provision system. There is a need for privatization of livestock service provision including quarantine, health and genetic services. Despite huge opportunities for the private sector, a number of capacity and institutional constraints hinder its participation. For example, private sector service providers in artificial insemination (AI) are limited due to the current semen supply subsidy and lack of grants. They are limited to commercial areas and peri-urban centres and have no incentives to reach out to remote areas. Infrastructure constrains such as liquid nitrogen, semen, preventive maintenance of machinery and equipment and the distribution chain are mentioned as implementation challenges for AI service provision.

There is a limited number of private sector engaged in technology multiplication and the supply of inputs and services. For example, there is only one private sector, which supplies livestock feed nationally. A number of factors constrain the participation of the private sector, such as technical capacity and access to technologies, credit services and knowledge and skills. Innovative institutional arrangements and business models have to be developed taking the unique characteristics of the sector to incentivize and capacitate the private sector to increasingly participate in livestock value chain businesses.

Another implementation challenge is access to relevant knowledge and skills. Local level development partners have limited access to the internet which constrains their capacity to access project generated knowledge and information. Innovative means of making research outputs accessible to local partners have to be sought. Efforts should be made to transform research products into different usable formats and make them accessible to development partners at different levels.

Implementation capacity such as planning, implementation, financial management and data management are not at a sufficient level (Table 7). As the table shows, on average, only 20% of the respondents at MoLF indicated that they have sufficient skills in planning, financial management and monitoring and evaluation. In particular, training is needed for local partner staff in data collection and record keeping, business skills and organizational and facilitation skills. The ADGG and PAID projects are using the digital data capturing system in collaboration with the NAIC. Digital knowledge of extension agents is quite low. Intermittent internet connectivity also affects digital data capturing. In addition, respondents indicated that there is weak partner support and commitment for data recording. There is a need to create awareness of partners at all levels about the importance of data collection and record keeping as a key decision tool to improve planning, prioritization and investments in the livestock sector.

Table 7. Percentage of respondents who assessed implementation capacity at MoLF (n = 18)

	Very little or none	Partially	Mainly	Very Much or Fully
What skills level currently exist in planning and implementation?	22	45	33	
What skills level currently exist in financial and project management?	28	61	11	
What skills level currently exist in monitoring, evaluation, data management and report writing?	44	39	17	

In some cases, plans are not implemented for various reasons such as resources, commitment and technical capacity. Practical on the job training in terms of close follow up and mentoring are needed to ensure that local research partners develop technical skills and confidence. Learning visits, knowledge fairs and celebration of successes, training and coaching and reward and incentive systems for best performing partners and individuals through educational opportunities are some of the strategies CGIAR centres are using to address capacity and motivation challenges.

Financial flow and management capacity of partners is a major concern for Livestock CRP flagship projects. There is generally weak administrative support capacity (planning, training, financial management and financial reports) within partner research organizations. Training and coaching for key administrative units and staff is critical to strengthen institutional capacity of research partners to deliver on partnership projects. The current admin staff from partner research organizations have weak financial management capacity. They are not well familiarized with the financial reporting requirements of CGIAR centres. There is also slow and lengthy financial flow process to regional research partners. The existing practice is that CGIAR centres transfer money to regional research institutes who then transfer the money to district agricultural and livestock development offices who finally disburse the money to research centres.

Another implementation challenge is high staff turnover at different levels. There is a weak knowledge transition system. When staff leave, they rarely submit properly documented terminal reports. The consequence is that valuable knowledge is lost and that continuous training and coaching is required for

new staff and heads of partner organizations. Respondents suggested that establishing documentation and knowledge centres can help address knowledge and skills gaps of new staff. In addition, periodic progress reports can help in capturing knowledge overtime. Online learning platforms could also help with staff turnover and retention challenges and the need for training of new staff which can be expensive.

A common implementation challenge is attitudes and motivation of partners, particularly at the local level. In most cases, expectation of personal benefits outweighs organizational benefits of partnership projects. Project focal persons at different levels are not getting sufficient organisational support to implement and report on project activities. The perception of “ours” and “yours” is pervasive at all levels, which could be addressed by developing and implementing a well thought of partnership and sustainability strategy.

Policy capacity

In Ethiopia, until recently, there has not been clear national livestock policies, legislations and roadmap to develop the sector. Livestock policies have been general, focusing on the dairy and animal health sector. In alignment with the second phase of the Growth and Transformation Plan (GTP II), the Ministry of Agriculture (MoA) has developed a Livestock Master Plan (LMP) which sets out investment options and interventions to develop the sector, mainly focusing on animal genetics, feeds and health services along with institutional support mechanisms.

A national livestock breeding policy has recently been approved by the parliament. The policy is believed to provide the necessary enabling environment to enhance genetic improvement programs and investments. A number of initiatives are also under process to establish an Ethiopian Dairy Board, Livestock Genetic Improvement Institute, and Animal Health Institute. Some of these institutions are an upgrade of already existing centres such as the National Artificial Insemination Center (NAIC) and the National Animal Health Diagnostic and Investigation Center (NAHDIC).

In the animal health sector, there are ongoing project based initiatives to improve the enabling environment towards privatization of animal health service delivery. Other initiatives are also underway to revise and endorse new regulations such as live animal marketing, hides and skins, and animal welfare and management policies. Awareness creation of existing and new policies, development of implementation strategies and guidelines, and alignment and coordination of different actors will be needed.

A key informant from a partner research organization remarked that “We often say that we do not have policy problems, but rather implementation is the challenge. And yet, we are not aware of which policies exist and which ones are lacking. There is limited awareness of existing policies and understanding of policy gaps at all levels. The policy landscape needs to be clear; we should know what is existing, what is the implementation modality, what is missing, and how this can be addressed. At

present, the policy environment of the livestock sector is quite disconnected, and there is no integration across the different subsectors and commodities".

There is need for policy capacity strengthening at different levels in terms of designing and implementing policy directions, regulatory frameworks and institutional arrangements considering the unique characteristics of the livestock sector.

At the local level, there is limited capacity in policy implementation and matching to local needs. When policy directions are translated in terms of implementation strategies, it is important to understand and make sure that these policy implementation strategies consider existing and emerging needs of farmers at the community level. The mismatch of strategies and local needs can be addressed through a consultative process with end users and developing the capacity of local development actors in analysing and prioritizing local needs and engaging in consultation and feedback processes.

Another policy issue is the need to incentivize the private sector to encourage participation in the livestock sector. Incentives can take the form of supporting with viable business models and by enhancing access to land, credit, market facilitation and knowledge and skills. For example, technology multiplication and dissemination are a particular concern for the African Chicken Genetic Gains (ACGG) and African Dairy Genetic Gains (ADGG) projects. The private sector has technical and physical capacity limitations in terms of multiplication of poultry and dairy technologies and inputs which requires incentives by addressing issues related to taxation and access to land, credits, information and market.

Key informants from an international NGO indicated that public perception about the private sector is not generally positive. Changing this perception and gradually opening up opportunities for the private sector is seen as critical to improve livestock value chains. Multi stakeholder platforms are seen as critical to bring together the relevant institutions and individuals such as policy makers, private sectors and research into dialogue on bolstering the private sector, enabling policies and institutions such as land, finance and taxation to promote private driven livestock businesses.

There is a need for more coordination and communication among key players such as the Ministry of Trade, Ministry of Industry, MoLF, EIAR and private partners to develop a livestock development strategy that integrates cross-sectoral issues in a way that the different key players act in a coordinated and synergic way. An important issue here is to develop capacity of these stakeholders for evidence-based policy making processes through policy dialogue and production of policy relevant research communication materials. Key informants indicated that there would be much benefit in bringing together major livestock research and development programs in the country to share knowledge, lessons and dialogue on critical gaps to inform policy making and develop knowledge absorption and scaling capacity of the public system.

Capacity for establishing and managing coordinated systems for data collection and record keeping and the maintenance of databases for the livestock sector is particularly crucial. In the dairy sector, quality based pricing and payment system is also needed.

Policy capacity needs include organizing more research based policy dialogues, technical support in strategy development and synthesis of research outputs into policy briefs and guidelines to better inform policy making and implementation in the livestock sector.

SECTION 4. CONCLUSION AND RECOMMENDATIONS

In this section, we will first provide an overview of the core capacity areas, capacity gaps identified and major recommendation areas. We will then provide detailed recommendations in an integrated way and suggest ways how they could be implemented.

Summary of findings and recommendations

Table 8. Ethiopia identified gaps and recommendations

Capacity area	Capacity gaps	Recommendations
Knowledge	• Literally no skills in training methodology, adult learning methods and training documentation and evaluation.	1. Develop standardized manual on training design and delivery methodology
		2. Facilitate training workshops for CGIAR centres and training units of key partner organizations on training design and delivery methodology
		3. Create online learning resources for partners to support self-learning
	• Acute shortage of expertise in genetics and statistics	4. Create standardized and regular training and coaching programs for graduate fellows and national research partners
	• Limited capacity in process-oriented learning, documentation and transformation of knowledge	5. Develop standardized guidelines and tools for process-oriented learning and lessons learned materials documentation
	• Limited access to relevant knowledge and information at the local level	6. Establish and strengthen knowledge centres to increase access to new knowledge and knowledge management capacity of key partners
		7. Synthesize and package research outputs into learning materials, extension materials, guidelines and audio-visual resources.
Partnership	• Livestock CRP projects miss a clear partnership strategy to strengthen capacity of partners and ensure uptake of research outputs.	8. Design context specific partnership approaches and strengthen partnering capacity of CGIAR centres and national partners.

	• Research and development partners demonstrated limited partnership and coordination capacity.	9. Design and facilitate training workshops in functional skills like partnership, networking, coordination and communication.
Implementation	• Weak technology, inputs and services supply system	10. Facilitate IPs as a means to address supply system challenges
	• Poor internet connectivity to access new knowledge and information	11. Use innovative means of making research outputs accessible to local partners such as establishing knowledge centres
	• Limited skills of local partners in data collection, recording keeping and business skills	12. Develop standardized training materials and facilitate training workshops in data management and business and entrepreneurship skills
	• Weak administrative support capacity of research partner organizations	13. Create training and coaching programs for relevant admin units of research partners in financial management and reporting
	• Partners experience staff retention challenges	14. Create a continuous training and coaching programs within partner organizations supported by online learning resources and job aids.
		15. Establish knowledge centres with internet connectivity to increase access to knowledge by new staff
Policy	• Somewhat unclear and disconnected livestock policy environment, weak integration across different subsectors and commodities	16. Facilitate evidence-based inter-sectoral policy dialogues to feature the unique characteristics and requirements of the livestock sector.
		17. Generate policy relevant research communication materials to inform policy makers
	• Weak enabling environment for private sector participation	18. Incentivise private sector involvement in the livestock sector through creating innovative business models and access to business and entrepreneurship skills development training and learning opportunities and resources.
		19. Establish and strengthen multi stakeholder platforms to address systemic constraints

		and create opportunities for the private sector.

4.2 Detailed recommendations

The recommendations listed in the overview section are integrated into five proposed capacity development interventions to address the capacity gaps identified in this report.

Develop training design and delivery methodology guide

This proposed action relates to recommendation 1, 2 and 3 in the overview section and involves two interrelated actions: developing a standardized training methodology manual and facilitating training workshops in adult learning methodology and training management.

A standardized, user-friendly manual on how to manage training programs from needs assessment to training impact evaluation would be helpful both for the CGIAR centres and their national research and development partners. Preparation of the manual should be based on a careful review of best practices and innovative methods of training design, delivery, documentation and monitoring and evaluation. The manual would provide a set of tools, case studies and illustrative, step-by-step examples on how to design, deliver and evaluate training activities.

The manual would be designed in a way that it serves as an analytical tool and step-by-step guide for conducting needs analysis, formulating learning objectives, designing learning activities, applying adult learning methods, training facilitation, training documentation, and monitoring and evaluation of training programs. The manual can be distributed to training units of key partners as a hard copy particularly at the local level where access to online resources is limited. Additionally, an online learning resource can be created to support self-learning of partner staff on a broader scale.

Development of a training methodology manual alone will not be enough to develop skills in design and facilitation of effective training programs. A five-day practical training workshop for project staff of CGIAR centres and training units of national partners would be helpful. The training workshop will address key ideas such as elements of effective training, core competencies of effective trainers, motivating adult learners, preparing the training session, developing effective communication, questioning for effective learning, and managing and engaging participants.

Training workshop facilitation skills are critically important for training facilitators. The training workshop would include setting up a training venue, methods of participant introduction, training process monitoring and feedback techniques, facilitation of group activities and plenary sessions, paraphrasing and summarizing techniques, motivating and engaging participants, visualization techniques, managing difficult situations, training evaluation methods, training documentation, training transfer action planning, training follow up strategies, and evaluation of training impacts.

Develop learning materials and facilitate training workshops

This proposed action relates to recommendation 18, 4, 8, 9, 10 and 13 and involves development of curricula, learning materials, guidelines and tools and facilitation of training and coaching programs to strengthen individual and institutional capacity of CGIAR and key research and development partners.

Synthesis and packaging of knowledge from research for development projects and converting it into online and offline learning resources would support uptake and scaling of research outputs by partners. Such learning resources can be shared through different means such as training, self-learning and job aids.

In response to the needs identified in this report, development of learning materials will be needed in the following areas:

- ***Business and entrepreneurship skills.*** As the results of the needs assessment indicated, lack of access to knowledge and learning opportunities in business models and entrepreneurial skills is generally lacking at all levels. It is crucial to develop standardized learning resources which can be scaled nationally and create online interactive learning platforms to improve business skills of livestock value chain actors particularly the private sector.
- ***Genetics and statistics.*** Acute shortage of expertise in this area was identified during the assessment. It is recommended that standardized and regular training and coaching programs in genetics and statistics is designed and delivered for graduate fellows and national and regional research partners.
- ***Data management.*** Capacity for data collection, record keeping and maintenance of databases in the livestock sector is generally limited. Interventions and investment decisions for livestock development should be based on evidence for which capacity for data collection and recording keeping at the farm level is critically important. There is a need to create awareness and capacity in designing data collection and management systems for key partners at all levels.
- ***Financial management and reporting.*** National and regional research partners indicated that capacity of support units is limited. Designing training and coaching programs for key support staff of partners will be important to develop the institutional capacity of partners.
- ***Partnership and communication***. Many ILRI research for development projects (e.g., N2Africa, LIVES, Africa RISING) have been testing different partnership approaches and models involving both public and private partners. Documenting good practices and lessons can provide input into designing partnership and communication strategy and developing partnering capacity of CGIAR centres and partners. Organizing training workshops in non-technical skills such as partnership, networking, coordination, negotiation, claim-making and communication skills would be helpful to increase partnering capacity of CGIAR centres and research and development partners.

Develop capacity for process-oriented learning and knowledge packaging

This proposed action relates to recommendation 5 and 7 and involves development of toolkits and facilitation of training in different formats.

Best practices, research results and process-oriented knowledge from research for development projects can be analysed, packaged and developed as learning materials and technical knowledge which can be disseminated through various means such as online learning, face to face training, blended learning and local knowledge centres which can be used by partners to address the lack of access to relevant knowledge and skills.

Developing templates and guidelines for documentation and synthesis of process-oriented project knowledge products and training key partners in using the tools can help improve learning and knowledge sharing capacity of CGIAR centres and national partners.

Capacity for process-oriented and reflective learning is limited at all levels. Technical project reports miss capturing of knowledge generated through social learning processes. Development of a standardized toolkit for process documentation and lessons learned materials and facilitation of training and self-learning through online learning resources would be helpful to strengthen capacity of partners for generating, sharing and using relevant knowledge. Strengthening capacity of CGIAR centres and national partners in process documentation and capturing of lessons learned materials will help increase visibility and influencing through communication of best practice materials and success stories.

Establish and strengthen learning and knowledge sharing hubs

This proposed action relates to recommendation 6, 10, 14 and 15 and involves establishing and strengthening of knowledge centres to increase access to and sharing of relevant knowledge by local research and development partners.

Access to relevant knowledge and information was reported as a critical implementation challenge. Partner staff have limited access to project generated knowledge products. Staff turnover at a local level is also high which requires continuous retraining which can be expensive. There needs to be a proper knowledge transition mechanism to maintain organizational memory and provide ways for staff mentoring and training.

Establishing shared access points within local partners such as knowledge centres can be helpful to increase partners' staff access to relevant knowledge and information and increase capacity of partners in knowledge generation and sharing.

Before establishing such knowledge centres, it is important to assess existing knowledge capturing and sharing mechanisms within partner organizations and establish expressed need and clarify responsibilities and roles for establishing, managing and sustaining the knowledge centres. Partners can avail physical spaces where project knowledge products can be placed. These knowledge centres can also be equipped with internet connectivity and a few computers so that partner staff can easily access and use project knowledge and capture and share locally generated knowledge. Such arrangement can bridge the knowledge access divide which project partners at local level are facing. By helping partners establish a knowledge sharing system, Livestock CRP projects can easily make available project generated knowledge and provide access to online learning materials.

Facilitate evidence-based policy dialogues and knowledge sharing events

This proposed action relates to recommendation 16, 17, 19 and 11 and involves synthesis and development of policy relevant research communication materials and facilitation of policy dialogues and multi stakeholder processes.

A key input for facilitating policy dialogues is synthesis and packaging of research findings, lessons and experiences through facilitating writeshops and development of policy relevant communication materials, such as policy briefs, technical briefs and strategy papers. Policy dialogues can be organized for policy and decision makers, civil society organizations, development partners and private sector actors at national and regional levels to raise awareness on existing policies, share relevant research results, dialogue on critical institutional constraints, and generate ideas for improving the enabling environment for the livestock sector.

Knowledge sharing and networking events could also address lack of access to information and business linkages. Facilitating multi stakeholder platforms such as innovation platforms can help identify and address systemic constraints and develop innovation capacity of partners through systems integration and cross-sectoral communication and collaboration. IPs are particularly helpful to facilitate interaction and linkages among different stakeholders and address critical development challenges ranging from policy to implementation. Developing capacity for designing, facilitation and evaluation of multi stakeholders processes at all levels is critical to develop partnering capacity of partners.

Nicaragua country report

Executive summary

The capacity needs analysis for the Livestock CRP is aimed at identifying capacity gaps and capacity performance then provide recommendations based on those findings. A mixture of desk review, interviews and surveys bring together qualitative and quantitative data to better understand capacity development context in the projects focusing on three levels, the systemic level, the organizational level and the individual level. 8 key informant interview, 8 individual surveys and 2 focus groups were conducted in Managua, Nicaragua with participants from SOLIDARIDAD, CIAT, SANSECO II project, FECODESA R.L, CMR, Living Water and HEIFER international. The analysis used translated tools and interviews which were conducted in home language.

Key findings

Following is a summary list of the assessment findings:

Knowledge: There is evidence of various training methodologies in the case of San Seco II (Without Dry). They cited the use of experiential learning and participatory learning methodologies an emphasis on supporting and developing the informal learning and transfer of training. Also, there are opportunities to use more informal learning supports to support workshops through the use of mobile networks which is now more commonplace and growing rapidly.

Partnership: A perceived barrier to partnerships was the lack of ability to engage effectively in dialogue for project staff. Partnership building could be more effective with support for project staff on partnership dialogue skills. The disparity of the projects means that with San Seco II the partipants have outlined a varied partnership network with roles whereas the PaSoS project partners are presented as partners who are interested in the project but cannot influence the project.

Implementation: The assessment identified the lack of participation by partners both public and private sector organisations and in the case of the PaSoS the lack of power of many stakeholders. It is unclear whether this is by design or not. The assessment also found that the infrastructure supports the use of mobile technologies as training support and job aids.

Policy: The analysis found that there was a perceived lack of coordination and dissemination of policies that are relevant to different actors in distinct positions. Policy awareness at higher levels on one side was better understood but still lacking and at the implementation level

improved there was limited access and knowledge of policies which support or are barriers to the project.

Recommendations

The following list summarizes recommendations based on the assessment findings:

Knowledge: In the San Seco II project there are variety of training methodologies so a focus on post training support to improve the transfer of training and evaluation of learning will build on an effective learning platform. This would focus on informal and peer learning, as well as supporting the learning outside of the workshop. In the PaSoS there is less evidence of training outside the formal workshops so more diversity in the learning ecosystem. More varied learning environment would include blended learning supports using different mediums such as mobile to as well as evaluation of learning.

Partnership: It is recommended that the project builds communications and partnership building capacity to improve participation. This will be done through training initiatives aimed at the target groups and coaching and mentoring programmes to establish deeper learning and adoption of these skills. Suggested communications areas of interest are partnership building, negotiating skills and conflict resolution.

Implementation: Use mobile learning to support learning outside workshops and provide supports through job aids and mentoring, social learning and coaching. Additional support for the implementation partners in the form of mentoring, social learning and coaching.

Policy: A focus on the coordination and dissemination of policies that are relevant to different actors in distinct positions. Use policy dialogue to improve the policy awareness and better understand evidence based policies. Another support aimed at the levels closer to implementation would be to use job aids and other supporting materials that clarify policies at different levels that should be considered as well as training.

SECTION 1: INTRODUCTION OF CAPACITY DEVELOPMENT IN THE LIVESTOCK CRP

The assessment took 2 projects which were in mid stages of their project lifecycle and had obvious components of capacity development as part of their objectives. PaSoS is a dialogue and intervention platform that seeks to leverage resources that help to achieve consensus that generate multiple benefits for multiple stakeholders in the Northern Coastal Zone of Honduras, and in the Autonomous Region of the South Caribbean Coast, Nicaragua. The second is San Seco II, a project for Women and young entrepreneurs in the dry corridor, with empowerment and technological solutions to climate change. The aim of the project is to promote a sustainable, inclusive development, to help reduce poverty in the dry corridor of Nicaragua through reducing gender inequality and promoting processes of collective and individual in rural and young women empowerment.

The PaSoS project, which is an acronym of sustainable landscapes in Spanish (Paisajes Sostenibles). PaSoS is a platform with the goal of strengthening the capacity of local leaders in Nicaragua and across Central America to define and implement their own strategies for sustainable development and landscape management in their region, and to facilitate dialogue and knowledge sharing between these regions.

SECTION 2: DESIGN, METHODOLOGY AND PROCESS

Introduction: Design and methods

Capacity assessment framework and tools were developed for the Livestock CRP program through a review of program documents, theory of change and impact pathways. This capacity needs assessment sought to establish capacity gaps in four key capacity areas: partnership and coordination, knowledge and implementation and policy. The assessment adopted a cross-sectional study design with a mixed-methods approach. Quantitative and qualitative data were collected using two data collection methods: key informant interviews (KIIs) and focused group discussions (FGDs). KIIs targeted strategic resource persons in the program such as, country program manager, field coordinators and partners as well as policy shapers in the relevant government ministries. FGDs were held with homogenous project participants.

Tools

To understand the current organizational and individual capacity of the Livestock CRP program to successfully achieve its objectives, a number of generic data collection tools were employed targeting organizational, technical and functional capacities. Organizational capacity was assessed through the organizational assessment tool targeted to specific key informants responsible in the project. Individual capacities were assessed through individual scoring and infrastructure evaluation tools. Stakeholder analysis allowed a mapping of the Livestock CRP Program partners operating at various levels – national and municipal/ territorial level. This tool was deployed both with key informants as well as in group sessions. Problem tree analysis was used to identify specific capacity challenges around policy, knowledge, partnership and coordination and implementation thematic areas.

Study site and respondents

The assessment was done in Managua and focused on two projects in the Livestock CRP Program. The capacity needs assessment was carried out between November and December 2017. Interviews were done with 5 partner organisations

Sampling

The assessment identified respondents in the Livestock CRP Program and its partners through both purposive sampling and convenience sampling. Limitations due to the time of year meant that although purposive sampling was planned and stakeholders that were able to provide

meaningful data around the areas of capacity development were identified, this was filtered by convenience and only those that were accessible were included.

Data management

Data gathered from the assessment was stored in original format in Spanish and translated to English. Data gathered from the capacity assessment exercise was analysed using Ms Excel 2013 software. Descriptive statistics, such as means and frequencies was used to analyse the quantitative data in Ms Excel 2013. Qualitative data was analysed manually using a thematic approach. Audio recordings were translated.

Assessment limitations

A limitation of group and individual self assessments is the possible exaggeration of actual scores.

Another limitation is that problem tree analysis tool can often be used as an opportunity to indicate displeasure or complain which can blur the objective of the exercise

Time was also a limitation for the capacity needs assessment exercise as the activities were limited to only 1 day of data collection. This meant limited pool of respondents were accessible so the surveys and interviews spoke to managers and above but does not have data from lower level implementation workers such as extension workers. The Nicaragua evaluation was carried out by proxy with the kind help of the team in Nicaragua however because of logistic and budget constraints it was not possible to have a member of the capacity development team there to support the data collection. As a result, some of the follow up that would normally occur with the capacity development specialist could not be applied. Lastly the tools were translated to ensure that respondents could articulate ideas without language barriers however this means that final analysis cannot be perfect as translation may colour the meaning of answers.

SECTION 3: RESULTS

In this section, results of the capacity needs assessment are presented and discussed based on the following four capacity areas. These are:

- Knowledge: capacity to access, generate, manage and exchange relevant knowledge,
- Partnership: capacity to connect, advocate and engage in networks, alliances and partnerships, and
- Implementation: capacity to manage and implement programmes from planning to monitoring and evaluation.
- Policy: capacity to formulate and implement policies and legislation,

Knowledge capacity

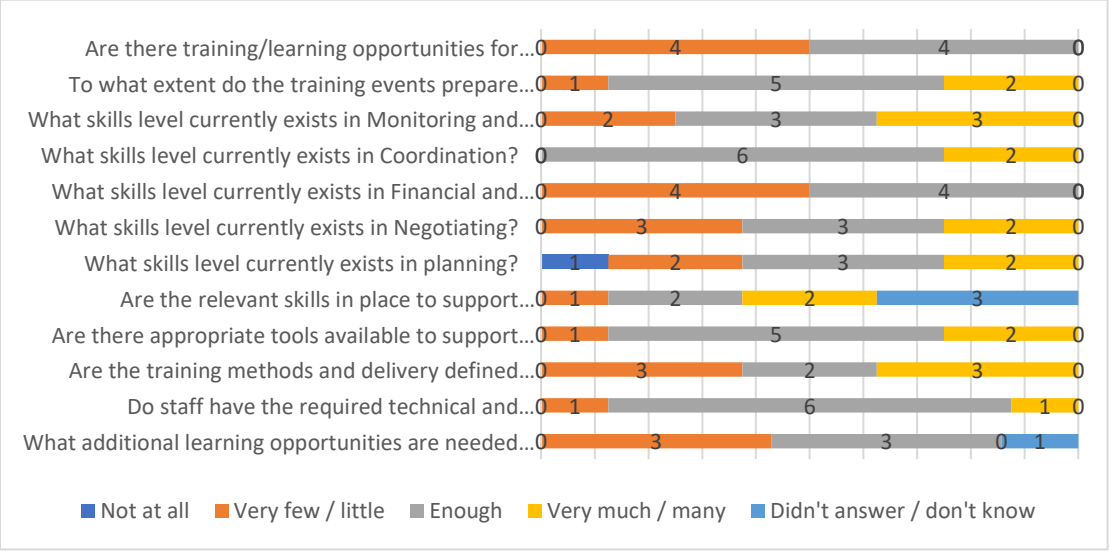
This component of the assessment provides insights into gaps and existing knowledge capacity gathered from key informant interviews, surveys and focus group discussions. Shared observations from several respondents were issues with quality of training, access to knowledge, participation and awareness. As an example, the National Technology Institute provides free training and technical and technological education is not seen to be utilized because of lack of quality. Respondents cited the fact that education and research is seen to be dependent on economic resources as a barrier access. Additionally, the organisation serves the formal workforce who have access to contracts and insurance but not the informal workforce; rural women working in agriculture are an example of member of an informal workforce. The San Seco II outlined methodologies that included informal as well as formal learning opportunities they have developed. They reference the use of experiential learning, participatory training and less conventional methodologies in the capacity development of knowledge and skills.

Even with perceived good communications between institutions, knowledge exchange is indicated as a capacity gap. Specific issues that came out of the analysis related to the sustainability of knowledge exchange.

Individual analysis results as shown in Figure 1, added more specific information about the knowledge although there were no significantly noticeable examples of either strong practices nor weak practices related to knowledge there were examples that provided insight. There was no consensus on whether there were enough training / learning opportunities for project implementers and managers. Half said there was not enough and half said there was enough, with none of the respondents saying there was very few or very many opportunities. Related to this, respondents were asked if the project staff had relevant technical and managerial skills,

the majority indicated positively. Regarding the skills for knowledge management, in contrast to some of the responses from the key informant interview most respondents saw enough or very many tools to support knowledge management. Respondents stated that communication and monitoring was generally strong although monitoring and evaluation was highlighted as an area of improvement when asked about opportunities for further development. Similarly, participants indicated that skills and training in the project related to coordination and project management were good or very good. This was not the case with more varied responses regarding planning, with respondents indicating that there were more than enough skills development and very little skills development. There was also a split in responses to the question of whether training methods and delivery were defined based on relevant goals, although most indicated that this is the case there were a few respondents that indicated that this may not be the case. Some additional learning opportunities that they thought were needed to develop technical and non-technical skills and knowledge were; financial skills, crisis management, monitoring and evaluation of impacts, and group facilitation skills. This shows a mixture of both technical and non-technical themes. One item of interest is that the problem tree analysis brought up the issue of transfer of training suggesting that although there are resources for training the adoption rate is not high specifically in trainings connected to technical innovations. In the PaSoS project participants of the key informant interview asked for case studies related to the management of sustainable landscapes, this suggests that a more experiential learning approach could be of benefit.

Figure 1. Individual analysis results



Partnerships

The PaSoS project is creating partnership at the territorial level and according to the stakeholder analysis regards territorial partners as high interest in the project as well as high power, these were Solidaridad and CIAT. In contrast the San Seco II only regards 2 entities at a national level as having high interest and high power. The key informant interviews stated that the PaSoS project was in the process of forming a multistakeholder platform to involve different organisations around sustainable livestock. Although the staff have previous experience in conducting dialogue around partnership building they require continuous training. In San Seco II responses from the key informant interview said they required stronger and more developed skills in engaging in policy dialog. Additionally, there were no current opportunities for communications and negotiation skills to be developed.

Respondents to the individual analysis expressed the need for partnership building skills as most of them thought this was inadequate.

Implementation capacity

As with policy lack of participation in implementation is highlighted as an issue. PaSoS communicated that there are different levels of involvement, which means that cooperatives and companies have a lot of participation but central government institutions and universities have little involvement. Within the San Seco II project key informant interviews indicated that most of the partners have commitments to implement activities for one or more of the project components

In PaSoS the problem tree identified the issue of weak financial and business management although the exact partners were now specified. In addition, it described a lack of empowerment for the stakeholders in the project, especially those below national level. This was that case for both public and private sector partners. This reflects the stakeholder analysis results that only 2 out of the 26 stakeholder groups defined, CIAT and Solidaridad, were seen to have high power in the project, all the others were rated as having low power. This also relates to the lack of shared vision for the project moving forward which would be consistent with the idea that many stakeholders are not part of the planning processes. Another issue that came out of the individual analysis was that many activities require many days of training and women cannot participate, it was not clear as to what exactly the barriers were (time constraints, financial constraints or something else.)

The infrastructure evaluation found that all respondents had access to laptops at work and could use a reliable internet connection, however because the sample set did not include staff

further down than managers this cannot be assumed for all. Mobile is also ubiquitous in Nicaragua with 135% sim penetration and 46% year on year growth for mobile broadband. In terms of cost and reliability of mobile connection 3G is the most common connection which delivers speeds that can easily stream audio video material. There were conflicting opinions about cost as some rated the data costs as very low and others very high.

Policy capacity

The assessment of policy focused on the overarching environment in which the Livestock CRP projects in Nicaragua operate and to what extent this environment supports the projects objectives.

Key informant interviews indicated that lack of coordination between different entities and at various levels is an issue. The perception is that improved coordination between organisations and municipals, as well as at the national level would result in more efficient and more effective implementation. Those interviewed felt that greater participation amongst stakeholders and closer ties would benefit the projects. In terms of policy awareness, a number of those interviewed said that there is adequate awareness at national level but not at the levels below. They expressed a need for better dissemination and identification of germane policies.

SECTION 4: CONCLUSION AND RECOMMENDATIONS

Summary of findings and recommendations

Table 9. Nicaragua identified gaps and recommendations

Capacity area	Identified gaps	Recommendations
Knowledge	**Some** planning and monitoring and evaluation of impact skills are absent. **Knowledge** management in the smaller partners needs to be supported	**Develop** assessments (high and low stakes) aligned with learning objectives and collect the learning data in a central repository. This is used to develop better learning. **Provide** remote training support through online learning content **Review** knowledge management processes and procedures to better align with needs
Partnership	**Some** lack of skills related to partnership dialogue **Partners** are not involved	**Develop** a guide and mentorship programme for facilitating partnership dialogue
Implementation	**Ability** to include more digital extension such as mobile learning to support workshops is not realised	**Design** and develop mobile refresher training, mentoring, social learning and coaching and job aids to support beneficiaries outside the workshops Coaching, mentoring and social learning supports
Policy	**More** targeted understanding of relevant policies needed to support the levels of project staff involved in the implementation	**An** audit of relevant policies relating to the distinct levels of the stakeholders and develop a set of resources to provide access, this includes mobile site and print guide. **Develop** policy dialogues and distribution of policy level research products.

Suggested capacity development interventions

Strengthen monitoring and evaluation learning and transfer of learning

Develop learning tests based on the objectives of the workshops or learning interventions that can provide evidence of what participants have learnt and what they are not able to understand. Although this would not include deeper learning of complex ideas it would support assessment of what concepts are remembered and understood. These assessments results can then be sent to a learning record store for later learning analysis. This data will provide information that can be used to develop learning and capacity development based on evidence of what is working and what is not working. Additionally, develop support for monitoring and evaluating learning transfer of learning through interviews after training with attendees to measure what that have retained.

70:20:10 model of learning

The analysis found that project staff need continuous training on partnership building. Because of the expense of training especially related to face to face training it is recommended that there is specific support through blended learning which focuses more on the support outside the workshop. As an example of how the focus might be distribute we would look at the 70:20:10 model as a guide where formal workshops are supported social learning approaches such as peer support and from informal and on the job support.

- Use of social tools such as WhatsApp to encourage peer learning and knowledge exchange.
- Use of on the job support and mentoring to support deeper skills and learning.
- Linked with formal training workshops.

Soft skills training

It is recommended that some soft skills training related to conflict management and broader communication be provided. In the case of San Seco II they indicated that the majority of their stakeholders are interested in the work but were not influential. Stakeholders in this category should be informed but not consulted in most cases therefore effective and efficient communication is important here.

Remote blended support

Remote support for rural women's trainings is another recommendation. A main problem that was reported in the key informant interviews was that many training activities take many days

of training and the recipients cannot attend. The use of remote supports for the women would lessen the number of days needed and provide learning of core ideas without the need for face to face training. Because of the issues with the geographical location of the end beneficiaries where many are in more remote and rural areas as well as the infrastructure that limits their access to online resources to learn. SMS, mobile voice services and radio can jointly be used to provide learning opportunities for them, these are not reliant on internet access and would be far more accessible. When used collectively they can provide strong learning support to geographically dispersed areas using common technologies.

Knowledge management processes

Review knowledge management processes and procedures to better align with needs. The review would look at processes, procedures and technologies that are in place which would inform better knowledge management practices such as moving data from individual more a more collaborative data platform.

Mentorship guidance

Develop a mentorship guidance for initiating formal mentorship programmes including a framework and monitoring and evaluation. This guidance will provide a structured approach to including social learning into capacity development.

Mobile extension

Use of mobile for extension of training workshops and transfer of training support. Because of the widespread adoption of mobile and mobile broadband there is an opportunity to employ this technology to support the projects. As an example, the mobile can be used to provide refresher training content at different moments of need for the participants so that they can access information and job aids. These moments of need could be when they want to expand on their knowledge and understanding outside the workshops, when they want to apply their knowledge in their real world context or when they want to find answers to problems they have in their application of the knowledge and skills. Here, because mobiles are very common, the project can develop electronic supports to address these needs.

Diversification of methodologies

Integration of more diverse methodologies to support capacity development. This would include social learning using WhatsApp and similar tools, the use of peer learning through mentorships and the use of apprenticeships.

Policy review and dialogue

An audit and collation of relevant policies that impact different stakeholders, both positively and negatively, should be collected and curated. The information can then be made accessible through simple posters, policy dialogues or guidelines directed stakeholder groups. Synthesis and packaging policy that effects the project and converting it to a learning resources such as policy briefs or communication materials can support the dissemination of the knowledge.

Tanzania country report

Executive summary

This Executive Summary of the Capacity Needs Assessment (CNA) provides a snapshot of the process, findings and recommendations. The overall objective of the CNA was to understand current capacity in scaling projects to seize opportunities presented by rapid increase in demand for animal source food in developing countries by staff and partners of the Livestock CRP flagship projects.

The CNA focused on identification of capacity gaps that could impede Livestock CRP flagship projects ability to achieve the overall objectives, and possible actions to address these. The CNA used several approaches, including: a desk review of key project documents to understand and document the project's objectives and approach; an assessment of capacities at individual level using an individual scoring tool; key informant interviews with selected project staff and stakeholders; infrastructure assessment using an infrastructure tool to assess access to key technological infrastructure. Data were collected from November 6 to 7 December 2017 through KIIs, FGDs and individual interviews conducted at the national and district levels drawing participants from national public partners, parastatals, civil society organisations, private partners, and funding organisations.

Key findings

Below are key findings per capacity area:

Knowledge capacity: Often times, technical staff are recruited based on their technical competencies without due regard to accompanying soft skills to sustain, engage and deliver on their day to day work activities. Project staff lack the necessary soft skills training to enable them work better. Limited access to up to date information as well as lack of information sharing platforms paused a significant challenge in project work and partners and planning, coordination is often not informed. Lack of awareness on new technologies available to farmers and in other instances inaccurate information has caused poor uptake of new technologies.

Partnership capacity: The success of any partnership is to ensure that all partners understand their role in achieving the desired objectives within the specified period. The assessment established that there was need to improve the capacity of local partners, CSOs and POs to effectively to advocate and engage with farmers to adopt new technologies. National and political partners are also limited in terms of the ability to drive policy from within. Devolved structures were also challenged with capacity to adequately support implementation of new interventions and ultimately have significant impact on the farmer.

Implementation capacity: Limited technology and inputs has continuously hindered efficient project delivery. Technical skills for project implementers requires advancement to enable successful delivery.

Policy capacity: Tanzania has over the years, developed policies that guide the implementation of the Livestock CRP flagship projects in Tanzania. While some policies directly relate and influence livestock policies, others indirectly affect livestock policies. As such these policies are uncoordinated and sometimes disconnected. Exiting policies and legislative tools need to be reviewed to ensure that they are up to date with the current situation.

Recommendations

The following are recommendations by capacity area:

Knowledge: Investment should be made towards providing soft skills training for project staff to enhance their capacity to engage, communicate, plan and coordinate project activities effectively. Creating awareness is key to successful uptake of new technologies. Lack of awareness nurtures resistance resulting in delayed uptake of new innovations. Mass media as well as use of technology should be exploited accordingly in creating awareness to farmers. Investment into a livestock information system that captures key livestock parameters may be important to creating access to information for all stakeholders.

Partnership: Develop capacity of partners through training programs at three levels: national and political partners to review policy through evidence based approaches; decentralised structures DEDs, DASs , District Councils and Village councils and Local level partners, POs and CSOs.

Implementation: Establish partnership capacity between prospective partners as a means towards innovative institutional arrangements and business models to be developed considering the unique characteristics of the sector to incentivize and capacitate the private sector to increasingly participate in livestock value chain businesses. Continuous learning opportunities should be extended to technical implementers and thereby facilitate better service delivery.

SECTION 1: INTRODUCTION

The CGIAR Program on Livestock (Livestock CRP) seeks to seize opportunities presented by rapid increases in demand for animal source food in developing countries. The main objectives of the program are to: ensure that there are appropriate livestock breeds that are readily available and affordable, improve livestock health and health service delivery, increase livestock nutrition, reduce environmental footprint of livestock production and maximize livestock mediated livelihoods and resilience while also enhancing access to animal source foods.

In this regard, the capacity development pillar of the project identifies key capacity development activities such as intervention strategy design based on needs assessment, design and delivery of innovative learning materials and approaches, and strengthening organizational capacity of national development partners. An effective and sustainable capacity strengthening effort requires assessment of capacity strengths and gaps of development partners at different levels and development of appropriate capacity development strategy.

In line with this, ILRI's Capacity Development Unit worked with the Livestock CRP to conduct capacity needs assessment which aims to understand the capacity environment of the program, its flagships and respective projects and its implementing partners and identify capacity gaps at the individual, organizational and institutional level related to the research and development goals of the project. This document reports the result of capacity needs assessment (CNA) of the CGIAR Livestock program and its activities in Tanzania. The needs assessment exercise addressed capacity needs in four areas: knowledge, partnership, implementation and policy. Based on analysis of findings of the assessment, the report proposed actionable capacity development interventions.

Although Tanzania implements 4 Livestock CRP flagships in the country: feeds, genetics, animal health and environment flagships, only 2 flagships were assessed; animal health and environment flagships. This was due to limited resources and time to assess all flagships being implemented in Tanzania.

The animal health flagship implemented the *Scaling up of the delivery of the infection and treatment method (ITM)* project in Tanzania. The two-year project was funded by United States Agency for International Development (USAID) and was aimed at increasing productivity as well as in improving the lives of farmers by supporting public and private sector institutions to improve control of East Coast fever (ECF). Led by the International Livestock Research Institute (ILRI), working with the Tanzanian government, the Global Alliance for Livestock Veterinary Medicines (GALVmed) and private partners as ITM distributors; the two-year project, sought to increase ITM availability by identifying, training, and linking vaccinators to village level networks and organizations through appropriate business models.

The *Sustainable Rangeland Management Project* (SRMP), being implemented under the environment flagship is an ILRI led project in its third phase (2016–2020) which focuses on scaling up joint village land use planning approach in 6 new cluster villages as well as expanding the existing ones. The Ministry of Agriculture Livestock and Fisheries (MALF), the National Land Use Planning Commission (NLUPC) and

ILRI jointly, implement the project. The project is funded by International Fund for Agricultural Development (IFAD), Irish Aid, the International Land Coalition (ILC) and (ILRI), and the government of Tanzania.

SECTION 2: DESIGN, METHODOLOGY AND PROCESS

Introduction design and methods

Capacity assessment framework and tools were developed for the Livestock CRP CNA program and partners with a review of program documents, theory of change and impact pathways. This capacity needs assessment sought to establish capacity gaps in four key capacity areas: partnership, knowledge, implementation and policy. The assessment adopted a cross-sectional study design with a mixed-methods approach. Quantitative and qualitative data were collected using two data collection methods: key informant interviews (KIIs) and focused group discussions (FGDs). KIIs targeted strategic resource persons in the project such as country representatives of partner CGIAR centres, project coordinator and project site coordinators. FGDs were held with homogenous project participants.

Assessment tools

To understand the current institutional, organizational and individual capacity of the Livestock CRP program and its flagships in Tanzania to successfully achieve its objectives, a number of generic data collection tools were employed targeting organizational, technical and functional capacities. Organizational capacity was assessed through the organizational assessment tool targeted to specific key informants responsible in the project. Individual capacities were assessed through individual scoring. Stakeholder analysis allowed the mapping of the Livestock CRP program and partners operating at various levels—national, regional and local level. This tool was deployed both with key informants as well as in group sessions. Problem tree analysis was used to identify specific capacity challenges in respect to: policy, knowledge, partnership and implementation.

Study site and respondents

The country assessment was conducted between November 6 to 7 December 2017. 30 participants were interviewed from project and partner staff. Key informant interviews were held with key staff in leadership of projects and partner organizations including the project managers/coordinators in TDB, TMB, TVLA, LITA, VCT, DVS, TALA, NLUPC and ILRI. Focus group discussions (FGDs) were held with tutors at the LITA veterinarians from TVLA, ITM distributors, PO groups, staff of Tanzania Meat Board and Tanzania Dairy Board respectively.

Sampling of assessment respondents

Respondents to the Livestock CRP CNA were identified through purposive sampling. This approach made it possible to interview only those resource persons who are knowledgeable on the program and project's responsibilities, as well as specific individuals tasked with implementing various functions in the project. Six focused group discussions and twelve key informant interviews were held with partner organisations. Thirteen individual assessments were deployed during the assessments.

Data management

Data gathered from the capacity assessment exercise were analysed using MS Excel 2013 software. Descriptive statistics, such as means and frequencies, was used to analyse the quantitative data in MS Excel 2013. Qualitative data were analysed manually using a thematic approach. The audio recorded interviews were used to seek clarification and confirm in cases where the notes taken were not clear on specific messages.

SECTION 3: RESULTS

Knowledge capacity

Knowledge capacity refers to the way organisations as groups of individuals recognise, absorb and use knowledge to their overall benefit. Knowledge is as a result of both input and output of learning.

The CNA established that lack of awareness played a part in low achievement of project objectives. In the scaling of ITM method in Tanzania, lack of awareness was echoed by institutional tutors, producer groups (farmers), vaccine distributors, as well regulators and researchers. Sector regulators also admitted that awareness of the vaccine was limited only in the areas where the vaccine distributors were present, leaving out a large part of the country where there are livestock keepers and have no distributor in place. Project managers also sited that there was limited and incorrect information regarding the ECF vaccine available to the public. In another scenario, it was observed that farmers were aware of the ECF vaccine however, they were not able to weigh in on the cost-benefit analysis of the accompanying cost of the vaccination against expected increased production and income.

Lack of business skills was also identified as a knowledge skills gap. This was particularly the case for vaccinators who were expected to take on the business opportunity in ECF vaccination after receiving training on delivery of the ECF vaccine to make extra income. However, despite an incentive program being set up, very few vaccinators ceased the opportunity to make extra income i.e. out of 200 vaccinators trained, only 11 ceased the opportunity. This was attributed to lack of appreciation of the business opportunity.

Advanced business skills on the part of the appointed ECF vaccine distributors was also seen to be lacking. Distributors have the highest stake in the ITM value chain as they have made significant investments in the business. It is in their interest to ensure that the vaccines sell to recover their expenditure. This is the case evidenced by very low numbers of vaccinations over the project period despite operating as monopolies in their respective regions. Table 10 below illustrates the total number of vaccinations per appointed distributor against the target vaccinations. Business strategy, planning, communication and negotiation are key skills to ensure their success in the business.

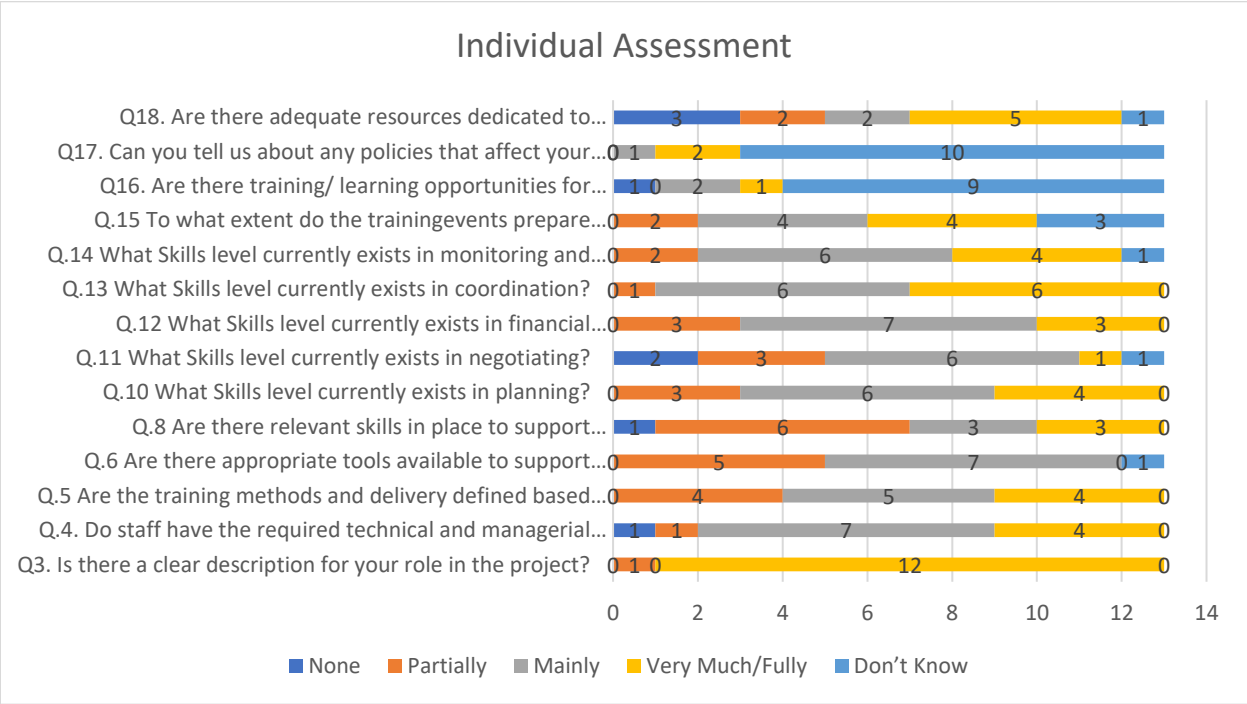
Table 10. Total number of vaccinations per appointed ECF distributor

	Target vaccinations	Actual vaccinations	Percent
Pharmavacs (Lake zone)	120000	8195	6.8
Vet Life (Mbeya)	25000	1552	6.2
Dulle Vet (Iringa)	15000	2000	13.3
Total	160000	11747	7.4

Source: Scaling up the delivery of ITM in Tanzania, Annual review meeting report

The assessment also established that there was a gap in soft skills development for both project staff and partner employees, a key element in building and sustaining partnerships. Figure 2 below illustrates that over 50% of the respondents interviewed indicated that there was partial or no skills to support partnerships. This was also confirmed when respondents further indicated which soft skills training they would wish to receive, leadership, communication skills, report writing, marketing project management and monitoring, research methodology, conflict management and proposal writing. More specialized and technical advanced training opportunities was also suggested such as, gender and women land rights, scientific writing, food inspection training, dairy technology as also suggested engagement in partnerships lacking. 90% of the respondents who participated in the individual assessments, don't know what training opportunities are available to them to improve their skills.

Figure 2. Scores of respondents who completed the individual assessments



Maintaining and sharing of up to date accurate information on key livestock parameters between partners remains key to successful project implementation. Key informants indicated that information such as size of forest reserves, rangelands, protected wildlife reserves or land use patterns is not easily available. Most accurate information would be generated through GIS however this is limited and what is available exists only in analogue format. Information on land use is only available at the district land office. One key informant indicated that in some instances, information is held by one person 'in their personal computer' and therefore not accessible by all partners. During focused group discussions with partners, they all observed that the ITM market is not quantified indicating that the whole value chain from manufacture to distribution including policy makers are not informed on aware on actual number of cattle targeted is not available or disaggregated.

Partnership capacity

Partnership capacity involves exploring the structure and process of collaboration between partners in a project while drawing on organisational, structural strengths and resources that each partner brings.

In Tanzania the Livestock CRP projects are implemented through established partnerships. At the national level, key partner in the projects is the MoLF. The SRMP operates under 2 partnership arrangements: 1) National Working Group (NWG), comprised of the Ministry of Agriculture, Ministry of Lands, Housing and Human Settlement, Ministry of Livestock and Fisheries, Presidents office and Regional Administrative officers and 2) Coordination committee established to undertake monitoring and evaluation of the SRMP project. The committee is comprised of ILRI, MoLF, NLUPC, CSOs and meets every 2 months.

National government partners are key as they develop and implement policy as well as the bringing on board their technical expertise. Decentralised structures, District Executive Directors (DEDs) also fall under the national government and are key in the implementation of policy directives. At very local level, civil society organisations (CSOs) and Producer Organisations-farmer groups (POs) are key in mobilising stakeholders in the implementation sites. Projects should consider more investment in the CSOs and POs to ensure they are equipped to advocate for the new approaches and effectively engage with locals.

The CNA established that there was a missed opportunity to partner with LGAs and specifically District Executive Directors (DEDs) who are responsible for, amongst others, regulation and coordination of development plans, projects and programmes within their areas. The role and involvement DEDs, who fall under the Ministry of for Regional Administration and Local Government, was yet to be fully appreciated and utilized during project conceptualization and implementation. DEDs in the implementing districts confirmed that they had minimal involvement in the project since inception to date. In the case of Scaling of ITM in treatment of East Coast Fever, the DEDs had the muscle to support the project with budgetary allocation, mobilise vaccinators within their districts as well as support in sensitization activities. They reported that they lacked basic information regarding ECF and its potential impact on livestock in Tanzania and specifically in their districts.

Implementation capacity

Implementation capacity relate to gaps arising from poor service delivery, access to knowledge and information, financial management and motivation.

Implementation of project objectives is hampered by lack of technical equipment and resources to support actual delivery. In the ITM scaling project, high cost of liquid nitrogen as well as limited cold chain infrastructure, refrigeration or too long cold chain facilities have hampered efforts of the vaccinators to undertake vaccination campaigns. Efforts to combine delivery of veterinary services i.e.

Artificial insemination and ECF vaccination, which use similar equipment, haven't borne much fruit. While in the SRMP project, resources such as plotters and printers used in GIS technology are unavailable at the local level hence delaying execution of joint village land use plans.

Logistical challenges in accessing farmers in remote areas has also limited access to services. Transport facilities to reach farmers in remote areas is a growing challenge and has hindered vaccinators reaching to ECF campaign sites. Transport costs are left to distributors who engage vaccinators to undertake vaccination exercises. In some other instances, the vaccinators are working under the decentralised agricultural extension services and lack the motivation to aggressively execute ECF vaccination. Both instances have proved inefficient and ineffective in achieving the desired targets. Consideration should be given towards combining ECF vaccination exercises and other animal health campaigns and activities such as Artificial Insemination or national livestock branding exercise that was recently carried out.

The Tanzanian Livestock Modernisation Initiative 2015 notes that the existing capacity of the Tanzanian veterinary systems is inadequate to meet present let alone future demands of the national livestock sector. Deficiencies are evidenced in the quality and quantity of services provided by veterinarians, para-professionals and community animal health technicians in both the public and private sectors are highly inadequate. Limited technical expertise in the delivery of technologies with specific regards to numbers and technical qualification, was also another factor that limited implementation of project objectives. Since the start of the ITM project, approximately 200 vaccinators have been trained on ECF vaccination and as such 1 million cattle have been vaccinated against a targeted 10 million cattle. To actualise the desired target, more vaccinators must be trained on this technology in order to have impact at scale.

In the SRMP project, technical expertise as well poses a challenge in the area of joint land use planning and execution and GIS expertise. The village land use plan is developed at the district councils in conjunction with the village councils. With the intention of the 3rd phase of the project being scaling the successes of Phase 1 and 2 to 6 districts, that capacity of both district and village councils must be enhanced in order to successfully implement joint land use plans. The director of the NLUPC confirmed that officers at the decentralised land units require 're-tooling' to guarantee success.

Training of ECF vaccination has been haphazard with no standard mode of delivery or curriculum. Training was done by the distributors in an uncontrolled environment. However effective Dec 2017, the Livestock Training Agency (LITA) was mandated to sorely train qualified veterinary officers and para-vets in ECF vaccination. Certification VCT thereafter ideally should certifies trained ECF vaccinators. Select tutors at LITA were trained by ILRI scientist and these tutors are now responsible for training on the ECF-ITM technology at the 6 LITA centres. Accompanying Training materials were also developed to support this exercise. LITA, like many public institutions is facing a number of challenges including inadequate tutors, low retention of tutors, poor infrastructure and inadequate teaching facilities.

Poor access to services due to limited distribution network. There are 4 appointed distributors of the ECF vaccine located in different regions throughout vast Tanzania. Consideration should be given towards expanding the distribution network to ensure effective and efficient delivery of services closer to the farmers.

Detection, control and management of disease outbreaks requires a more responsive approach to prevent spread of the same. District veterinary officers as well extension personnel should be empowered to efficiently respond and manage outbreaks. TVLA should also be sufficiently equipped to

respond to suspected outbreaks and as such ascertain these cases through sample collection and analyses. During an FGD with the TVLA staff, it was suggested that the staff require advanced training on laboratory management and equipment training to build institutional capacity and this would be possibly through BecA-ILRI Hub or possibly a graduate fellowship opportunity.

Policy capacity

Tanzania has in place policies, legislations that lay the foundation of the Livestock CRP work in the country. Policy statements and directives often pave way for relevant ministries to begin to establish implementation mechanisms of specific strategic objectives. Where policy directives are lacking, or unclear execution of the same is often haphazard and not aligned. Some policies are outdated and require regular review to reflect the current situation. The Ministry of Livestock National Livestock Policy published in 2006, was set to provide a framework for livestock development in the country. The instruments for the implementation of this policy are the Livestock Sector Development Strategy 2010, the Livestock Sector Development Programme 2011 and more recently, the Tanzania Livestock Modernisation Initiative 2015.

Although ECF is identified as one of the leading tick-borne diseases (TBD) in livestock causing significant loss (losses from all TBD USD364, ECF accounting for 68%, Kivaria et al. 2006) to the Tanzanian economy, ECF doesn't feature in the Ministerial circular and therefore minimal support goes towards its control. Producer groups (farmers), ECF distributors as well as donor and researchers indicated that there was not sufficient government support on policy development framework towards lobbying and creating awareness on the ITM technology and resulting in below target achievements. This in would therefore require more directed effort.

The capacity of relevant government departments to articulate policy and lobby for its policy review was been deemed inadequate. The Livestock Policy 2006 recognizes ECF as a leading livestock disease however the policy and accompanying legislative tools are not updated and therefore do not reflect the current situation. Relevant departments under the MoLF, Department of Veterinary Services (DVS) and the Veterinary Council of Tanzania (VCT) are yet to achieve policy change to cater for ECF and the available vaccine.

High cost of agricultural inputs has also been acknowledged as a barrier to access the ECF vaccine. The cost of the ECF vaccine varies between USD7–9 per vaccine. In a case therefore where a farmer keeps large herds, this cost becomes a barrier to entry. The Tanzania Government should consider subsidizing the cost of vector control through purchasing acaricides or as well as subsidize the cost of the ECF vaccine.

Distributors also raised concern over tax regulation on ear tags. These are placed on every cow after vaccination. Ear tags have been wrongly classified as plastic jewellery and therefore attract tax when imported. Ideally, they should be classified as agricultural inputs hence attract no tax. ECF vaccine distributors import these ear tags and transfer this cost to the farmer

Registration of the ECF vaccine is central to safety and efficacy and to securing the sustainability of supply of the vaccine through the value chain i.e. manufacturer to livestock keepers in Tanzania. The ECF vaccine, manufactured by Malawian company Centre for Tick and Tick-Borne Diseases (CTTBD) has been approved for use in Tanzania however it is yet to be registered in Tanzania. Reports of adulterated vaccine was also confirmed by POs. The relevant government department, Tanzania Food and Drug Authority (TFDA) responsible for food and drug registration as well as TVLA, VCT, DVS must work towards providing evidence-based justification to push for its registration otherwise the vaccine as is currently the case, it remains illegitimate.

Coordination between various policy pronouncements is required to have directed coordinated efforts towards successful implementation of the same. Efforts towards securing rangeland for pastoralist remains a challenge. The National Livestock Policy 2006 lays out the need to protect rangeland for pastoralists Efforts towards securing rangeland has been initiated through the SRMP project by use of joint land use planning approach. The National Land Policy 1997, Land Use Planning Act 2007, instituted joint land use planning and as such established the National Land Use and Planning Commission whose functions entails, amongst others, is to promote and include the participation of the private and popular sectors, Community based organisations, Nongovernmental organisations, cooperatives and communities in land use planning.

Capacity challenges in this approach however is in actualising and securing rangelands through joint land use plans for pastoralist against other competing needs such as wildlife conservation, population expansion, rapid urbanisation, industrialisation, agricultural advancement etc. Alignment with existing policies to achieve this objective therefore requires coordination and alignment on established policies such as the National Agriculture Policy 2013, the National Environment Policy 1997, the National Population Policy 2006 and the Wildlife Policy 2007.

Policy development must be informed through an evidence based approach. This can be informed through establishing capacity in relevant government authorities to have the ability to manage and coordinate centralised systems for data collection and record keeping and the maintenance of databases for the livestock sector is particularly crucial as well as data on land use in Tanzania. Challenges such as unquantified ITM vaccine market, unknown size of reserves, agricultural or pastoral sites is a glaring gap. This information should be readily available at national, district levels

Although the ITM Scaling project was a scaling project and had gone through research development and testing phase, the next phase of the project, implementation, must involve continuous testing as well as knowledge transfer. The assessment established the absence of Tanzanian institutions in research (TALIRI) as well those in higher learning, i.e. SUA, were absent. Continuous research, knowledge transfer is key to the advancement of research as well as developing an evidence based impact of the vaccine. Consideration should be given towards bring these institutions on board.

SECTION 4: CONCLUSIONS AND RECOMMENDATIONS

Below is a summary of identified capacity gaps within the four capacity areas; knowledge, partnership, implementation and policy and corresponding recommendations.

Summary of findings and recommendations

Table 11. Tanzania identified gaps and recommendations

Capacity area	Capacity gaps	Recommendations
Knowledge	• Limited soft skills training on project staff. • Limited access to up to date information as well as information sharing. • Lack of awareness on new technologies.	1. Develop soft skills training modules with flexible delivery options for project staff to equip them with skills to effectively engage and communicate with partners. 2. Develop basic and advanced business skills for vaccinators and distributors of ECF vaccine respectively. 3. Investment into data and knowledge management and system that captures various livestock parameters. 4. Explore public partnership in data management. 5. Strengthen decentralised units, districts as knowledge/information centres/hubs. 6. Adopt mass media campaigns to create awareness on new technologies. 7. Develop information packs on technologies, customised with illustrations and adapted to local languages. 8. Utilise staff at decentralised offices in dissemination of information e.g. land officers, veterinary officers, rangeland officers and extension workers. 9. Develop customised messages to farmers considering low literacy levels and language. 10. Explore use of technology in educating farmers on new technologies.
Partnership	• Inadequate capacity of local partners CSOs and POs to effectively advocate and engage farmers.	11. Develop training programs for CSOs and POs on advocacy and effective engagement

Capacity area	Capacity gaps	Recommendations
	• Limited capacity of national partners and politicians to drive policy change.	12. Develop capacity of national partners and politicians to lobby for policy change.
	• Limited capacity for devolved officers DEDs, district councils to optimally operate and support delivery of new technologies.	13. Develop training programs for decentralised staff to build their skills in effective coordination, planning, and implementation.
Implementation	• Limited technology and inputs to support project delivery	14. Facilitate establishment of innovation platforms to address supply and system challenges.
	• Limited technical skills for project implementers	15. Invest in improving skills of last mile service delivery experts to improve on service delivery.
Policy	• Disconnected/uncoordinated livestock policy	16. Establish a multi-sectoral policy dialogue platform to harmonise policy pronouncements. 17. Work towards developing an evidence-based approach to inform policy review and development.
	• Limited capacity of government administrators to influence policy	18. Develop capacity of public officials and politicians in to revise and develop livestock policy.
	• Weak enabling environment for private sector participation	19. Incentivise private sector involvement in the livestock sector through creating innovative business models and access to business and entrepreneurship skills development training and learning opportunities and resources.
	• Policy directives on gender and respect for cultural norms in livestock matters not well addressed and remain largely on paper.	20. Invest in social scientist's resource persons who can best advise on how to address gender and culture in livestock matters.

Detailed recommendations

The recommendations listed in the aforementioned section, can be clustered into the below summarised capacity areas:

Development soft skills training

The below action relates to recommendations 1, 11, 12 and 18. Soft skills training was identified as a capacity gap across most of the project partners.

Recruitments are often done on the basis of technical competencies. However, upon successful recruitment reality checks in on both the employer and the employee that additional skills are required to deliver on the mandate. All livestock CRP projects are hinged on partnerships; however, project staff are limited with regards to the requisite soft skills in order to maintain and retain the partnerships. Skills such as planning, coordination, negotiation, effective communication skills e.t.c. become glaringly inadequate in maintaining and sustaining partnerships.

To better appreciate the requisite skills gap, a thorough needs assessment should be conducted on all project staff including other specific groups of partners such as CSOs, POs, decentralised staff DEDs DASs to establish the specific gaps within these groups.

Synthesise and develop curricula, learning materials, facilitators guidelines and tools and facilitation of training and coaching programs to strengthen individual and institutional capacity of CGIAR and key research and development partners.

Packaging of knowledge from research and converting it into online and offline learning resources would support uptake and scaling of research outputs by partners. Such learning resources can be shared through different means such as training, self-learning, mobile and job aids.

Develop technical skills training

The below recommendation relates to recommendations 2, 12,13,15 and 18.

The assessment established that enhanced technical skills was lacking in the last mile project implementers. These skills are key to ensuring better and improved service delivery to farmers. In response to the needs identified in this report, development of learning experiences will be materials will be needed in the following areas:

- ***Basic Business and advanced entrepreneurship skills.*** As the result of the needs assessment which indicated, that vaccinators and distributors lack in knowledge in business modelling and entrepreneurial skills. Farmers too also require understanding the economic benefit for having their livestock in good health. These recommended training can be targeted however they can also be standardized learning resources which can be scaled nationally and create online interactive

learning platforms to improve business skills of livestock value chain actors particularly the private sector.

- ***Data management.*** Capacity for data collection, record keeping and maintenance of databases in the livestock sector is generally limited. Interventions and investment decisions for livestock development should be based on evidence for which capacity for data collection and recording keeping at the farm level is critically important. There is a need to create awareness and capacity in designing data collection and management systems for key partners at all levels.
- ***Gender, livestock and land.*** A focus on gender can increase productivity of agriculture and livestock system and improved food security and nutrition. Gender land rights have also come to the fore as this determines land use patterns including crop and animal husbandry. Livestock CRP projects in Tanzania will benefit more as they understand how gender influences decision making in cultural set up.
- ***Conflict management***. Conflicts over resource competition and land use have recently been experienced in Tanzania. This has been accelerated as a result of increasing livestock numbers, and a breakdown of the ability of traditional and local governance regimes to maintain harmony in changing times and circumstances. SRMP's initiative to advocate to sustainable rangeland management through joint village land use plans is a noble one with successes seen in phase 1 d 2 the projects. Phase 3 seeks to scale the success in 6 districts. Conflict management is must have skill that the project implementers at the village and district councils as well as the CSOs.
- ***Participatory methods.*** Use of participatory methods enables communities to play an active role to influence decisions that affect their lives. The SRMP project is a highly participatory method that get the community involvement in determining their most appropriate land use plans and identify grazing land as well as crop farming land. Project partners therefore must embrace participatory approaches in implementing joint village and land use plans to avoid possible conflict later. A training course in participatory methods would provide insight to project partners as to how include this in planning and execution of the project.

Awareness creation on new technologies

The below recommendations will relate to recommendations 7, 9, 10

Uptake of new technologies is highly dependent on awareness around it. Many times, awareness may be accompanied by political statements, campaigns and drives by decentralised office holders as well as village leaders. However where possible ans to get highest impact:

- Develop information/knowledge packs on new technologies, customised with illustrations
- Develop customised messages to farmers considering low literacy levels and language.
- Explore use of technology in educating farmers on new technologies.

Tunisia country report

Executive summary

This Executive Summary of the Capacity Needs Assessment (CNA) presents the main highlights of issues contained in the other parts of this report as a snapshot of the process, findings and recommendations. The overall objective of the CNA was to understand the gap between the current capacities and the desired capacities needed to implement the livestock CRP agenda in Tunisia. The active flagship in Tunisia is feeds and forages.

The CNA focused on identifying these capacity gaps with an intention of suggesting possible actions to address them. The CNA used several approaches, including: a desk review of key project documents to understand and document the project's objectives and approach; an assessment of capacities at the individual level using an individual scoring tool and key informant interviews with selected partners and stakeholders. A total of two FGDs and four KII were done with participants from the four partner organizations interviewed in this assessment. The four organizations were Office d'Elevage et Paturage (OEP) i.e. the national organization responsible for livestock and pasture management in Tunisia; CCSPS / SMCSPS Coopérative Central de Semence et Plantes Selectionnes), a national cooperative engaged in seed multiplication; AVFA (Agence de la vulgarization et de la Formation Agricole), the national agricultural training and extension service. The interviews were done on 25th and 26th October 2017 in Tunisia by ICARDA.

Key findings

Following is a summary list of the assessment findings:

Knowledge. Transfer of knowledge within projects and programs run by the various stakeholders in the livestock sector was by formal workshops and trainings. Partners cited very limited training opportunities for pasture management, including rangeland management as one significant area that they needed capacity growth. Another gap is the lack of targeted trainings leading to little or no impact on work after the training. Farmers are targeted with mostly theoretical trainings with little practical lessons causing growing disinterest in the trainings. Capacity for training needs analysis should be provided to help make trainings more targeted and match the delivery to the recipients and enhance chances of adoption. GIS was cited a technical capacity area that the OEP was lacking in and that would help in the pasture identification work. Knowledge management was also cited as an area that SMCSPS needed capacity development in.

Partnership. It was observed that there is often a lack of partnership amongst forage seed producers and cooperatives. Farmers have a historical bad experience with poor management of cooperatives leading to mistrust and limited participation. A partnership network in the form of a livestock community of practice can help increase participation and interaction amongst the various stakeholders and bring back the necessary trust.

Implementation. The partners cited lack of enough pastoral specialist as a problem that was hindering advancement in the sector, especially due to poor pasture management leading to soil degradation. Trainings on livestock are mainly theoretic with little or no practical methods leading to a growing disinterest by farmers. There's a gap in project management skills by partners including financial management of projects. There is a low and slow adoption of research innovations and technology by farmers due to lack of linking research to extension services. Partners have limited skills in project life cycle management affecting their ability to track results and impact. The implementation is also affected by conflicting interest amongst partners leading to poor overall sectoral performance. The assessment identified youth participation in livestock to be low and there is a need to have actions to attract youth in the enterprise.

Policy. There are a couple of policies that concern livestock that need updating to reflect the current times. The rangeland management policy needs updating to sustainably provide rangelands in the current animal population levels. All the policies that concern livestock are not well disseminated since most partners are not aware of their existent and contents. There is no policy regulating forage seed production.

Recommendations

The following list summarizes recommendations based on the assessment findings:

Knowledge. Pasture management training course should be developed that includes rangeland management. This training should be available in a format that allows for scaled roll out eg mobile based or eLearning training course. Trainings being conducted should be targeted by ensuring that a training needs analysis precedes the training and is used to determine the content and delivery of the training to enhance achievement of training outcomes. A recommendation for developing a training guide and conducting training workshops in training design, delivery and evaluation is much needed.

Partnership. Train key partners on collaborations and initiate multi stakeholder platforms to initiate collaboration in the sector and replace unnecessary competition. Train partners and government agencies in the development and management of cooperatives sending governance targeting cooperative leaders. ICARDA should join cooperatives in partnership to help gain the farmers' trust by playing the role of oversight to avoid mismanagement.

Implementation. Introduce pasture management initiatives to optimize available pasture. Effort should be put into Forage seed production development and management. There is the need to adapt training methods and continue to include more practical lessons instead of just theory. Develop extension platforms and link research projects to enhance adoption and scaling of research outputs by farmers. Develop training modules on forage seed reproduction, including variety regulation. Support government technical officers with training on learning pedagogical including monitoring and assessment to make their trainings impactful. Finally, train partners in project management, including monitoring and evaluation to help their tracking of indicators, results and impact. Partners and

stakeholders involved in livestock should be trained on packaging livestock agriculture information for the youth and use youth friendly platforms.

Policy. Policy dialogue on improving the current rangeland management should be initiated to assure sustainability of the rangelands. Livestock policy mapping should be done and a dissemination drive initiated to help raise the awareness of all the actors in the sector on existent and contents of the various policies. Develop policy briefs on forage and forage seed reproduction targeting sector actors and political government levels.

More detailed recommendations and suggested interventions are found in section 4 of this report.

SECTION 1: INTRODUCTION OF CAPACITY DEVELOPMENT IN THE LIVESTOCK CRP IN TUNISIA

The International Center for Agricultural Research in the Dry Areas (ICARDA) is a global research for development organization with a vision that thriving and resilient livelihoods in dryland communities of the developing world coming with robust incomes, secure access to food, markets, nutrition and health and the capacity to manage natural resources in equitable, sustainable and innovative ways.

Rangelands in Tunisia cover about 25% of the country's total landmass, with majority of it encompassing arid areas. The rangelands provide vital ecosystem services. Managing rangelands sustainably is important especially for communities that depend on rangelands for their livelihoods. Effective rangeland governance is also a critical pillar for social stability. Important factors are unsustainable rangeland management and rangeland degradation.

In 2017, a new ICARDA project, Partnerships for Improving Pastoral Policies (PIPP), funded by the German Federal Ministry of Economic cooperation and Development and the Research Program on Livestock lead by ILRI, is offering policy advice to the Tunisian Ministry of Agriculture to update the existing Forests Code in an inclusive and participatory way, while at the same time respecting scientifically proven best practices of dryland rangeland governance. The expected development outcome of the project is a policy change related to common rangelands at the ministry level.

Problem tree analysis group work

Photo credit: ICARDA/Rudiger Udo

SECTION 2: DESIGN, METHODOLOGY AND PROCESS

Introduction: Design and methods

Capacity assessment framework and tools were developed for the Livestock CRP program through a review of program documents, theory of change and impact pathways. This capacity needs assessment sought to establish capacity gaps in four key capacity areas: policy, partnership and coordination, knowledge and implementation. The assessment adopted a cross-sectional study design with a mixed-methods approach. Quantitative and qualitative data were collected using two data collection methods: key informant interviews (KIIs) and focused group discussions (FGDs). KIIs targeted strategic resource persons in the program such as, country program manager, field coordinators and partners as well as policy shapers in the relevant government ministries. FGDs were held with homogenous project participants.

Tools

To understand the current organizational and individual capacity of the Livestock CRP program to successfully achieve its objectives, a number of generic data collection tools were employed to target organizational, technical and functional capacities. Organizational capacity was assessed through the organizational assessment tool used on key informants to provide information on their responsibilities in the project. Individual capacities were assessed through individual scoring and infrastructure evaluation tools. Stakeholder analysis allowed a mapping of the Livestock CRP Program partners operating at various levels – national and district level. This tool was deployed both with key informants as well as in group sessions. Problem tree analysis was used to identify specific capacity challenges around policy, knowledge, partnership and coordination and implementation thematic areas.

Study site and respondents

The assessment focused on the Livestock CRP Program at national and regional levels. The capacity needs assessment was conducted on 25th and 26th October 2017. The ICARDA assessment team identified potential partners in the future projects that had a livestock focus and administered the organizational assessment, stakeholders' analysis and key expert opinions.

Sampling

The assessment identified respondents in the Livestock CRP Program and its partners through purposive sampling. This approach made it possible to interview only those resource persons who are knowledgeable on the program responsibilities, as well as specific individuals tasked with implementing various functions in the program.

Data management

Data gathered from the capacity assessment exercise was analyzed using Ms Excel 2013 software. Descriptive statistics, such as the means and frequencies was used to analyze the quantitative data in Ms Excel 2013. Qualitative data were analyzed manually using a thematic approach. The audio recorded interviews were used to seek clarification in cases where the notes taken were not clear on specific messages. The audios were also used to confirm the time each tool takes to administer for consideration in planning future assessment. Responses from participants had unique identifiers instead of names to allow confidentiality and anonymity.

Assessment limitations

A limitation of the assessment data was collected by one team and in French and the report was written by a different team in English. During the translation, meaning of depth of some insights might have been lost or diluted.

SECTION 3: RESULTS

Knowledge capacity

Transfer of knowledge within projects and programs run by the various stakeholders in the livestock sector was by formal workshops and trainings. This notwithstanding, there are quite limited training opportunities; 17 of the 38 respondents said they only have partial opportunities for learning opportunities and only 1 person through that the opportunities are adequate. OEP, a national agency responsible for livestock and Pasteur management indicated they have limited pasture management technical knowhow due to lack of ongoing trainings on new technologies. They singled out the need for a training on use of agroindustrial by products for feeding.

When trainings take place, they are often not targeted; 13 of those who have received in the past said most trainings offer very little preparation to responding to their work needs. Sixteen people said the trainings are usually partially targeted. Training need assessments should always precede any training to mitigate against poor training outcomes. There is currently very poor response from farmers to training by the government agencies and one of the major reasons is that trainings are often too theoretical and not practical. The training agency, AVFA need to adapt their trainings better to the farmers' contexts and they should themselves be targeted with training on training methodology/ pedagogical to help improve their designing and delivery of trainings and consequent increased uptake of extension products.

OEP, the government agency on pasture decried lack of GIS expertise resulting in limited ability to do pasture identification work and therefore a need for training on this. This should be incorporated in the national training plan for OEP for technical training.

From the assessment, partners were seen as not being so keen in providing capacity development related activities including training on soft skills like communication and public relations to help with donor management and working with other partners too.

The government livestock research institutes were blamed for having no new technological innovations leading to imported solutions that often are not customized so not always well taken up.

SMCSPS cited limited skill in knowledge management and expressed the need for a training on knowledge management to help the organization retain and document information on seed multiplication.

Partnerships capacity

There is need to dedicate more resources to partnership building activities, e.g. forming and participating in a partnership network between the various stakeholders in the sector. Seventeen of the

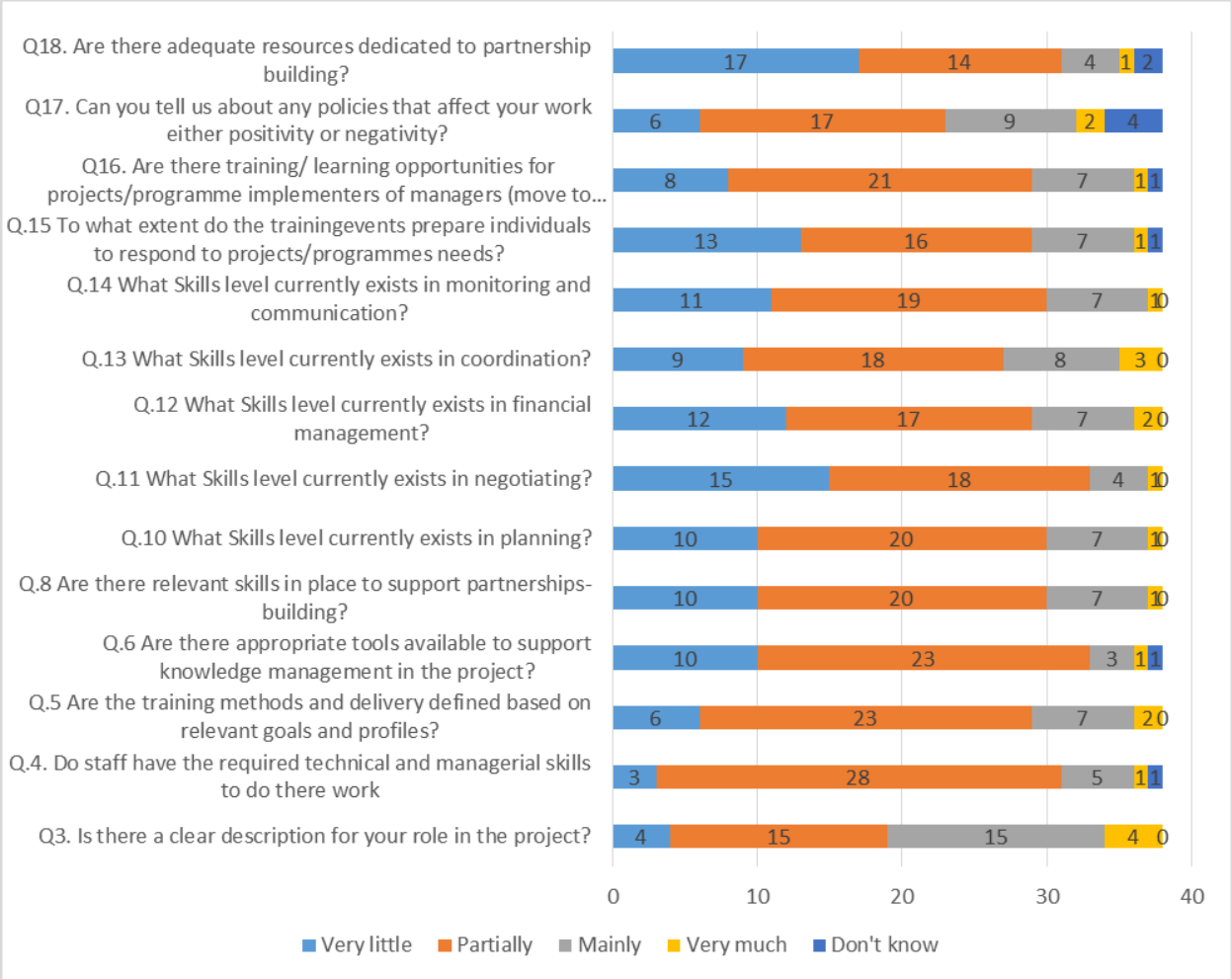
38 respondents thought there were not adequate resources dedicated to partnership and 14 thought they existed partially.

Thirty of the 38 respondents said the partnership building skills are inadequate. There is often Lack of cooperation amongst producers and cooperatives and the government's cereal offices due to real or imagined lack of transparency causing conflict and unnecessary tension amongst partners. Historically, farmers have a bad experience with cooperatives and therefore do not wholly trust cooperatives.

Implementation capacity

Figure 3 below shows how individual participants rated the various capacities needed for project managements.

Figure 3. Individual assessment



Eleven of the 38 respondents said they have very little monitoring and evaluation skills and 19 said they have partial skills on the same. Lack of M&E skills leads to projects not being able to measure their progress and success due to lack of smart indicators. There is a need for training in program management for regional and national staff including M&E. Government agencies were also as having poor M&E structures and also needing the same training.

Twelve of the 38 respondents said there is very little financial management skills with 17 saying there is partial skills availability. Ten people thought there is little planning skills with 20 thinking they only have partial planning skills. These are significant numbers for the respective key project management skills required for implementing.

Lack of enough livestock specialists on pastoralism was cited as one of the major reasons for poor pasture management leading to soil degradation.

Nine of 38 respondents indicated there is very little coordination skills while 18 said there is partial coordination skills which is key in any project management and partnership work. There is a need for training on quality control and quality assurance of pasture seed production, supply chain to ensure that farmer only get quality pasture seeds.

The assessment also found out that there was a problem of attracting youth into livestock agriculture and therefore a need for a focused intervention on social media and mainstream media on livestock farming.

Policy capacity

There are a number of plans and strategies on agriculture and food and nutrition that the Government has developed.

- The National Development Plan (2007–2011). This plan has two main objectives – growth and job creation – based on strengthening of macro-economic policies and acceleration of reforms; modernization of infrastructure and strengthening of the productive sector; and developing of human capital. This Plan underlined the importance of the agri food industries subsector and is aimed at boosting agriculture's share of the GDP.
- The Development Strategy (2012–2016). This is aimed to enhance agriculture competitiveness and the development of biological agriculture products. It also promoted investments in agriculture.
- The five-year Plan for Agricultural Policy (2010–2014). This is based on four main pillars: improving food security as a national sovereignty vector; improving the competitiveness of the sector; promoting exports as an engine of growth; and promoting natural resources as a basis for sustainable agricultural development.

Government policies that concern livestock are not up to date and are not well disseminated since OEP, staff from the national organization responsible for livestock and pasture are not aware of these polices. There is a need for awareness of these policies and their contents. Trainings on livestock laws and their implication should be organized targeting high level staff. Only 2 out of the 38 interviewed were able to mention livestock related policies while 17 just had an idea that a policy exists but with partial knowledge of its contents.

There is no policy or strategy for regulating forage seed production, leading to poor quality seeds in the market. With the absence of a regulatory framework by the government, livestock sector actors should prioritize trainings targeting extension officers on seed multiplication as the short-term intervention.

In addition, the current Tunisian law/policy on Forests regulating common rangelands does not assure sustainability and leads to soil erosion due to overuse; there is a need for policy dialogue intervention on this to improve this code.

SECTION 4: CONCLUSION AND RECOMMENDATIONS

Summary of findings and recommendations

This assessment's recommendations will dwell on the areas that showed inadequacy and have the potential of negatively affecting the project's ability to achieve its objectives. Below is a summary list of findings and recommendations followed by a detailed list of suggested capacity development interventions.

Summary of findings and recommendations

Table 12. Tunisia identified gaps and recommendations

Capacity area	Identified Gaps	Recommendations
Knowledge	• There are limited technical training opportunities for OEP staff on pasture management • Technical staff do not see added value on current trainings • Farmers not responsive to government led trainings because they are too theoretical • AVFA lacks capacity in proper training methodology • OEP lacks expertise in GIS for use in pasture identification • SMCSPS lacks knowledge management capacity	1. Cost effective training on pasture management, preferably that can be rolled out, targeting a huge number e.g. eLearning. 2. Trainings should be done against a training needs analysis to ensure the training is targeted 3. Target farmers with more practical trainings 4. Target AVFA on training methodology and pedagogy 5. Target OEP with trainings on GIS 6. Target CMCSPS with knowledge management capacity
Partnership	• Partners working in silos • Farmers have an underlying mistrust for cooperatives	7. Create a partnership network to facilitate collaboration 8. ICARDA and similar partners should mediate the bridge between farmers and cooperatives until full trust is regained; keep the cooperatives accountable to enhance farmer participation.

Implementation	• M&E skills are lacking in most partners, including the government • There is poor financial management of projects by partners and government • Pastoralism expertise is not adequate • There low youth participation in livestock farming	9. Develop self-taught eLeanring resources on M&E for a scaled roll out 10. Training programs in financial management of projects, i.e. finance for non-finance staff. 11. Develop training on pastoralist 12. Package livestock work in youth friendly formats for social media, mainstream media etc.
Policy	• Policy awareness by partners and government staff is poor • There is no policy on forage seed production	13. Dissemination of livestock related policies to all stakeholders in the sector. A self-taught course on all the laws of livestock production and their implications 14. Policy dialogue on the need for a forage seed production strategy and rangeland management 15. Develop a training program on seed multiplication

Suggested capacity development interventions

Knowledge

1. Pasture management expertise is lacking amongst the various partners, including OEP, the national agency responsible for pasture manages. A context specific, cost effective training on pasture management should be developed and should in a format that allows for targeting a huge number of learners e.g. eLearning.
2. Partners should be trained in conducting training needs analysis to ensure their training programs are targeted and more relevant which enhances participation and retention of information from training. Training needs analysis will also help partners design trainings that farmers find more useful and practical for their needs.
3. To enhance delivery of proper trainings by all partners and especially AVFA since it's the agency responsible for training, develop and implement a training on training methodology and pedagogy.
4. OEP is charged with pasture management and it is important they use modern technologies to get information like GIS. OEP staff should be trained in GIS to enhance their skills in pasture identification.
5. CMCSPS is handicapped by knowledge manages capacity, which is key in their work as a national cooperative on seed multiplication. The organization should be trained in knowledge management to enhance their ability to transfer seed multiplication knowledge to their members and partners.

Partnership

6. A livestock community of practice should be created to bring livestock stakeholders under one forum as an opportunity for information sharing, collaboration and possible partnership.
7. In situations where a cooperative is struggling with farmer participation due to mistrust, ICARDA and any other similar partners should participate as a mediating partner charged with assuring accountability by the cooperatives' in an effort to regain farmer confidence and enhance participation.

Implementation

8. Monitoring and evaluation skills were cited as a gap by partners including government. There is need to develop a training resource on M&E in the specific contexts of livestock related work; the course should be in a format suitable for a scaled roll out
9. Partners also cited gaps in financial management of projects and programs. A. Finance for non-finance staff training course should be developed and availed with an option of a self-taught course.
10. Pastoralist management was also identified as a gap for most partners yet they're involved in the livestock sector. A training program should be developed targeted key individuals in the partner organizations.
11. Youth participation in agriculture and livestock farming was identified as a gap. Partners involved in the Livestock sector should be targeted with communication training on packaging livestock information for the youth and use of youth friendly formats for social media, mainstream media etc.

Policy

12. Lack of policy awareness by partners in the livestock sector calls for a policy dissemination drive targeting all stakeholders in the sector. A policy mapping exercise needs to be undertaken and the output should be a pocket guide on livestock policies and their implications.
13. A policy dialogue initiative on the need for a forage seed production strategy and rangeland management should be initiated with an objective of developing a policy brief. As a mitigating short-term action, a training program on seed multiplication should be developed to ensure that farmers have access to quality forage seeds before proper government intervention through policy is arrived at.

Uganda country report

Executive summary

This Executive Summary of the Capacity Needs Assessment (CNA) presents the main highlights of issues contained in the other parts of this report as a snapshot of the process, findings and recommendations. The overall objective of the CNA was to understand the gap between the current capacities and the desired capacities needed to implement the livestock CRP agenda in Uganda. The active flagships in Uganda are animal health, feeds and forages and animal genetics.

The CNA focused on identifying these capacity gaps with an intention of suggesting possible actions to address them. The CNA used several approaches, including: a desk review of key project documents to understand and document the project's objectives and approach; an assessment of capacities at the individual level using an individual scoring tool; key informant interviews with selected project staff and stakeholders; infrastructure assessment using an infrastructure tool to assess access to key technological infrastructure. A total of 8 KII interviews and 2 FGDs were done with key sector actors to draw out the information on capacities. The partners interviewed were individuals from the Ministry of Agricultural Animal Industry and Fishers (national and district), Makerere University's College of Veterinary Medicine, Animal Resources and Biosecurity, and the Department of Agri-Business and Natural Resources, the National Agricultural Advisory Services, the National Animal Genetic Resources Centre and Data Bank, Volunteer Efforts For Development Concerns, Iowa State University Uganda Program, Wambizzi Cooperative, Enterprise Uganda and the Uganda ILRI country staff. The assessment was done between 2nd and 5th July 2017 and all interviews were done in Kampala and Entebbe. Respondents from the districts (Lira, Masaka, Kamuli, Mukono, and Hoima) were invited for a workshop in Kampala.

Key findings

Following is a summary list of the assessment findings:

Knowledge. Knowledge transfer is key to the livestock CRP work in Uganda due to the need to transfer technical knowhow to and between farmers and other stakeholders. The major knowledge transfer approaches are trainings, seminars and workshops for both government and ILRI. Tools used include reports, charts and maps. Knowledge transfer is also facilitated through partnership networks. Some of the challenges to knowledge transfer are lack of adequate logistical resources by government staff to reach farmers, limited knowledge by government technical staff due to lack of adequate refresher opportunities, lack of access to information hubs due to prohibitive subscription and internet costs in the districts and poor communication skills.

Partnership. The CNA found that partnership component needs strengthening to adequately facilitate the livestock CRP work in Uganda. Most partnerships are not adequately documented and therefore rely on the goodwill of those involved to make them work. Lack of partnership frameworks and agreements

has led to weak partnerships without real obligations on either sides. Government agencies are also weak on forming and fostering partnerships resulting to working in silos in a sector that requires close partnership and collaboration. Most partners have no resources dedicated to partnership building making it difficult to support partnership related initiatives.

Implementation. Programme implementing staff and partners indicated a lack of confidence in the planning and coordination skills at the implementation level. There is limited capacity to undertake baseline studies to inform activities during planning by government leading to plans that are not backed by the actual conditions of the farmers. Planning process is often non inclusive of those who will be involved in implementation in government. As a consequence, piggery is not a priority enterprise by government. Various partners only focus on specific points in the value chains which weakens the overall VC outcomes. ILRI identified poor implementation as a big problem as projects often rush to implement towards the end of the year instead of a well distributed plan of action from the begging of the year. Government staff decried the bulky livestock reporting tools as a hindrance to regular reporting in the district which has a negative impact on the lessons that can be drawn from these reports.

Policy. The CNA found that there are various policies that have positive and or negative implications to the livestock sector in Uganda. Liberalisation policy has resulted in less government participation in the livestock sector and more private sector participation leading to easier access to livestock inputs and services by farmers and thereby improving productivity. The same policy has limited the government's regulatory roles on inputs sourcing and use leading to poor quality inputs to the farmer leading to reduced production capabilities. Although there is greater access to commercial feeds by farmers, the commercial animals feed policy is not operational leading to poor quality compounded feed and consequent low production by the farmers. Disease control policy is not enforced resulting to easy spread of diseases outbreaks and losses to farmers. The livestock management policy is dated and not adequate to manage the livestock sector. For example, day only animal transportation is not suitable for pigs since they over heat in the day heat as they do not have sweat glands.

Recommendations

The following list summarizes recommendations based on the assessment findings:

Knowledge. Knowledge centres should be setup in the districts that ILRI is closely working with to intervene on the lack of information experienced by livestock staff in the government. An offline web solution that staff can access without the need for internet connection is a more suitable and sustainable solution since a lot of information is more accessible electronically than physically. E-readers can also be used to increase access of livestock staff to relevant knowledge resources. The district livestock staff should be targeted with soft skills like communication skills and adapting technical information for a general often limited educated audience. A training needs analysis should be conducted to determine the gaps that can be met through training. ILRI should develop guidelines for value chain toolkits to make them operational.

Partnership. ILRI should adopt minimum guidelines and framework for partner identification and engagement to help in conducting potential partner due diligence and facilitate partnership agreements that include clear and agreed roles and responsibilities and obligations. Partnership management within ILRI should be assigned as a key KPI for involved staff to ensure commitment and recognition as part of staff performance.

Implementation. An advocacy initiative should be developed to raise the interest of agencies and organisations that wiled significant power in the livestock sector but have little interest in the sector. Scaling objectives should be introduced in all projects to mitigate the 'pilot' reputation that ILRI is associated with and that results in partners and participant fatigue. Inputs and services providers should also be targeted with advocacy campaigns on the consequence of some of the negative practices they are currently associated with like antibiotic use in compounded feed and fake vaccines for diseases like ASF that have no known vaccines. Rapid diagnosis strategy for ASF should be developed. Law enforcer should be targeted with training on the impact of their action/inaction on farmers and livelihoods.

Policy. For ILRI to realise its objectives in increasing livestock production by reducing morbidity and mortality, then an intervention in the livestock policy space is necessary. There is need for dialogue on the concept, process, implementation and effect of liberalisation. This can be achieved directly through engaging the relevant government agencies or through close partnership with organisations that work on policy. To bolster piggery efforts in the country, ILRI should catalyse formation of a pig development authority as a stakeholder vehicle similar to Uganda coffee development authority that has had good success.

More detailed recommendations and suggested interventions are found on section 4 of this report.

SECTION 1: INTRODUCTION OF CAPACITY DEVELOPMENT IN THE LIVESTOCK CRP IN UGANDA

The livestock CRP in Uganda has had a number of projects on different flagships.

Improving pig genetics in Uganda. Research conducted by the International Livestock Research Institute (ILRI) and partners has identified poor genetics as a key factor in hampering pig production in Uganda. ILRI is working to increase the productivity and profitability of the Ugandan smallholder pig enterprises through: the identification of the most appropriate pig breed type(s); the development of a genetic improvement strategy to ensure the availability and accessibility of genetically superior pigs; and support for the uptake and optimal management of the genetically superior pigs. The goal is to contribute to sustainable intensification of the pig value chain in the country, resulting in increased food and nutritional security of poor animal source food consumers, and improved livelihoods of smallholder women and men pig keepers and other value chain actors.

Digital extension through IVR system: the case of control of African swine fever (ASF) in Uganda. This project examines the feasibility and acceptability of an IVR telephony extension service in ASF endemic areas. This study hopes to enhance the understanding of the utilization of IVR systems to improve efficacy and attainment of generalizability to varied farmer populations and settings including for other livestock diseases.

Developing optimal vaccination strategies for Rift Valley fever (RVF) in East Africa. Rift Valley fever is a mosquito borne viral zoonotic disease that affects sheep, goats, cattle and camels causing devastating losses, especially among pastoral communities that rely on livestock for their livelihoods. The disease occurs in explosive outbreaks following periods of above-normal and persistent rainfall. This project aims to develop optimal Rift Valley fever vaccination strategies that combine periodic preventive vaccination and reactive vaccination in the high-risk periods to replace the current practice where only reactive vaccination is implemented after warnings of heightened disease risk have been issued. Scientists will seek to use the findings generated from the project to develop Rift Valley fever vaccination strategies which could be used by policymakers throughout the eastern Africa region.

Molecular epidemiology network for promotion and support of delivery of life vaccines against Theileria parva and Theileria annulata infection in Eastern and Northern Africa. The general objective of the project is to ensure food security and to improve food safety by developing new and improving existing vaccination against bovine theileriosis caused by ***T. annulata*** and ***T. parva***. The project aims to contribute to poverty alleviation by increasing farmers' incomes and enhancing the national economies. In addition, the project aims at capacity building and technology transfer to developing countries in Africa.

mNutrition project. Improved nutrition for the poor as a result of behaviour change promoted by accessible mobile-based services delivered at scale through sustainable business models. This project

aims to improve the nutritional status of more than three million people in Africa and South Asia, primarily women and children, by helping them to access nutrition-based agricultural and health information using mobile technology. ILRI is part of a consortium appointed as the global content provider to the wider mNutrition initiative.

mPig: Mobile SMS learning for pigs—An innovative information sharing platform for smallholder pig value chain actors in Uganda. The International Livestock Research Institute (ILRI) identified the pig sector in Uganda as one of nine livestock systems worldwide where research investments are most likely to make a major difference to the livelihoods and diets of poor people.

More pork by and for the poor: Catalysing emerging smallholder pig value chains in Uganda for food security and poverty reduction. The project builds on the outputs from the Smallholder Pig Value Chains Development (SPVCD) project and plans to conduct larger scale pilots from the learning obtained. Its focus is on farmers and other actors in the pig value chain. The overall project goal is improved food and nutritional security for poor households, improved livelihoods for value chain actors and better performance of smallholder pig value chain systems in selected areas in Uganda.

Climate-smart Brachiaria grasses for improving livestock production in East Africa, catalysing the emerging smallholder pig value chains in Uganda to increase rural incomes and assets. The project's objectives are to identify market opportunities for pork in Uganda and the multiple factors preventing smallholder pig producers from exploiting those opportunities, with a focus on constraints such as animal diseases, scarce feed resources and poor performance of markets and services; to develop and pilot test a set of integrated packages for smallholder pig production and market access for specific production systems, resource profiles and market settings in Uganda **and** to document, communicate and promote appropriate evidence-based models for sustainable, pro-poor pig value chains

Safe Food, Fair Food 2: From capacity building to implementation. The ultimate goal of this second phase of the Safe Food, Fair Food project (Safe Food, Fair Food 2) is the improvement of livelihoods of poor producers and consumers by reducing the health risks and increasing the livelihood benefits associated with meat, milk and fish value chains. Its purpose is furthering research into the practical application of risk analysis and economic and social methods by food safety stakeholders and value chain actors, improving food safety and market participation of the poor in informal markets for livestock products in sub-Saharan Africa

Health, environmental change and adaptive capacity; mapping, examining and anticipating future risks of water related vector borne diseases in eastern Africa (HEALTHY FUTURES). The project focuses on three water related, high impact vector borne diseases (malaria, Rift Valley fever and schistosomiasis) in eastern Africa. It takes into account environmental/climatic trends and changes in socio-economic conditions to predict future risk to these diseases. The project includes work packages on climate and disease modelling, vulnerability mapping and decision support.

CapDev work in Uganda cuts across the projects with capacity needs assessment and strategy development, supporting with training solutions and delivery within projects, developing ICT based solutions to enhance research delivery and efficiency.

SECTION 2: DESIGN, METHODOLOGY AND PROCESS

Introduction: Design and methods

Capacity assessment framework and tools were developed for the Livestock CRP program through a review of program documents, theory of change and impact pathways. This capacity needs assessment sought to establish capacity gaps in four key capacity areas: policy, partnership and coordination, knowledge and implementation. The assessment adopted a cross-sectional study design with a mixed-methods approach. Quantitative and qualitative data was collected using two data collection methods: key informant interviews (KIIs) and focused group discussions (FGDs). KIIs targeted strategic resource persons in the program such as, country program manager, field coordinators and partners as well as policy shapers in the relevant government ministries. FGDs were held with homogenous project participants.

Tools

To understand the current organizational and individual capacity of the Livestock CRP program to successfully achieve its objectives, a number of generic data collection tools were employed targeting organizational, technical and functional capacities. Organizational capacity was assessed through the organizational assessment tool targeted to specific key informants responsible in the project. Individual capacities were assessed through individual scoring and infrastructure evaluation tools. Stakeholder analysis allowed a mapping of the Livestock CRP Program partners operating at various levels – national and district level. This tool was deployed both with key informants as well as in group sessions. Problem tree analysis was used to identify specific capacity challenges around policy, knowledge, partnership and coordination and implementation thematic areas.

Study site and respondents

The assessment focused on the Livestock CRP Program at national and district levels. The capacity needs assessment was conducted between 2nd and 5th July 2017. Expert interviews were done in Kampala with key senior government and partner individuals. Focus group discussions were done with ILRI research team and the district veterinary officers.

Sampling

The assessment identified respondents in the Livestock CRP Program and its partners through purposive sampling. This approach made it possible to interview only those resource persons who are knowledgeable on the program responsibilities, as well as specific individuals tasked with implementing various functions in the program.

Data management

Data gathered from the capacity assessment exercise was analysed using Ms Excel 2013 software. Descriptive statistics, such as means and frequencies was used to analyse the quantitative data in Ms Excel 2013. Qualitative data was analysed manually using a thematic approach. The audio recorded interviews were used to seek clarification in cases where the notes taken were not clear on specific messages. The audios were also used to confirm the time each tool takes to administer for consideration in planning future assessment. Responses from participants had unique identifiers instead of names to allow confidentiality and anonymity.

Assessment limitations

A limitation of group and individual self-assessments is the possible exaggeration of actual scores. Another limitation is that problem tree analysis tool can often be used as an opportunity to indicate displeasure or complain which can blur the objective of the exercise.

SECTION 3: RESULTS

The results are discussed in four main sections reflecting the four general capacity areas that the assessment focused on – policy, knowledge, partnership and implementation.

Knowledge capacity

This component of the assessment assessed the capacity of the change agents (ILRI, government, and other stakeholders) to change attitudes and behaviours of farmers engaged in the livestock sector. This is done as knowledge and skills transfer through training and on the job learning through participating in activities and processes in their respective projects.

The main institution process for knowledge sharing in government is through workshops, trainings, seminar and bench training for laboratory staff. The main tools are reports, charts, maps, participatory disease search, and surveillance of disease by use of knowledge of the locals. Others are partnership networks, e.g. the East Africa regional health network, the east African laboratory network, the regional epidemiology network and much more. These networks share information through interpersonal relationships rather than an organisation to organisation structural way.

There's been poor extension packages to the farmers due partly logistical challenges and partly due to knowledge gaps. Current veterinarians are not adequately technically equipped to provide necessary extension packages to livestock farmers. This knowledge gap was blamed on current low standards of training veterinarians and para-vets as a result of low funding for public colleges, fewer opportunities for practical sessions and high intake due to population pressure without matching resources. Lack of coordination between the Ministry of Education and MAAIF has led to college courses that are not targeted to the market; for example, Bsc. in Animal Production are not veterinarians, yet they seem to be trained in animal health and do not have a cadre in the government ranks. Once these veterinarians are employed by the government, there is little opportunity for skills enhancement initiatives and a general lack of knowledge centres or public libraries accessible to the staff. Dr Adenum, assistant commission also confirmed this and stated that training of staff is usually according to availability of resources and not by regulation. Poor linkages between research and extension limits access to info by extension workers. This coupled with the high cost of internet and subscribe to information hubs like multi stakeholder platforms and research journals results in limited access to modern livestock farming knowledge by extension staff and farmers. Extension workers (veterinarians) decried their low capacity in communication and group dynamics and explained that this was due to lack of related capacity building opportunities. There is a need to target the value chain actors with non-technical courses like communication since 8 out of the 9 extension workers interviewed stated that there were learning opportunities but not in the non-technical skills they needed. This affects the uptake of modern livestock production technologies due to poor delivery of these extension packages.

One of the gaps in knowledge management was a lack of credible livestock statistical data due to poor investment in agriculture information systems. Extension workers explained they lacked the skills in making sense of the data (analysis) which affects their ability to respond timely to problems only

identified through data. The director of livestock confirmed this by blaming a lack of opportunities for training on research and data analysis for their new staff as a major problem leading to less research outputs from the government. Lack of vocational training facilities in the country where extension workers and farmer can access refresher courses, practical to their enterprises was also sighted as a contributory factor to current knowledge gaps. There are partnerships on exchange of information, but these are few, unstructured and exist under projects e.g. by FAO.

Value chain toolkits have not had the expected impact due to low uptake since partners are not able to make use of them due to lack of guidelines to operationalise the same. This is supported by 5 out of the 9 respondents who stated partial availability of knowledge management tools.

There is very limited knowledge and capacity on scaling interventions for impact; often scientists are reluctant to implement scaling activities since their KPIs are not related to impact at scale activities which are developmental in nature.

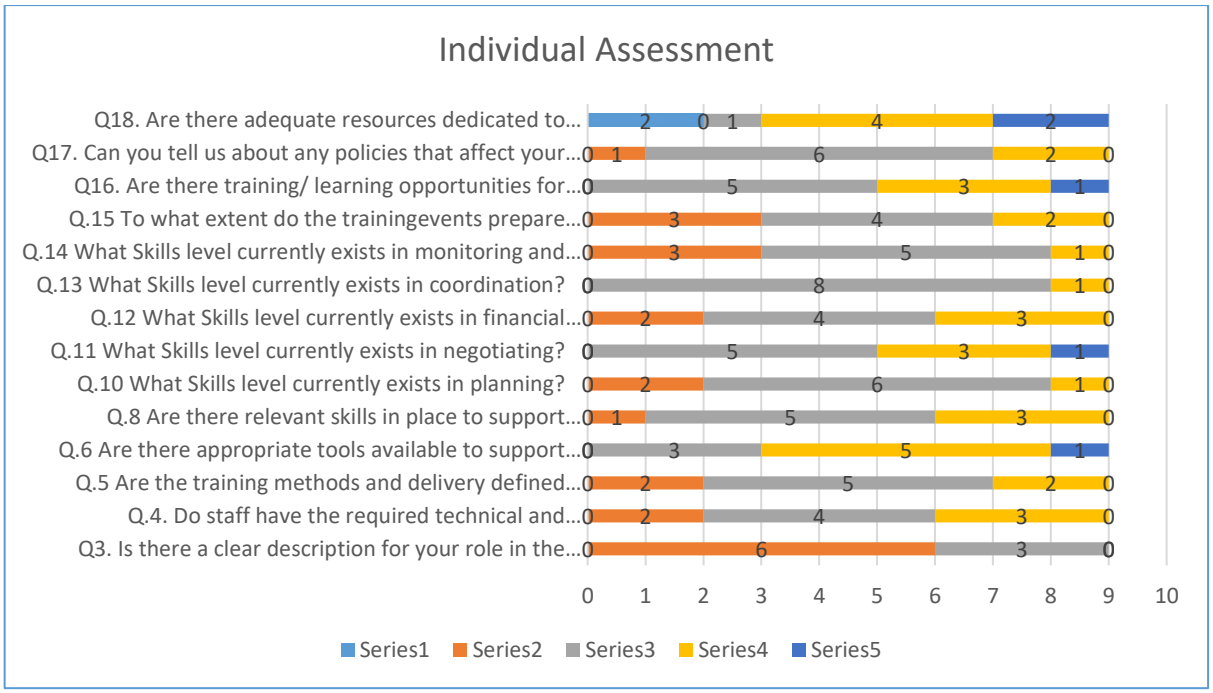
Partnerships capacity

The state of partnership capacity in Uganda's livestock CRP work is currently weak; staff, government and partners all indicated that current partnerships were not working well and needed strengthening.

ILRI has managed to highlight the pig value chain in Uganda including rallying stakeholders in the country. Key partners in this value chain have been MAAIF, NAADS extension services working with international development organisation in 5 districts in the production, Kampala city council authority. ILRI is also working with key research organisations like NARO, NALIRRI, Makerere Vet College, IOWA state universities and SLV on animal health. NGO partners include VEDCO, SNV, Vet without borders, enterprise Uganda, Heifer international and care international. Private sector partners include black pig production and union pig cooperation. Key donor are IFAD, Irish AID and the EC.

There is minimal collaboration amongst partners, resulting in duplication of efforts. Most current partnerships can be more accurately described as 'occasional collaborations' and not partnerships; most partners have no partnership objectives in their proposals or work plans, meaning that in most cases they also do not have a budget allocated for partnership strengthening activities. This is supported by the district extension staff where only 1 out of 9 interviewed stated that there were adequate resources dedicated to partnership building (Figure 4). These challenges in partnership capacity are as a result of the lack of a partnership framework to guide the relationships. Most partnerships are not formalised in writing but are instead 'gentleman's agreements' and in cases where they are formalised, there is no obligation and the partners only work together either for financial or reputation gain. At the district level, most local partners are small farmer organisations with few skills and capacity of running institutions e.g. cooperatives. This is collaborated by the fact that 3 out of the 9 respondents stated they are only partially skilled in financial management, which is an important skill for successful running of these organisations. This resulted in collapsed cooperatives and the loss of benefits that come with such organisations—bulking, low interest loans, value addition, meeting international standards, and quality assurance of inputs leading to tick resistance for example.

Figure 4. Scores of respondents who participated in the individual assessment



The government lacks the capacity (human resource and money) to effectively manage partnership networks leading to uncoordinated planning by different partners; each partner has different planning and different, often donor driven, interests. Partnership management was cited as a problem whereby most of the existing partnerships are facilitated through a top down approach where the frontline staff do not participate or make any inputs on the partnership formation yet are the ones expected to implement and achieve the aspirations of the partnership.

Some partners wield a lot of power in the livestock sector but have low interest in applying it to improve the sector. In MAAIF the Assistant Commissioner, the Director Animal Resources and the assistant commissioner Diagnostics and Epidemiology Lab wield 4 out of 4 power in the animal livestock sector but their interest was rated at 2 out of 4. Similarly, District Livestock Production and Marketing Officer Mukono (include DVOs) and the Kampala City Council Authority also wields the same power but with seemingly less interest. These offices have a huge impact on animal health of livestock and specific advocacy efforts should be directed at them to raise their interest from 2 to 4 since their actions can help improve the animal health.

The National Drug Authority (NDA), the Ministry of Health and the District Livestock Production and Marketing Office (including DVOs) in Kamuli also need to be targeted with advocacy effort to raise their interest to par with the power they wiled which is 4 since they only scored a 1 out of 4 on interest in improving the livestock sector. An advocacy effort to raise their awareness on the significance of their offices is needed.

Partnership management is also weak within ILRI since partnerships are managed in silos i.e. genetics, animal health, environment, youth, etc., and each of these have separate partner engagement ventures yet the partners are more often than not the same. Intermittent engagement of partners due to lack of certainty on what the future (of the CRP programme) holds and this leads to fatigue. Poor partnership management means currently there is no matrix to assess and rank/rate partners and the importance of specific partnerships to the CRP work. Partnerships are therefore not well defined leading to lack of shared understanding and delivery since partners do not understand their obligations or end of the bargain.

Lack of capacity in terms of knowledge and skill by some partners was also cited as a problem that makes some current partnership weak where other stronger partners feel that they stand to gain very little in participating in certain partnerships.

ILRI's research only nature of work was also cited as a problem area in fostering lasting partnerships. Most partners are not research oriented and are quickly fed up with RCTs, pilots, scoping exercises which is the nature of ILRI's work and this has led to partner and beneficiary fatigue.

Disharmony with other NGO practices in implementing partnerships has led to mistrust and reduced participation. Disharmony between ILRI partner engagement formats and rates and the rest of the NGOs is one often thorny area during implementation. Policy on paying hotels instead of providing the option to provide the money to the participants was cited as a major reason for poor participation by government and other partners; often, attendance to field activities and workshops are poor or left to the junior staff or new staff. Country reps should be able to discretionary provide this advice for finance to take up. Scientists do not have the skills and sometimes the time invest/foster on partnerships, project and programme managers were mentioned as a better cadre to manage such.

Funding is often not enough to have partnerships objectives in the research, instead, the outputs are achieved through a partnership which is not the same since once the output is achieved the partnership is not likely to last any longer. Related to funding, instances where work plans with partners are made then due to funding challenges implementation doesn't take place, the trust and confidence of partners on ILRI erodes, the team encouraged a 'bare minimum promise' on partnership objectives that would ensure that there is no case where a partnership is completely abandoned due to funding challenges.

Lack of scaling budgets or activities or budgeted time for staff means that ILRI loses many opportunities to impact on the livestock sector due to the research only nature of work. For example, there recently was a Pork Expo event which was a good opportunity for ILRI as one of the few international organisations working on pork; with no money to support the initiative as a sponsor, ILRI missed a good opportunity to showcase its work in the piggery, advocacy and PR and lost the trust of a partner who can't understand why ILRI would not have money for this. Such initiates provide more visibility of ILRI's work to local donor chapters like DFID Uganda, USAID Uganda more than publications might do.

ILRI initiated PIGAM stakeholder platform and now it's operating without ILRI's support. ILRI knowledge sharing, especially on access to data and samples needs to be better communicated; some partners felt that ILRI is protecting its samples too much.

Implementation capacity

Implementation capacity assessed the capacity of players in the livestock sector delivering the promises they made to the farmers in their work plans and proposals. Government staff blamed lack of capacity to undertake rapid but good quality feasibility studies before implementation and cited top down planning as a major problem in the planning of activities. This leads to poor or low adoption due to lack of ownership by the implementing partners including government.

The pig sector was not a priority for Uganda when ILRI started pig value chain work. ILRI generated evidence of pig value chain and the government is now aware of the pig sector.

District government staff felt that implementation by most partners is usually poor due to inadequate funding and attention to certain processes of the value chain, e.g. mobilisation and preparation of beneficiary, monitoring and evaluation, quality control, community feedback, poor facilitation of extension staff, etc. The respondents stated that skill level in coordination was not the problem with 8 out of 9 respondents stating mainly most staff were skilled in coordination. They therefore felt that the problems were with other partners and not them. This leads to unsustainable projects with little or no value for money, demotivated participants who become unavailable for future projects. ILRI's cutting back on research, human resources like research assistant was cited a big hindrance to proper implementation of the CRP work plan. This is particularly a major problem because the government implementing partners is often starved of funding since only beef and dairy VC are usually funded.

Technical staff like the district veterinary officers report to the chief administrative officer (CAO) who is not a technical appointment. This has a negative impact on the management of animal diseases since the CAO considers things like the impact of quarantine to traders instead of the significance of the disease spreading to other areas.

Piggery suffers since decision makers are mostly cattle keepers or come from cattle keeping communities. This is manifested even on the veterinary who are often not skilled on pig disease and management.

Deteriorating environment conditions have also affected by other cross cutting issues, e.g. climate change leading to losses during the long dry spells, low productivity and incremental general loss of interest in livestock production.

ILRI staff decried the poor execution of planned activities; most activities are implemented in the last quarter, which has an impact on the quality of work and applies a lot of pressure on government and other partners we're working with. This is blamed on poor coordination and integration of programs within ILRI and also uncertainty about budget until late within the year. Collective CRP planning sessions

should be held at the beginning of the year so that all parties are aware of the obligations from the beginning to avoid overworking towards the end of the year. During implementation, there is always poor feedback to partners and project participants which leads to mistrust; it is also unethical. All activities should plan and budget for feedback activities.

Livestock reporting is usually intermittent due to the bulky reporting tool issued by MAAIF leading to lack of or late reporting. There are adequate skills in monitoring with 8 of the 9 extension workers stating indicating confidence in the monitoring skill level in the districts.

Monitoring is mainly done by government through supervision visits and only done at the MAAIF level; there is currently no supervision at the veterinary level or district level. Implementation of plans is at about 10 to 20 percent of planned activities by the government.

Policy capacity

There are several policies that have a significant and direct impact on the livestock sector in Uganda; some are livestock specific policies while others are general policies that happen to impact the livestock sector. This assessment interrogated these policies and their specific impact on the livestock CRP work by ILRI and other stakeholders.

Liberalisation policy. This policy in general introduced economic liberalization, which meant to lessen of government regulations and restrictions on the economy to encourage greater participation by private companies including foreign investors. From the assessment, this policy has directly impacted on the livestock sector as it encouraged private entities to participate in livestock feed production, vaccine production, slaughter houses, veterinary services etc. Consequently, farmers in the various value chains have access to inputs—compounded feed, drugs, vaccines, etc. that were initially not available due to limited government ability to supply; the farmers also in most cases have more than one option to choose from which benefits the farmer with lower costs of production. Easier access to veterinary services through private vets and para-vets, drugs and vaccines enables the farmers to have more control in the health of their animals. Access to commercial compounded feed provides the farmers with more feed options and minimises reliance on seasonal grazing feed and forage which de-links production from seasons and reduces the enterprise exposure to short term environmental conditions.

This policy has also impacted the livestock sector negatively; due to the liberalisation, only beef and dairy value chains are funded under the National Strategic Plan, other value chains are not funded. Due to lack of funds for these other value chain activities, there is lack of adequate facilities like pig slaughter houses where there is only one pig slaughter house and it's in the capital Kampala, the rest are informal slaughter houses which have an animal health and food safety implication around pig products since these slaughter points are not regulated by the government resulting in poor quality meat in the market, disease spread, public health issues, poor waste management, etc. Piggery is only now slowly being recognised. Initially, piggery was never mentioned in the DSIP development plans (now called the ASP); but now the ASF is recognised in the ASP. Liberalisation of the delivery of veterinary services has resulted in less control of animal veterinary drugs, resulting to importation of substandard inputs, e.g. acaricide, antibiotics, etc. This has led to abuse by vets and farmers and consequently leading to tick resistance, antibiotic resistance leading to an increased disease prevalence in both animals and humans.

Commercial animal feeds policy. While this policy exists, no bill or act of parliament has been passed to operationalise it. This is because liberalisation has been misunderstood to mean freedom for all, no control. This leads to poor quality feeds, use of unacceptable practices, e.g. use of antibiotics in feed, misleading nutrition information regarding the commercial feeds since these producers are small scale and do not have reliable formulas. This results in feeds whose effect cannot be accurately determined and overtime farmers get disappointed and label the compounded feed as fake feed.

Disease control policy. Animal health is a problem area due to a breakdown in disease diagnosis and control infrastructure as a result of failure of the chain of command from CVs to DVOs. Often, there is political interference in disease control since it involves quarantine and culling of animals and politicians take advantage to score cheap political points by seeming to 'protect' the farmers in their jurisdictions; this is also as a result of their (politicians) ignorance of the impact of these diseases to the farmers and their households. Lack of compensation for culling animals following an outbreak results in farmers not reporting disease incidences. There is a lack of human resource to enforce quarantine and also lack of diagnostic capacity of government veterinarians which has led to increased morbidity and mortality. There's only one police officer in each district who is mandated to control quarantine; the rest of the police officers are often clueless.

Disease control is also negatively affected by the fact that it involves other government arms e.g. quarantine by police officers who often than not, do not know the laws on quarantine, are not sure what to charge the law breakers with and don't know what to do with the captured animals. This leads to increased disease prevalence since disease outbreaks spread easily; for example, uncontrolled movement of animals led to the spread of PPR from Karamojong to everywhere else. Poor enforcement of animals' strays act means farmers are not aware of the act leading to near impossible management of disease outbreaks. Poor enforcement of drug use and management due to disconnect between Ministry of Health who approve drugs use and the Ministry of Livestock who enforce usage. This results in self-medication by farmers leading to a rise in microbial resistance, high cost of drugs, poor quality drugs. National drug authority is unable to regulate drugs due to too many players as a result of misunderstanding liberalisation. There is a need for proper awareness, understanding and clarity about implementation mechanisms of the liberalisation policy and clearly defined roles of key actors before enacting new policy instruments, like liberalisation.

Land policy. The current land policy is dated and therefore inadequate due to increased population growth over time without accompanying review to accommodate these changes. Therefore, few farmers have land titles, others are in a situation where several farmers have titles for the same piece of land and most are in communal land tenures. This limits the freedom that a farmer has over the land use they own and consequently negatively affects the investment a farmer is willing to make on the land. There is competition between human and animals for feeds and food production from the same land. Due to the lack of clear ownership of land, there are limited land development and farmers cannot access finance through title deeds as security.

Livestock management policy. The current livestock management policy is dated leading to relatively low penalties for breaking the law on quarantine and animal transport. This means there is little

deterrence leading to increased non-compliances by farmers and traders. Animal health is impacted on due to cruelty to animals during rearing, transportation and slaughter resulting in poor quality livestock products and prices. There is no framework for livestock recording leading to poor government planning that is often not based on actual figures. Day only transport policy is not adapted to some value chains like pigs; transporting pigs during the day is a problem since pigs are heat sensitive because they can't sweat and therefore night transport would be more appropriate. Due to the day-only policy, there is high mortality of pigs during transport, increased cost of transport for pig traders since they have to keep pouring water on the pigs to cool them down or illegally transport at night and this leads to increased cost of production to the pig farmer. Enforcement of animal welfare is poor; animals including pigs mostly get transported on *boda bodas* (motorbike taxi) thereby stressing the animals leading to poor quality meat since the animals shed bacteria on meat when stressed. The acting commissioner Dr Rose Adenum confirmed there was a need to update this policy; currently, camel and crocodiles are being consumed but the policy does not cover these. She also pointed out that there exists some contradictions in laws that have a negative impact on the health of the health of animals; veterinary drugs are managed under the National drug authority in the ministry of health whose consequence is that they are not prioritised compared to if MAAIF was in charge.

Genetics management policy. NAGRC and DB are poorly supported to produce required genetic resources for farmers due to lack of funds from the government. Breeding is not prioritised at national and district levels, therefore there are not enough breeding specialists employed by the government at these two levels. The demand from farmers and stakeholder for better genetics is not high enough to compel the government to prioritise breeding. The result is reliance on genetics and breeding research organisations and institutions that depend on short term donor funding, which is not always adequate for breeding programs. This leads to poor genetic animals with low production and high cost of production. For example, in the pig value chain, there is no control of genetic material of pigs. NARC lacks the human capacity in piggery genetics and there are no proper research centres for genetics leading to uncontrolled breeding and poor breed, including loss of local breeds that are resistant to local conditions e.g., environment and diseases. Identification policy was repealed therefore activities were put under breeding policy; this is, however, deemed to change as identification is now recognised as important for traceability.

SECTION 4: CONCLUSION AND RECOMMENDATIONS

Summary of findings and recommendations

This assessment's recommendations will dwell on the areas that showed inadequacy and have the potential of negatively affecting the project's ability to achieve its objectives. Below is a summary list of findings and recommendations followed by a detailed list of suggested capacity development interventions.

Summary of findings and recommendations

Table 13. Uganda identified gaps and recommendations

Capacity area	Identified Gaps	Recommendations
Knowledge	• Lack of knowledge centres for the district staff and partners • Lack of non-technical skill like communication • District staff lack basic data analysis skills and tools to assist in making sense of data • No guidelines to operationalise value chain toolkits	16. Install digital knowledge centres that have offline capability when not on the internet. 17. Target district staff with communication skills training to improve their delivery of extension and awareness services 18. Target district staff with basic data analysis skills to help them make sense of the data they come across 19. Develop guidelines for the existing value chain toolkits
Partnership	• Unstructured partnerships with no obligations. • Partners assessment framework missing • Most local partners poor on organisation management skills •	20. Partnership guideline and framework to guide ILRI partnership initiatives and one that includes a partners' assessment framework to assist ILRI in identifying. Target key ILRI staff with specialised training in partnership development and management. 21. Target district level partners with organisation manage skills training and provide tools
Implementation	• Powerful partners have low interest to effect change and help farmers • ILRI research project have no scaling objective	22. Target stakeholders who have high power but interest with advocacy messaging campaign to raise their interest 23. Develop an impact at scale strategy for Uganda

	• No staff dedicated to handle sector partnerships • Compounded feed producers not aware of consequence of lack of quality assurance to the farmer and their enterprises • ASF diagnosis too slow due to lack of lab facilities • Ignorance of quarantine laws by those mandated in enforcing • Animal cruelty habits by value chain actors • Livestock not identified so tractability and census is not currently happening • No objectives on scaling of interventions in proposal and plans	24. Nominate a staff on partnership management at no less that 30 percent of the time. Partnership management geared to scaling should be reflected in staff KRAs. 25. Target feed producers with advocacy messaging campaign on consequences of low quality feed 26. Develop a rapid diagnosis strategy for ASF in Uganda 27. Quarantine awareness campaign targeting farmers and enforcers on the basics of the law 28. Target value chain actors with animal cruelty advocacy campaign 29. Develop a livestock management system that includes animal identification
Policy	• Poor regulation of inputs – drugs, vaccines, feeds • Abuse of drugs e.g. antibiotics	30. Facilitate collaborative action between ministry of health and MAAIF through policy dialogues to arrest the poor regulation of inputs including drugs 31. Instigate formation of a pig authority similar to Uganda coffee development authority

Suggested capacity development interventions

KNOWLEDGE

1. District livestock staff decried lack of information sources to refresh and keep them updated on pig farming. A knowledge centre or corner should be set up in the districts where donated publications from ILRI and similar organisations can be placed. The LIVES project in Ethiopia is a good example of this intervention. A more accessible suitable solution would be an offline web solution that staff can access without the need for an internet connection every time they connect to the website. This can also be complemented with e-readers. This would make updated resources like ILRI publications available without the associated cost of paying for internet every time you access.
2. To improve the delivery of extension and awareness services, district extension staff need soft skills on top of the usual technical skills training they receive. Communication was identified as an urgent need to improve the delivery of technologies to farmers by the technical officers.
3. District staff should also be targeted with basic data analysis skills training to help them make sense of the many data sets that they interact with but lack the resources to have it analysed.
4. To operationalise value chain toolkits, ILRI needs to develop respective guidelines.

PARTNERSHIP

5. To strengthen partnerships and ensure that they meet their objectives, there is need to develop minimum guideline and framework for partner identification, engagement and monitoring and evaluation of partnership activities, processes and outcomes; this includes due diligence and partnership agreements that defines roles, responsibilities and obligations. The framework should include capacity building the partners in capacity gap areas identified during due diligence.
6. ILRI staffing echelons should include dedicated partnership management; partnerships are engaging and scientists find it difficult to give the necessary time to foster and manage lasting partnerships

IMPLEMENTAION

7. In the power interest map, there were partners who were identified to wield a lot of power in the pig sector but little interest in solving the problems or intervention. Advocacy message campaign should be started to raise their interest in the sector. ILRI can leverage on relation with other NGOs and INGOs to deliver a consistent message to raise this interest.
8. Scaling objectives should be introduced to all projects to enhance impact of ILRI's work and reduce participants' (farmers and government staff) fatigue with the research only agenda. In addition, ILRI needs to strengthen its project management capacity to increase benefits from projects in terms of lessons learned and synthesis and packaging of innovative approaches. Capacity for managing projects in terms of partnership engagements, proper identification and documentation of project knowledge products and synthesis and dissemination of project knowledge and lessons are key for ILRI to remain relevant and impacting in the livestock sector.
9. Target inputs producers with advocacy campaigns on the consequences of low quality feed to farmers and their (producers) business as farmers grow increasing sceptical of commercial compound feeds
10. ASF diagnosis is a major hindrance to its control; a rapid diagnosis strategy should be considered to facilitate faster conformation of the disease and related management.

11. Train law enforcers on laws affecting livestock e.g. quarantine laws, animal cruelty laws etc. The training should also highlight the consequences of laxity on these laws to the livelihoods of the farmers and other people living in their jurisdictions.

POLICY

12. Poor regulation of inputs sourcing and use has resulted in fake inputs in the market; this coupled with abuse of antibiotics due to self-medication by farmers has resulted in resistance to treatment. Although this is a policy problem, ILRI needs to facilitate collaboration and policy dialogue between the ministry of health and MAAIF which are responsible for quality of inputs and regulation of use respectively. Without this intervention, all downstream interventions in eradicating pig diseases are likely to fail.
13. To ensure that there is self-regulation within the pig farming sector, ILRI should help instigate the formation of a Uganda pig authority similar to Uganda coffee development authority. This will help tackle the problem from the supplier end as well as the consumer end and ensure that both ends work collaboratively towards converging objectives.

Animal health flagship

Findings

Ethiopia

Knowledge. While there are frequent trainings on knowledge transfer opportunities by projects and government partners, capacity to transfer animal health knowledge through properly designed and delivered training programmes is low. This is particularly true for the lower administrative levels that undertake most of the trainings. The type of training delivery discriminates against some target groups, e.g. women will participate less in all day trainings that take several days and therefore training design should be targeted to all participants – women, youth etc. Partners and programmes that undertake trainings at the local level need to be trained on learning methodologies to ensure they learn how to design and deliver proper trainings that are targeted and therefore offer value and enhance participation

Capacity to communicate animal health research outputs is mainly through conventional research outputs like research articles, reports for publishing in peer reviewed publications like journals and professional websites. Capacity to communicate health research output to the general public is not adequate meaning the farmers have the least access to the information they need the most on animal health. Project staff should be targeted with soft skills training in this case, training on communication technical information to the general public without which all the knowledge on animal health is not useful.

Partnership. Partnership management is important to the animal health flagship work across the countries. In Ethiopia, the ministry of livestock is an important partner in the work under this flagship. Partnership management through committees, project agreements, memorandums are important tools to manage these important stakeholders to the flagship. From the assessment, the ministry of livestock harbours very little capacity in partnership and coordination and most partnerships by the various stakeholders are established and anchored on friendships and not by formal agreements. The results is partnerships that fail to deliver on their formation objectives, due to unclear roles, irregular meetings, poor follow up of actions etc. Partnership capacity within the CGIAR is sufficient and only inadequate at the local field levels. Action should be taken to strengthen the partnerships through structural documentation.

MOLF staff are inadequately skilled on project management, a skill that is important if they are to be able to facilitate farmers with much needed support for successful livestock enterprises which must be anchored on good animal and herd health. Training on project management will help improve this skill for better management of projects and work that has an impact on animal health.

Implementation. Animal health suffers from weak supply system of technologies, inputs and services especially due to an inefficient public service provision system which has negatively affected such services as disease diagnosis and treatment, vaccination, quarantine enforcement etc., that are integral to animal health. Action should be taken to encourage private sector participation in the sector to bridge the gap in the supply system.

Policy. Poor access to credit facilitates especially for those engaged in livestock enterprises impacts on animal health as farmers do not have similar capacity to act on diseases affecting their livestock as people engaged in other businesses who have easier access to finance from banks and microfinance institutions.

Recommendations

Tunisia

Knowledge. Lack of opportunities for refresher training by livestock officers has resulted in missed opportunity on new animal health knowledge meaning the farmer also doesn't get updated knowledge through the various trainings they participate in. Low cost self-taught trainings should be designed and disseminated targeting livestock officers.

Trainings are not properly targeted meaning that livestock officers are likely to miss trainings that they need and instead get trained on areas they least need training on; this has a cascading effect on animal health due to lack of capacity by the first line of support in the livestock sector who are the local livestock officers especially on areas like animal disease diagnosis and treatment. Training needs analysis should precede all training to ensure that trainings are target at those who need the skills

The assessment found out that Farmers had little interest in trainings due to the poor choice of delivery methods; farmers complained that trainings are too theoretical at the expense of practical lessons. This in turn affects the transfer of important animal health knowledge by livestock officers to the farmers. Training delivery methods should adopt with input from the farmers, training satisfaction surveys should always be taken to help improve the existing delivery methods.

Partnership. Cooperatives are usually one avenue of farmers accessing inputs towards animal health e.g. drugs. The assessment found out that farmers did not trust cooperatives which has a negative impact on animal health since it robs the farmers of one avenue of accessing information, inputs and services. Cooperatives should be supported and strengthened since they are one way of farmers accessing inputs that have an impact on animal and heard health.

Implementation. The assessment discovered that project management capacity was not sufficient, and this has a negative impact on animal health programmes by partners and stakeholders thereby leading to poor herd health.

Policy. Knowledge on legislation relevant to livestock by the partners interviewed was poor. This means that animal health issues like quarantine laws, regulation of animal inputs and services are not adequately disseminated which has a negative impact on the health of animals. Dissemination on awareness on relevant legislation should be done to ensure that all actors in the livestock sector are aware on the various legislation that affect the sector.

Uganda

Knowledge. The assessment found that there was poor extensions packages to the farmers as a result of many factors–logistical, knowledge gaps, poor quality training in schools etc. This affects the delivery of life (animal) and livelihood saving information to the farmers' e.g. animal disease prevention and management information. Refresher training should be designed to improve these extension packages based on new knowledge.

Extension workers decried lack of adequate skills to make sense of data through data analysis on their part; this is critical for the animal health since disease surveillance is anchored on the ability to do data analysis and take action based on the insight. Livestock officers in the districts should be targeted with basic data analysis packages tailored to the role they play in the respective work.

Partnership. Partnership was found to be one of the inadequate capacities in the CRP work in Uganda. Current partnerships were observed to be held by a thin thread since they are rarely based on well documented partnership agreements unless when funding is involved. The animal health work is affected by weak partnerships that are not working optimally e.g. lack of close collaboration between the national drug authority under the ministry of health and MAAIF has led to poor regulation of inputs and services like fake drugs and self-medication by the farmers that lead to poor animal health as a result of resistance to antibiotics and loss of livestock by the farmers. Strengthening partnerships will help all the sectors working on livestock work together and improve animal health e.g. a close partnership between MAAIF and the police will help enforce quarantine, humane transportation and slaughter all of which have an impact on animal health.

Within ILRI, the livestock CRP will benefit from improved partnership capacity with better collaboration between flagships especially around planning and implementation; this will improve engagement with partners as one organisation instead of the current silo way of working.

Implementation. ILRI nature of work being research has caused fatigue among project participants and partners who wish for more downstream facilitation beyond research; to continue with animal health research sustainably, the CRP needs to package research work with downstream activities like extension packages that partners and farmers can benefit from and improve participation.

Livestock reporting was cited as an area that needs straightening; currently the livestock reporting tools is too bulky leading to infrequent reporting and thereby affecting the reaction time of the livestock officers in the districts to epidemics or disease outbreaks

Lack of value chain approach by some partners in the livestock sector has led to poor implementation and interventions. Some important processes such as mobilisation of participants, monitoring and evaluation, quality control is done poorly leading to poor animal health interventions.

Animal health is also affected by a breakdown in the disease diagnosis and control infrastructure. Often, there is political interference in disease control since it involves quarantine and culling of animals and politicians take advantage to score cheap political points by seeming to 'protect' the farmers in their jurisdictions; this is also as a result of their (politicians) ignorance of the impact of these diseases to the farmers and their households.

Lack of compensation for culling animals following an outbreak results in farmers not reporting disease incidences.

There is a lack of human resource to enforce quarantine and also lack of diagnostic capacity of government veterinarians which has led to increased morbidity and mortality. There's only one police officer in each district who is mandated to control quarantine; the rest of the police officers are often clueless.

Disease control is also negatively affected by the fact that it involves other government arms e.g. quarantine by police officers who often than not, do not know the laws on quarantine, are not sure what to charge the law breakers with and don't know what to do with the captured animals. This leads to increased disease prevalence since disease outbreaks spread easily; for example, uncontrolled movement of animals led to the spread of PPR from Karamojong to other areas.

Policy. The liberalisation policy has negatively affected the quality of inputs and services that reach the farmers. Due to a less regulated environment, farmers are exposed to fake inputs and poor services leading loss of animals and disease resistance. Use of unlawful practices like use of antibiotics in commercial animals feeds leads to antibiotics resistance.

Poor enforcement of animals' strays act means farmers are not aware of the act leading to near impossible management of disease outbreaks.

Poor enforcement of drug use and management due to disconnect between Ministry of Health who approve drugs use and the Ministry of Livestock who enforce usage. This results in self-medication by farmers leading to a rise in microbial resistance, high cost of drugs, poor quality drugs. National drug authority is unable to regulate drugs due to too many players as a result of misunderstanding liberalisation. There is a need for proper awareness, understanding and clarity about implementation mechanisms of the liberalisation policy and clearly defined roles of key actors before enacting new policy instruments, like liberalisation.

Tanzania

Knowledge. Lack of business skills was also identified as a knowledge skills gap. This was particularly the case for vaccinators who were expected to take on the business opportunity in ECF vaccination after receiving training on delivery of the ECF vaccine to make extra income. However, despite an incentive

program being set up, very few vaccinators ceased the opportunity to make extra income i.e. out of 200 vaccinators trained, and only 11 ceased the opportunity. This was attributed to lack of appreciation of the business opportunity.

Partnership. Inadequate capacity of local partners CSOs and POs to effectively advocate and engage farmers has a negative impact on disease prevention and management.

Implementation. Limited capacity for devolved officers DEDs, district councils to optimally operate and support delivery of new technologies can have a negative impact on animal health since disease prevention and management is often being updated and disseminated and capacity to deliver to the farmer is important in this chain.

Recommendations

Ethiopia

Knowledge. To enhance the capacity to transfer animal health knowledge through properly designed and delivered training programmes, partners and programmes that undertake trainings at the local level need to be trained on learning methodologies to ensure they learn how to design and deliver proper trainings that are targeted and therefore offer value and enhance participation

To enhance the capacity to communicate health research output to the general public, project staff should be targeted with soft skills training in this case, training on communication technical information to the general public without which all the knowledge on animal health is not useful.

Partnership. Partnership management is important to the animal health flagship work across the countries. In Ethiopia, the ministry of livestock is an important partner in the work under this flagship. Partnership management through committees, project agreements, memorandums are important tools to manage these important stakeholders to the flagship. From the assessment, the ministry of livestock harbours very little capacity in partnership and coordination and most partnerships by the various stakeholders are established and anchored on friendships and not by formal agreements. The results is partnerships that fail to deliver on their formation objectives, due to unclear roles, irregular meetings, poor follow up of actions etc. Partnership capacity within the CGIAR is sufficient and only inadequate at the local field levels. Action should be taken to strengthen the partnerships through structural documentation.

MOLF staff are inadequately skilled on project management, a skill that is important if they are to be able to facilitate farmers with much needed support for successful livestock enterprises which must be anchored on good animal and herd health. Training on project management will help improve this skill for better management of projects and work that has an impact on animal health.

Implementation. Animal health suffers from weak supply system of technologies, inputs and services especially due to an inefficient public service provision system which has negatively affected such

services as disease diagnosis and treatment, vaccination, quarantine enforcement etc., that are integral to animal health. Action should be taken to encourage private sector participation in the sector to bridge the gap in the supply system.

Policy. Poor access to credit facilitates especially for those engaged in livestock enterprises impacts on animal health as farmers do not have similar capacity to act on diseases affecting their livestock as people engaged in other businesses who have easier access to finance from banks and microfinance institutions.

Tunisia

Knowledge. To cub the lack of opportunities for refresher training by livestock officers Low cost self-taught trainings should be designed and disseminated targeting livestock officers. These trainings can be in several formats, paper, mobile online or offline and IVR.

To enhance farmers' interest in trainings, improved delivery methods and approaches with more practical lessons should be adopted. This will improve the transfer of important animal health knowledge by livestock officers to the farmers. These training delivery methods should adopted with input from the farmers, training satisfaction surveys should always be taken to help improve the existing delivery methods.

To ensure trainings are properly targeted thereby increasing participation by the livestock officers, training needs analysis should precede all training to ensure that trainings are targeted at those who need the skills.

Partnership. To encourage farmers' participation in cooperatives, effort should put to support and strength them with institution management skills and participatory approaches to management.

Implementation. Partnership should be targeted with low cost self-taught project management trainings to improve the management of animal health projects and programmes partners and stakeholders thereby leading to improved herd health.

Policy. To improve awareness on legislation relevant to livestock by the partners—quarantine laws, regulation of animal inputs and services, awareness campaigns should be designed to ensure that all actors in the livestock sector are aware on the various legislation that affect the sector.

Uganda

Knowledge. To improve the quality of extensions packages delivered to the farmers by extension officers, frequent refresher training should be provided to the field staff focusing on new knowledge. ICT solutions should be applied to remove some of the challenges that affect the quality of the extension packages.

District staff should also be targeted with basic data analysis skills training to help them make sense of the many data sets that they interact with but lack the resources to have it analysed.

Partnership. To strengthen partnerships and ensure that they meet their objectives, there is need to develop minimum guideline and framework for partner identification, engagement and monitoring and evaluation of partnership activities, processes and outcomes; this includes due diligence and partnership agreements that defines roles, responsibilities and obligations. The framework should include capacity building the partners in capacity gap areas identified during due diligence.

Strengthening partnerships will help all the sectors working on livestock work together and improve animal health e.g. a close partnership between MAAIF and the police will help enforce quarantine, humane transportation and slaughter all of which have an impact on animal health.

Within ILRI, the livestock CRP will benefit from improved partnership capacity with better collaboration between flagships especially around planning and implementation; this will improve engagement with partners as one organisation instead of the current silo way of working.

Lack of value chain approach by some partners in the livestock sector has led to poor implementation and interventions. Some important processes such as mobilisation of participants, monitoring and evaluation, quality control are done poorly leading to poor animal health interventions. Partners in the livestock sector should be targeted with value chain approach training to improve their programming, implementation and interventions.

Implementation. ILRI nature of work being research has caused fatigue among project participants and partners who wish for more downstream facilitation beyond research; to continue with animal health research sustainably, the CRP needs to package research work with downstream activities like extension packages that partners and farmers can benefit from and thereby improve their participation.

Animal health interventions rely on good surveillance or data collection at the farm level. The current livestock reporting needs to be redesigned to a user friendlier version to improve frequency of reporting and consequent improve the reaction time to epidemics or disease outbreaks by the livestock officers in the districts

To arrest the breakdown in the disease diagnosis and control infrastructure through dysfunction non-existent quarantine and culling of animals, awareness should be done targeting politicians and government administration on the impact of animal diseases to the farmers and their households. Law enforcement agencies in the districts should be trained on laws affecting livestock e.g. quarantine laws, animal cruelty laws etc. The training should also highlight the consequences of laxity on these laws to the livelihoods of the farmers and other people living in their jurisdictions.

Policy. The liberalisation policy has negatively affected the quality of inputs and services that reach the farmers. Due to a less regulated environment, farmers are exposed to fake inputs and poor services

leading loss of animals and disease resistance. Use of unlawful practices like use of antibiotics in commercial animals feeds leads to antibiotics resistance.

Poor regulation of inputs sourcing and use has resulted in fake inputs in the market; this coupled with abuse of antibiotics due to self-medication by farmers has resulted in resistance to treatment. Although this is a policy problem, ILRI needs to facilitate collaboration and policy dialogue between the ministry of health and MAAIF which are responsible for quality of inputs and regulation of use respectively. Without this intervention, all downstream interventions in eradicating pig diseases are likely to fail.

To ensure that there is self-regulation within the pig farming sector, ILRI should help instigate the formation of a Uganda pig authority similar to Uganda coffee development authority. This will help tackle the problem from the supplier end as well as the consumer end and ensure that both ends work collaboratively towards converging objectives.

Poor enforcement of animals' strays act means farmers are not aware of the act leading to near impossible management of disease outbreaks. Policy enforcers in the districts should be targeted with awareness campaigns on the impact that non-enforcement of animal laws and acts has on the farmers and their livelihoods. Policy effort should be made at higher levels to have this enforcement as part of their performance metrics.

Policy effort at national level should focus on budgeting for compensation funds to farmers in case of any necessary culling campaign.

Tanzania

Knowledge. Develop basic and advanced business skills for vaccinators and distributors of ECF vaccine respectively. This is to increase the number of vaccinators' interest to take up the opportunity to make extra income i.e. out of 200 vaccinators trained, only 11 ceased the opportunity. This was attributed to lack of appreciation of the business opportunity.

Implementation. Inadequate capacity of local partners CSOs and POs to effectively advocate and engage farmers has negative impact on disease prevention and management. These partners should be targeted with communication and participatory approaches training to improve their capacity to engage the farmers and provide animal health services like vaccines and drugs.

Limited capacity for devolved officers DEDs, district councils to optimally operate and support delivery of new technologies can have a negative impact on animal health since disease prevention and management is often being updated and disseminated and capacity to deliver to the farmer is important in this chain. ICT4D solutions should be considered to overcome some of the barriers that these devolved units encounter and that prevent them from working optimally e.g. lack of resources for frequent farmer supervisions.

Genetics flagship

Findings

Ethiopia

Knowledge. Capacity in training methodology and particularly evaluation of learning and training approaches needs strengthening. Skills in training follow up and learning application support strategies and documentation and review of training activities are not at a sufficient level.

Limited capacity in data collection and record keeping and the maintenance of central databases for the livestock sector

Financial flow and management capacity of research partners is a major concern for livestock CRP flagship projects. There is generally weak administrative support capacity (planning, training, financial management, financial reports) within partner research organizations.

There is acute shortage of expertise in livestock genetic improvement (breeding and genetics).

Local partners have limited access to the internet which constrains their capacity to access project generated knowledge and information.

Partnership. Partnerships are often established through informal meetings and personal networks

No clearly articulated partnership strategies and guidelines that guide partnership activities and processes

Limited capacity of partners in partnership skills such as negotiation, claim-making, communication and facilitation

Implementation. Technology multiplication and dissemination is a particular concern for the African Chicken Genetic Gains (ACGG) and African Dairy Genetic Gains (ADGG) projects due to a limited participation of the private sector. A number of factors constrain the participation of the private sector, such as technical capacity and access to technologies, credit services and knowledge and skills.

A weak supply system of reproductive technologies. For example, private sector service providers in artificial insemination (AI) are limited due to the current semen supply subsidy and lack of grants. They are limited to commercial areas and peri-urban centres and have no incentives to reach out to remote areas. Infrastructure constrains such as liquid nitrogen, semen, preventive maintenance of machinery and equipment and the distribution chain are mentioned as implementation challenges for AI service provision.

Implementation capacity such as planning, implementation, financial management and data management are not at a sufficient level

Policy. The Livestock Master Plan (LMP) provides country priorities for investment

A national livestock breeding policy has recently been approved by the parliament

Ongoing initiative to upgrade the already existing National Artificial Insemination Center (NAIC) to Livestock Genetic Improvement Institute

Uganda

Implementation. The National Animal Genetic Resources Centre and Data Bank (NAGRC and DB) are poorly supported to produce required genetic resources for farmers due to lack of funds and prioritization from the government.

Breeding is not prioritized at national and district levels, therefore there are not enough breeding specialists employed by the government at these two levels. The demand from farmers and stakeholder for better genetics is not high enough to compel the government to prioritize breeding.

Poor genetics is a key factor in hampering pig production. The National Agricultural Research Organization (NARO) lacks the human capacity in piggery genetics and there are no proper research centres for genetics leading to uncontrolled breeding and poor breed, including loss of local breeds that are resistant to local conditions.

Recommendations

Ethiopia

Knowledge. Develop training methodology manual and organise training workshops to develop capacity of partners in training methodology

Organize complementary training programs for graduate fellows in animal genetics and statistics.

Capacity development for national research systems in terms of laboratory facilities and continuous training in molecular genetics and genetic analysis is also required.

Partnership. Develop partnership management guideline and organise training workshops to develop partnership management skills of partners

Implementation. Develop innovative institutional arrangements and business models to engage the private sector in animal breeding technologies and services.

Create innovative means of making research outputs accessible to local partners. Efforts should be made to transform research products into different usable formats and make them accessible to development partners at different levels.

Policy. Incentivize private sector participation through improving the enabling environment towards privatization of livestock inputs and services delivery

Popularise the recently approved national livestock breeding policy to improve policy awareness, dissemination and implementation

Uganda

Knowledge. Develop training programs to produce enough breeding specialists at the national and district levels

Create awareness and knowledge dissemination to generate demand from farmers, stakeholders and the government for better genetics

Support breeding programs of research organizations and institutions

Feeds and forage flagship

Findings

Ethiopia

Knowledge. The design and delivery of trainings in the country is poor; there is lack of proper preparation, methodology and follow up strategies on trainings. Training activities are ad-hoc, lacking adequate training materials or job aids and in the form of lectures with related reports focusing on number of people trained. This affects the delivery of feeds and forage information transfer to the extension officers and farmers.

Partnerships. Partnership skills was identified as one of the capacities that needs strengthening; Key informants from CGIAR centres indicated that partnerships are mostly established through informal meetings and personal networks. Feeds and forage work involved many stakeholders and partners and it is therefore important that action is taken to strengthen the partnerships.

Implementation. There is a limited number of private sector engaged in technology multiplication and the supply of inputs and services. For example, there is only one private sector, which supplies livestock feed nationally. A number of factors constrain the participation of the private sector, such as technical capacity and access to technologies, credit services and knowledge and skills. Innovative institutional arrangements and business models have to be developed taking the unique characteristics of the sector to incentivize and capacitate the private sector to increasingly participate in livestock value chain businesses.

Policy. There is need for policy capacity strengthening at different levels in terms of designing and implementing policy directions, regulatory frameworks and institutional arrangements taking into account the unique characteristics of the livestock sector. This is especially around commercial feeds manufacturing to ensure that quality and safety is safeguarded.

Tunisia

Knowledge. Transfer of knowledge within projects and programs run by the various stakeholders in the livestock sector was by formal workshops and trainings. This notwithstanding, there are quite limited training opportunities; 17 of the 38 respondents said they only have partial opportunities for learning opportunities and only 1 person through that the opportunities are adequate. OEP, a national agency responsible for livestock and Pasteur management indicated they have limited pasture management technical knowhow due to lack of ongoing trainings on new technologies. They singled out the need for a training on use of agroindustrial by products for feeding.

OEP, the government agency on pasture decried lack of GIS expertise resulting in limited ability to do pasture identification work and therefore a need for training on this. This should be incorporated in the national training plan for OEP for technical training.

SMCSPS cited limited skill in knowledge management and expressed the need for a training on knowledge management to help the organization retain and document information on seed multiplication.

Partnership. There is need to dedicate more resources to partnership building activities, e.g. forming and participating in a partnership network between the various stakeholders in the sector. Seventeen of the 38 respondents thought there were not adequate resources dedicated to partnership and 14 thought they existed partially.

Thirty of the 38 respondents said the partnership building skills are inadequate. There is often Lack of cooperation amongst producers and cooperatives and the government's cereal offices due to real or imagined lack of transparency causing conflict and unnecessary tension amongst partners. Historically, farmers have a bad experience with cooperatives and therefore do not wholly trust cooperatives. Cooperatives are importance sources of funds and inputs for feed multiplication and feed purchase by the farmers.

Implementation. Lack of enough livestock specialists on pastoralism was cited as one of the major reasons for poor pasture management leading to soil degradation.

Limited coordination skills while 18 said there is partial coordination skills which is key in any project management and partnership work. There is a need for training on quality control and quality assurance of pasture seed production, supply chain to ensure that farmer only get quality pasture seeds.

Policy. Government policies that concern livestock are not up to date and are not well disseminated since OEP, staff from the national organization responsible for livestock and pasture are not aware of these polices. There is a need for awareness of these policies and their contents. Trainings on livestock laws and their implication should be organized targeting high level staff.

There is no policy or strategy for regulating forage seed production, leading to poor quality seeds in the market. With the absence of a regulatory framework by the government, livestock sector actors should prioritize trainings targeting extension officers on seed multiplication as the short-term intervention.

In addition, the current Tunisian law/policy on Forests regulating common rangelands does not assure sustainability and leads to soil erosion due to overuse; there is a need for policy dialogue intervention on this to improve this code.

Recommendations

Ethiopia

Knowledge. To improve the design and delivery of trainings; project staff should be targeted with training methodology lessons and mentored on designing and delivering proper training using various formats targeted at the learners and that include learner knowledge assessment. This will improve the delivery of feeds and forage information transfer to the extension officers and farmers.

Partnerships. The various feeds and forage actors should be target with partnership trainings and provided with various tools need to identify and nature good partnerships for the improvement of the subsector.

Implementation. Factors that constrains participation of private sector in feeds and forage production should be identified through a rapid assessment and action taken to resolve them. Innovative institutional arrangements and business models have to be developed taking the unique characteristics of the sector to incentivize and capacitate the private sector to increasingly participate in livestock value chain businesses.

Policy. There is need for policy capacity strengthening at different levels in terms of designing and implementing policy directions, regulatory frameworks and institutional arrangements taking into account the unique characteristics of the livestock sector. This is especially around commercial feeds manufacturing to ensure that quality and safety is safeguarded.

Tunisia

Knowledge. OEP, a national agency responsible for livestock and pasture management should be targeted with pasture management technical trainings and refresher trainings e.g. training on use of agroindustrial by products for feeding; GIS trainings for pasture identification.

SMCSPS cited limited skill in knowledge management and expressed the need for a training on knowledge management to help the organization retain and document information on seed multiplication.

Partnership. There is need to dedicate more resources to partnership building activities, e.g. forming and participating in a partnership network between the various stakeholders in the sector.

Cooperatives should be targeted with project management training and supported with tools necessary to attract farmers 'interest and trust on their services.

Implementation. Project officers and government extension officers should be targeted with training on quality control and quality assurance of pasture seed production, supply chain to ensure that farmer only get quality pasture seeds.

Policy. Government policies that concern livestock are not up to date and are not well disseminated since OEP, staff from the national organization responsible for livestock and pasture are not aware of these polices. There is a need for awareness of these policies and their contents. Trainings on livestock laws and their implication should be organized targeting high level staff.

In addition, the current Tunisian law/policy on Forests regulating common rangelands does not assure sustainability and leads to soil erosion due to overuse; there is a need for policy dialogue intervention on this to improve this code.

LLAFS flagship

Findings

Nicaragua

Knowledge. There is evidence of inconsistent methodologies for training and learning. In the San Seco project, they cite the use of a variety of different methodologies whereas in contrast the PaSoS does not. Infrastructure presents an unexplored opportunity to provide digital extension support for learning

Partnership. The lack of understanding and ability to engage in effective partnership dialogue presented a barrier to partnering. Inconsistent application of understanding of the role of partners and partnership in the project below managerial levels. Both public and private partners, did not participle or show sufficient level of engagement with the project.

Implementation. Access to knowledge fails to cover all project stakeholders. Individuals below the management level who are involved in implementation lack relevant resources and access to knowledge and training. Supports and aids for implementation level staff were missing.

Policy. Lower level staff, those more involved with implementation and not management lacked understanding and awareness of relevant policies. Project staff did not have reliable access to policy knowledge information pertinent to their role.

Recommendations

Nicaragua

Knowledge. Develop assessments and knowledge checks that are closely aligned to learning objectives. Collect detailed learning data around online and offline learning activities. Improve learning and learner engagement based on evidence provided through analysis of learning data. Develop and support coaching and mentoring programs including frameworks and monitoring.

Implementation Design and develop mobile refresher training, mentoring, social learning and coaching and job aids to support beneficiaries outside the workshops. Develop a set of resources to provide access, this includes mobile site and print guide based on a review of applicable policies connecting to the distinct stakeholder's levels. Support through online digital extension materials for project staff, with particular focus on the mid and lower levels. Provide support for localization and customization of extension materials with a global core and revise knowledge management processes and procedures to better align with needs especially at implementation level.

Partnership. Develop a guide and mentorship program for facilitating partnership dialogue.

Policy. Develop policy dialogues and distribution of policy level research products.

Environment flagship

Tanzania

Knowledge. Maintaining and sharing of up to date accurate information on key livestock parameters between partners remains key to successful project implementation. Key informants indicated that information such as size of forest reserves, rangelands, protected wildlife reserves or land use patterns is not easily available. Most accurate information would be generated through GIS however this is limited and what is available exists only in analogue format. Information on land use is only available at the district land office. One key informant indicated that in some instances, information is held by one person 'in their personal computer' and therefore not accessible by all partners.

Policy. Coordination between various policy pronouncements is required to have directed coordinated efforts towards successful implementation of the same. Efforts towards securing rangeland for pastoralist remains a challenge. The National Livestock Policy 2006 lays out the need to protect rangeland for pastoralists. Efforts towards securing rangeland has been initiated through the SRMP project by use of joint land use planning approach. The National Land Policy 1997, Land Use Planning Act 2007, instituted joint land use planning and as such established the National Land Use and Planning Commission whose functions entails, amongst others, is to promote and include the participation of the private and popular sectors, community based organizations, nongovernmental organizations, cooperatives and communities in land use planning.

Capacity challenges in this approach however is in actualizing and securing rangelands through joint land use plans for pastoralist against other competing needs such as wildlife conservation, population expansion, rapid urbanization, industrialization, agricultural advancement etc. Alignment with existing policies to achieve this objective therefore requires coordination and alignment on established policies such as the National Agriculture Policy 2013, the National Environment Policy 1997, the National Population Policy 2006 and the Wildlife Policy 2007.

Recommendations

Knowledge. Training on knowledge management should be developed to target project officers and senior government officers in the relevant ministries in effort to liberalize information sharing.

Policy. Policy development must be informed through an evidence based approach. This can be informed through establishing capacity in relevant government authorities to have the ability to manage and coordinate centralized systems for data collection and record keeping and the maintenance of databases for the livestock sector is particularly crucial as well as data on land use in Tanzania.

Annex 1: Tools

The following annex provides examples of the tools used to gather the CNA data. A more detailed guide is available which provides details of all steps in the process, as well as facilitation guides for all the tools, and examples and a summary. Key informant interviews were carried out using the organisational assessment tool and the problem tree analysis. Focus Group discussions the individual scoring checklist and the problem tree analysis. The stakeholder analysis was used in groups and individual cases as was the infrastructure analysis. It should be noted that all tools, including implementation tools as well as facilitators guide and detailed descriptions can be found in the document Livestock_CNA_tools.docx.

We would like to credit the FAO whose tools from the FAO learning module 2 were used as the foundations for the individual scoring and organisational assessment tools and whose collaboration and work was invaluable. The original tools can be found here:

(http://www.fao.org/fileadmin/user_upload/capacity_building/FAO_CD_LM2.pdf)

Organizational assessment

Knowledge

1. Do national legislation and regulations enable adequate access, management and exchange of information and knowledge in the relevant sector? What are the challenges in this regard?
2. Is access to research, education and training regulated by legislation or regulations? Which regulations and how are they implemented and monitored?
3. Do agencies (central, regional, local) adequately access, manage and exchange information and knowledge in the relevant sector? If no, what are the constraints to effective organizational knowledge management processes and practices?
4. Are there institutional processes for knowledge sharing? How effective are these processes?
5. Are there any training opportunities for national staff?
6. Has any training been carried out in knowledge sharing techniques? If yes, what has it addressed and how effective was the training?

Partnering capacity

7. Is the project part of or becoming part of a national or sub national partnership network? If yes, what are those networks?
8. Do national agencies have the capacity to support access to information belonging to other organizations and partners?
9. To what extent do staff have the necessary skills to engage in dialogue with other stakeholders and in strategic partnerships?
10. Are there learning opportunities to strengthen negotiation and communication skills?

Implementation

11. Are central and decentralized authorities committed to programme implementation and how is this commitment reflected in accountability mechanisms?
12. Are CSOs and CBOs involved in programme implementation and evaluation?

13. Is there adequate funding to support programmes in the relevant sector?
14. Is knowledge in financial management, human resources management, accounting, planning, budgeting and M&E at a sufficient level for implementation?
15. Are there systems to monitor and evaluate programme implementation?

Policy

16. Can you tell us a bit about the policies that affect your program?

Follow up: How can they be improved?

Follow up: Where do you see the weaknesses? These could be

a. awareness of policy
b. coordination challenges
c. enforcement of policy mandates
d. conflicts with other policies
e. resources (human, capital, time)

17. Which ministries and departments are already involved in the development and administration of legislations relevant to …. (the programme)

Follow up: Do you feel they have clear mandates?

18. To what extent are CBOs and CSOs involved in planning and developing these mandates?
19. Do the relevant ministries departments have a programme for staff training to improve skills at various levels?

Individual assessment

1. What types of learning opportunities are needed to develop appropriate competencies?
2. Are there clear job descriptions for people?
3. Do staff have the required technical and managerial skills to do their work/
4. Are there enough specialist in this area of work?
5. Are there training/learning opportunities for national/ local staff?
6. Are the training methods and delivery defined based on individual goals and profiles?
7. How are individual learning needs defined?
8. Are the relevant skills in place to support partnership building?
9. Are there learning opportunities for strengthening non-technical skills such as facilitation skills and communication skills?
10. To what extent do the training events prepare individuals to respond to project/programme needs?
11. Are there training/learning opportunities for project/programme implementers or managers?
12. Can you tell us about any policies that affect, positively or negatively your work?
13. Are there any basic resources that are missing that affect your ability to meet your objectives?

Individual checklist

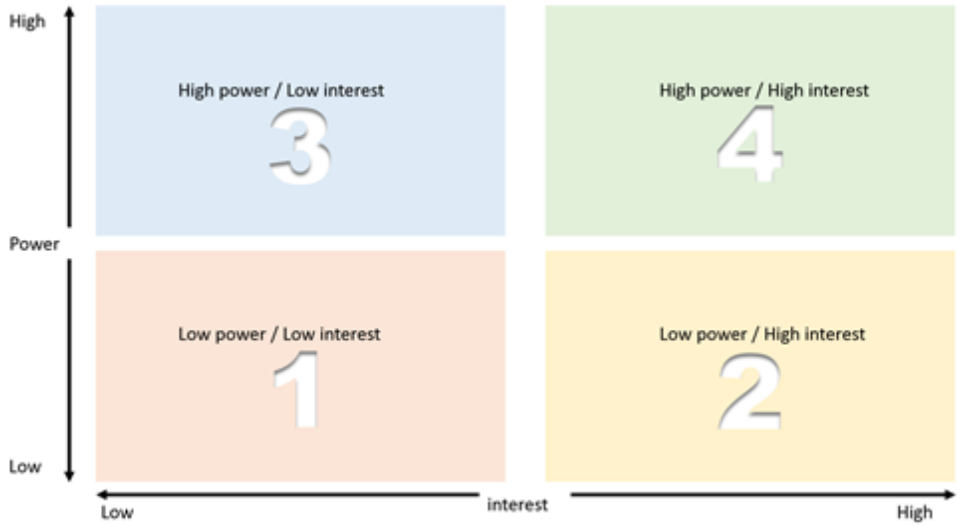
1. What learning opportunities have you received have you received to develop technical and non-technical skills and knowledge?
2. What additional learning opportunities are needed to develop technical and non-technical skills and knowledge?
3. Is there clear descriptions for your role in the project? (Very little or none/ Partially/ Mainly/ Very Much or Fully / Don't Know)
4. Do staff have the required technical and managerial skills to do their work/? (Very little or none/ Partially/ Mainly/ Very Much or Fully/ Don't Know)
5. Are the training methods and delivery defined based on relevant goals and profiles? (Very little or none/ Partially/ Mainly/ Very Much or Fully/ Don't Know)
6. Are there appropriate tools available to support knowledge management in the project? (Very little or none/ Partially/ Mainly/ Very Much or Fully/ Don't Know)
7. Can you describe tools used to support knowledge management?
8. Are the relevant skills in place to support partnership building?

What skills level currently exists in:

9. Planning? (Very little or none/ Partially/ Mainly/ Very Much or Fully/ Don't Know)
10. Negotiating? (Very little or none/ Partially/ Mainly/ Very Much or Fully/ Don't Know)
11. Financial and project management? (Very little or none/ Partially/ Mainly/ Very Much or Fully/ Don't Know)
12. Coordination? (Very little or none/ Partially/ Mainly/ Very Much or Fully/ Don't Know)
13. Monitoring and communication? (Very little or none/ Partially/ Mainly/ Very Much or Fully/ Don't Know)
14. To what extent do the training events prepare individuals to respond to project/programme needs? (Very little or none/ Partially/ Mainly/ Very Much or Fully/ Don't Know)
15. Are there training/learning opportunities for project/programme implementers or managers? (move to organisational assessment) (Very little or none/ Partially/ Mainly/ Very Much or Fully/ Don't Know)
16. Can you tell us about any policies that affect your work either, positively or negatively? Are there adequate resources dedicated to partnership building?
17. Are there adequate resources dedicated to partnership building? (Very little or none/ Partially/ Mainly/ Very Much or Fully/ Don't Know)

Stakeholder analysis

1. Can you provide names of the people in your team?
2. Do you work with other ILRI organisations? If yes, then who?
3. What government departments are you working with? At what level?
4. What nongovernment entities are you partnering with? At what level?
5. Are there any private sector actors that you are partnering with? Who?
6. Map the identified stakeholders according to their power and interest



Problem tree analysis

Problem	Cause	Effect

Infrastructure evaluation

A. Do you have the following at work or at home?
i. Desktop computer
ii. Laptop computer
iii. Mobile smartphone
iv. Mobile feature phone
v. Printer/scanner
vi. Digital camera

B. Fixed Internet
i. Dial up
ii. ISDN
iii. Satellite dish
iv. Cable
v. DSL
vi. Fibre optic

C. Mobile coverage
i. None
ii. 2G
iii. 3G
iv. 4G

Annex 2. List of respondents

Ethiopia list of participants interviewed

Meseret Terefe	Senior HRD expert, MoLF
Yoseph Mekasha	Livestock Program Director, ATA
Getachew Animut	Livestock Senior Technical Expert, ATA
Zelalem Yilma	National coordinator, Land O'Lakes
Tewodros H/Mariam	Gender and Training Coordinator, Land O'Lakes
Belete Demissie	Accounting and Financial Reporting Manager, Land O'Lakes

Ethiopia CGIAR partners

Aynalem Haile	Senior scientist, Small ruminant value chain project, ICARDA
Tadelle Dessie	Principal Scientist, ACGG project, ILRI
Kefena Effa	National coordinator, ADGG project, ILRI
Michael Blummel	Principal Scientist, Feeds and Forages, ILRI
Aberra Adie	Research Assistant, Feeds and Forages, ILRI

Ethiopia Research partners

Getnet Assefa	National Principal Investigator, ACCG project, EIAR
Solomon Abegaz	Coprincipal investigator, ACGG project, EIAR
Sisay Tilahun	Deputy Director, Research Leadership and Capacity Building, EIAR
Solomon Tsega	Senior Information and Knowledge Management expert, EIAR

Tanzania list of participants interviewed

Edgar L. Mamboi	Meat Officer, Tanzania Meat Board
Ezekiel Maro	Registration Officer, Tanzania Meat Board
Nicholai Chiweka	Marketing Officer, Tanzania Meat Board
Michael	Marketing Officer, Tanzania Dairy Board
Mayasa A. Sinsa	Marketing Manager, Tanzania Dairy Board
Nelson Kilongozi	Director Tanzania Dairy Board
Justa	Dairy Production Officer, Tanzania Dairy Board
Christina Mohe	Head of HR, Tanzania Dairy Board
Margaret Pallagyo	Director, LITA
Hamisi Saidi Hamisi	Veterinary Tutor, LITA
Happyness Kilungira Seswa	Veterinary Tutor, LITA
Catron Keneth Rwakatare	Veterinary Tutor, LITA
Eric Samwel	Veterinary Tutor, LITA
Flora Kajuna	Veterinary Tutor, LITA

Josephine Dungamaro	Gender Specialist SRMP—ILRI
Isaack Luambano	Project manager SRMP—ILRI
Amos Mkami	Capacity Building officer SRMP—ILRI
Deusdedit Kalenzi	Consultant land use planner SRMP—ILRI
Bernard Baha	CEO Tanzania Land Alliance (TALA)
Henry Kiara	Scientist—ILRI
N. Ngowi	ITM Distributors
L. Mwakalukwa	ITM Distributors
C. Dulle	ITM Distributors
H. Mbille	ITM Distributors
Bedan Masuruli	Director, Veterinary Council of Tanzania
Hamza Mwamuhehe	Deputy Director, Veterinary Council of Tanzania
Martin Ruheta	Department of Veterinary Services
Florence Mramba	Director, Tanzania Veterinary Laboratory Agency (TVLA)
Chanasa Ngaleja	TVLA
Mkama Mathias	TVLA
Henry Magwisha	TVLA

Uganda list of participants interviewed

Name	**Organisation**
Ben Lukuyu	ILRI
Michel Dione	ILRI
Emily Ouma	ILRI
Peter Lule	ILRI
LN Mayega	Masaka District Production Officer
Kirumira M	Masaka DLG
Nikuze Yvewtte	Livestock Extension Specialist – ISU-UP
Nadiope Evideon	ISUP-UP
Kuunya Jame	District Veterinary Officer
Ntume Barnabas	District LG DVO
Steven Byenkya	District LG DVO
Ongebo Joel	Vet Officers
Podpodo Cecil	Veterinary Officer (lab)
Gabriel Elepu	Makerere University
Johnnny Mugisha	Makerere University
Rose Ademun	Ministry of Agriculture, Animal Industry and Fisheries
Esther Nakajubi	MAAIF—NAGRC andDB