

Programme for Climate Smart Livestock Systems

Report on regional learning platform webinar series

Author: Laura Cramer

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RESEARCH PROGRAM ON
**Climate Change,
Agriculture and
Food Security**



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Introduction

The Programme for Climate-Smart Livestock Systems (PCSL) is an initiative designed to enable key actors in the livestock sector to increasingly include climate change adaptation and mitigation in their farming practices, sector strategies and investment projects. PCSL is financed by GIZ and commissioned by the Government of the Federal Republic of Germany. GIZ has commissioned the International Livestock Research Institute (ILRI) and the World Bank to implement the programme activities. ILRI's programme activities are based in Kenya, Ethiopia and Uganda.

One of the activities included the creation of national Learning Platforms for the purposes of information exchange and dissemination of research findings. Due to the Covid-19 pandemic and the resulting restrictions on travel and in-person gatherings, ILRI adjusted its plans for the national Learning Platforms. ILRI organized a series of three online meetings held with stakeholders from all three countries over a three-week period starting on 30th July 2020.

Meeting summaries

The topics for the meetings aligned with the research work that ILRI is undertaking within PCSL. The first meeting centred on the work undertaken by ILRI's Mazingira Centre related to climate change mitigation in the livestock sector, the second meeting explored the adaptation research that is taking place, and the third meeting gave an overview of futures thinking and involved the meeting participants in discussing how the livestock sector in East Africa might change and what drivers will have the greatest effects. See Annex 1 for the agendas of each meeting.

Announcements of the meetings were sent out to stakeholders who had previously attended in-person Learning Platform meetings in all three countries or had otherwise been involved in PCSL activities. The meetings took place using Zoom and were held from 10:00am to 12:00pm East African time (EAT). The number of participants and their average time spent logged in to the meeting are listed in Table 1 below. Due to challenges with electricity, internet access and other competing meetings we did not expect everyone to stay logged in for the full two hours of the session. Given these hurdles, however, the average time spent in the meeting shows a high level of interest in the topics. A full list of participants for each of the three meetings is in Annex 2.

Session	Number of participants	Average time in meeting (minutes)
Climate mitigation in livestock	83	95
Adaptation in livestock	74	87
Futures thinking	58	112

Session 1: Greenhouse gas mitigation in agriculture

The learning goals for this first session were:

- to know and to understand the sources of greenhouse gases (GHGs) in the livestock sector
- to know about different approaches and the quantification of GHG emissions from manure, animals, soils
- to evaluate the difference between GHG emissions and GHG emission intensities
- to understand how observations can be scaled.

Topics covered included manure and soil GHG emission measurements, animal GHG emissions and scaling through GHG emission modelling. Participants were encouraged to submit questions using the chat function throughout the presentations by the Mazingira scientists on conducted and ongoing research. These questions were collected and addressed in a Q&A session at the end of the meeting. See Annex 3 for a list of all the questions submitted.

There were several take home messages delivered in this meeting. First, the work being done at Mazingira is intended to improve data availability on GHGs from the livestock sector in eastern Africa. By producing improved data on specific livestock systems and for specific localities, it is possible to help countries move from using Tier 1 approaches in their GHG inventories to using Tier 2. Mazingira research has already achieved the uptake of Tier 2 manure management emission factors by IPCC in 2019 and has been used for Tier 2 emission factors for dairy cattle in Kenya as part of the country's inventory of GHGs from the dairy sector. Second, there are costs associated with generating such data, and the intention is that the information will be used to improve livestock systems in the region, thereby generating benefits for farmers and governments. Ensuring that the research is used to help improve farmer practices requires linking with direct development actors at different levels of extension. Third, the data generated through trials run by Mazingira scientists can be used to understand livestock systems more broadly through the use of modelling tools that can help inform national actors.

Session 2: Climate change adaptation in East African livestock systems

The anticipated learning outcomes for the second session on adaptation were (1) understanding how anticipated climate change will affect livestock systems in East Africa, (2) understanding of the main domains of adaptation options, and (3) understanding of interactions between technical and social change in adaptation. The topics covered were basic definitions of adaptation, the intertwining of adaptation with multiple areas of other societal changes, adaptation and local technology assessment, adaptation as social change and adaptation tracking.

This meeting also included a breakout session during which participants were formed into small groups and asked to discuss their thoughts on the primary non-climate factors that will interact with climate change to shape how adaptation is done in livestock systems. We split participants into seven groups and tried to have people from the same country in each group. PCSL staff facilitated the discussion and took notes, using the categories of environmental, political, economic and social factors to guide the contributions. Common themes mentioned by several groups included population growth, land tenure issues, markets and trade, and knowledge levels. See Annex 4 for the slides on which notes were captured during these discussions.

Following the breakout discussions, we used the online polling tool Menti to ask participants what they think are the most significant factors affecting adaptation in lowland pastoral systems and in upland mixed systems (resulting word clouds also in Annex 4). Land issues, knowledge and technology came out strongly in both systems. Finance and extension were also mentioned as significant factors in upland mixed systems, while capital, policies and markets featured in the responses regarding lowland pastoral systems.

Todd Crane, the session lead, wrapped up the meeting by highlighting the relationship between adaptation and mitigation actions. As with the first meeting on mitigation, questions were collected via the chat box and answered during Q&A.

Session 3: Scenarios for change: using the future to enable transformative change

This third session was the most interactive of the three and focused on a topic with which participants were not as familiar as the first two topics. The objective for this meeting was to describe futures thinking and discuss its importance in thinking through improved climate change governance. Laura Pereira began the session with several questions posed through Menti asking participants how they think of the future and how comfortable they are doing so. After a recap of the previous two sessions, she then gave a presentation on the use of future scenarios to help plan for a range of plausible events and conditions. This type of planning goes beyond prediction to help understand the many possible futures and uses visioning to help visualize pathways that can help us reach the kind of future we want.

She asked participants to individually reflect on what concerns them most about the future of livestock in their country and what they are most hopeful about regarding the same. After a few minutes of individual reflection, we again had breakout group discussions led by facilitators from the PCSL team. These breakout discussions lasted 40 minutes and then each group reported back the key points to the plenary (see Annex 5 for notes from each group).

Participant feedback on the three sessions

At the end of the futures thinking session, we used Menti to pose some final questions to participants to help us evaluate the series and the usefulness of the sessions. Participants reported that the meetings were useful and they learned something new. Many said they would participate in future online meetings offered by PCSL (Figure 1). Participants also ranked the information and the interaction with other participants as the most useful aspects of the meetings (Figure 2).

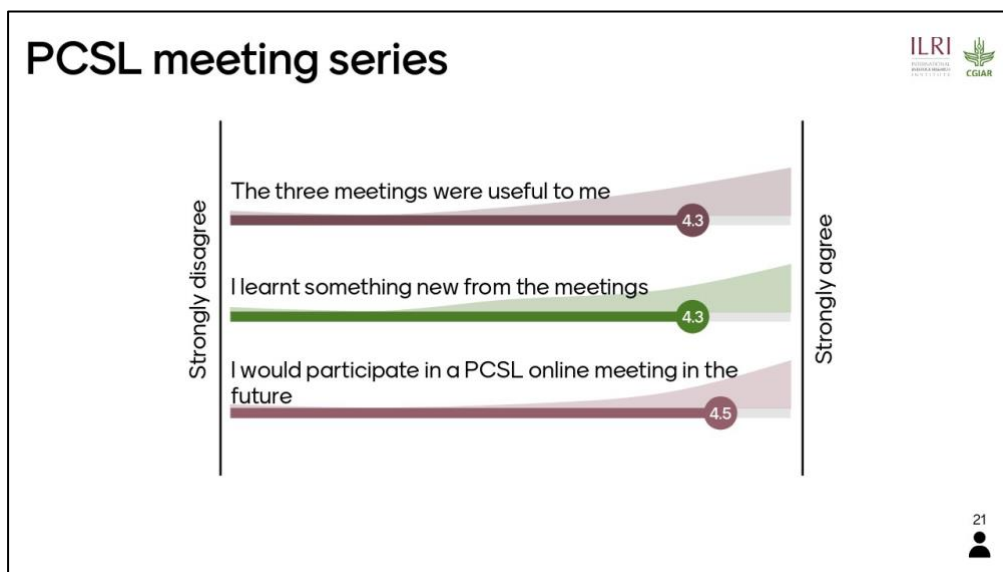


Figure 1: Responses to evaluation questions

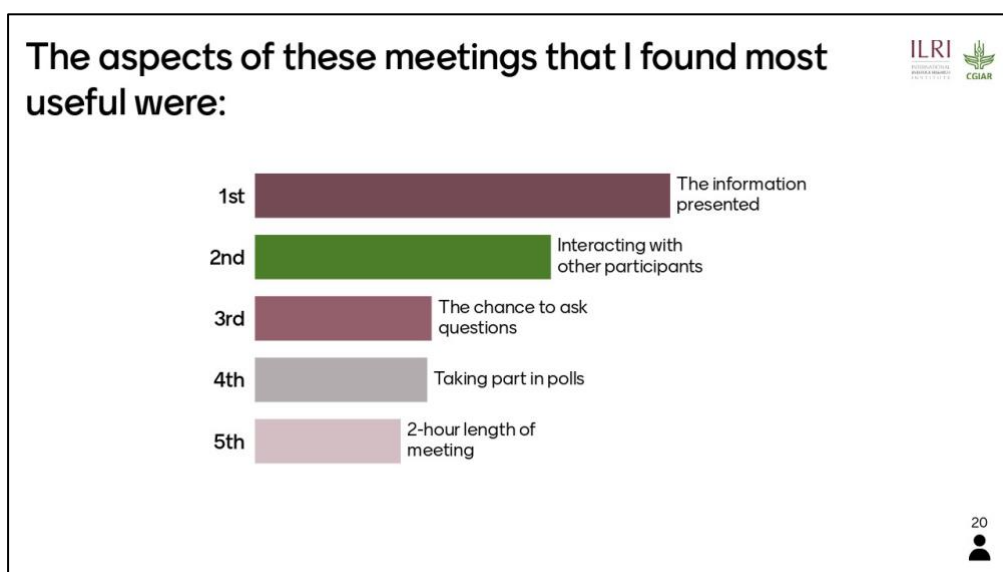


Figure 2: Responses to the most useful aspects of the meetings

We also asked participants to provide suggestions for future meeting topics. Some of the responses received were:

- creating a strong enabling policy environment for the livestock sector
- addressing vested interests, political deadlocks
- climate change modelling
- how to involve farmers and farmer organizations more
- gender issues and their effects on climate change and livestock
- broader political ecology issues of livestock
- using scenarios for systems analysis and advising policy

Participants also gave very positive comments when given the opportunity to provide any further comments. Here are a few selected responses:

“Do this again please!”

“This has been such an enlightening and eye-opening discussion. If we can build on this, we can greatly enhance our environment, health and life through livestock production.”

“Would have liked even more time! So interesting to share knowledge and try to find solutions together”

Going forward

As a way of sharing the meeting proceedings with those who were not able to attend the live sessions, the recordings have been uploaded to ILRI’s YouTube channel and are publicly available for anyone to watch. Links are below and have been shared with all who received the initial meeting invitations.

- Mitigation session: <https://youtu.be/7MByPQAq0JE>
- Extra video on modelling example: <https://youtu.be/ta7pnq3I568>
- Adaptation session: <https://youtu.be/3TxW3z4dM30>
- Futures session: <https://youtu.be/7Eeu9DoD7ws>

The PCSL team held a debrief following the final session to reflect on what had worked, what could be improved and how to move forward. Given the positive feedback from participants and the suggested topics for additional meetings, we agreed that it would be worthwhile to plan more such online regional meetings in the near future as a way to engage with stakeholders and share information despite not being able to hold in person meetings.

Annex 1: Meeting agendas

30th July 2020: Greenhouse gas mitigation in agriculture

1. GHG emissions overview for the livestock sector: Lutz Merbold
2. Manure and soil GHG emission measurements: Sonja Leitner
3. Animal GHG emissions: Svenja Marquardt and Phyllis Ndung'u
4. Scaling - GHG emission modelling: Michael Graham
5. Q&A: The whole team

6th August 2020: Climate change adaptation in East African livestock systems

1. Overview of climate change adaptation in East African livestock systems: Todd Crane
2. Breakout discussion: all participants
3. Report back from small groups
4. Domains of adaptation options in EA livestock systems and social implications of adaptation/mitigation technologies: Todd Crane
5. Adaptation and local technology assessment: Birgit Habermann
6. Adaptation as social change: Edwige Marty
7. Adaptation tracking: Lucy Njuguna
8. Questions and answers
9. Relationship between adaptation and mitigation: Todd Crane

13th August 2020: Scenarios for change: using the future to enable transformative change

1. Take home messages from weeks 1 and 2: Laura Pereira
2. Scenarios for change: using the future to enable transformative change: Laura Pereira
3. Small group discussions: all participants
4. Reports back from small groups
5. Question and answers: Laura Pereira

Annex 2: Meeting participant lists

Mitigation meeting	Adaptation meeting	Futures meeting
Adobi Okwuosa	Abdikadir	Abasi Kigozi
Benard Kimoro	Adobi Okwuosa	Adobi Okwuosa
Beth Njoroge	Andreas Sicks	Alfred Mubangizi
Caroline Bosire	Anthony Kioko	Bernard Kimoro
Catherine Mungai	Asaye Ketema	Beth Njoroge
Chekwoti Irene	Benard Kimoro	Chekwoti Irene
Christine Lamanna	Benjamin Kibor	Chris Vrettos/Greece
Christopher Oludhe	Benti Firdissa Dugassa	Christopher Oludhe
Cromwel Lukorito	Beth Njoroge	Cromwel Lukorito
Daphne Muchai	Christopher Oludhe	Daphne Muchai
Denis Kiogora	Cromwel Lukorito	Denis Kiogora
Dom Kahumbu Wanjihia	Daphne Muchai	Deogracious
Dorothy Amwata	Denis Mulongo Maholo	Dr Atuhaire Andrew
Dr Atuhaire Andrew	Derick Senyonga (Uganda)	Dr. Martin Oulu
Dr. Martin Oulu	Dr Atuhaire Andrew	Dr. Wonekha N Deogracious
DWND	Dr. Martin Oulu	Edwige Marty ILRI
Edwige Marty	Dr. Wonekha N Deogracious	Erica Atieno
Edwin Otieno	Edwige Marty ILRI	Erick Omollo
Elizabeth Carabine	Emily Ouma	Francis
Erica Atieno	Emmanuel Zziwa	Gambaw
Erick Omollo	Erica Atieno	George Wamukoya
Esayas Lemma (MoA Crop-ETH)	Erick Omollo	Hannah Kamau/Kenya
Evans Kituyi	Esayas (MoA_Ethiopia)	irdafrica
Francis	Evans Kituyi	Israel Mugezi
Fredrick Ochieng	FKeya	Jacob Sanga
Gambaw	George Wamukoya	Jacob Sanga
Geoffrey-Oikocredit	Gulleid	Jane Njeri
George Wamukoya	Hannah Kamau/Kenya	Jesca Makena
Hannah Kamau	irdafrica	Joab Osumba
Hannah Kigamba	Isaac Rubayiza	Jos Creemers
irdafrica	Jacob Sanga	Joy Andati
Jacob Sanga	Jane Njeri Reuben	Julius Rono
Jane Njeri	Jeffrey Ngari	Laura Cramer
John Recha	Jemal Seid	Laura Pereira
Jos Creemers SNV-TIDE II	Jeniffer Chemisto	Leah Wanja
Joshua Ombaka	Joab Osumba	Lilian Kwamboka
Joy Andati	Jos Creemers	Linna Fredström
Khaduyu Michael	Joy Andati	Lucy Njuguna
Laura Cramer	Julius Rono	Lutz Merbold
Laura Pereira	Laura Cramer	Lynette Gakii
Laurine Chirry	Laura Pereira	Märta Jacobson
Leah Wanja	Leah Wanja	Miriam Kyotalimye
Lerenten Lelekoitien	Lilian Kwamboka	Muriuki Ngari
Lilian Kwamboka	Lucy Mbuvi	Phyllis Ndung'u
Lucy Mbuvi	Lucy Njuguna/ Kenya	Polly Ericksen
Lucy Njuguna	Lutz Merbold	Priscilla Karobia
Lutz Merbold	Lynette	Rebecca
Lynette	Martin Muriuki	Robina Abuya_Kenya
Maren Radeny	Mary Nyasimi	Roland Mugumya
Martin Muriuki	Mohammed Andoshe	Sintayehu Alemayehu
Mary Kithinji	Moses Ahimbisibwe	Su Kahumbu
Mary Nyasimi	Nsubuga	Svenja Marquardt
Mike Graham	Phyllis Ndung'u	Tadele Mirkena (FAOET)
Muriuki Ngari	Pius Lutakome	Tigist Worku/Ethiopia
Peter Kuria	Polly Ericksen	Todd Crane
Phyllis Ndung'u	Priscilla Karobia	Tsigereda
Polly Ericksen	Rahel Abiy	Wanyama Ibrahim
Priscilla Karobia	Rebecca	Willy Langat
Rebecca	ROBIN	
Robert Kiteme	Robina Abuya	
Robin Mbae	Roland Mugumya	

Robina Abuya	Sarah Mujabi	
Robina Abuya	Simon Chuchu-GIZ/Kenya	
Roland Mugumya	Solomon Abegaz	
Shimeles Wassie	Su Kahumbu-iCow Kenya	
Simon Chuchu-GIZ	Susan Moywaywa	
Sintayehu Alemayehu	Svenja Marquardt	
Solomon Abegaz	Tadele Mirkena	
Sonja Leitner	Thomas Mawora	
Su Kahumbu	Tigist Worku	
Svenja Marquardt	Todd Crane (ILRI)	
Tadele Mirkena	Wanyama Ibrahim-Uganda	
Thomas Mawora	ymekasha	
Tigist Worku	Zelalem Adane	
Todd Crane		
Tsigereda		
twinomuhangi		
User		
Victor Mugo		
Wanyama Ibrahim		
Willy Langat		
Zelalem Afane		
Zelalem Yilma Kidane		

Annex 3: Questions submitted via chat

Mitigation session questions

- Why did you use an imported Friesian in the trial and not a local Friesian bull or cow? (Sonja)
- What is the magnitude of the difference in GHG using tier 1 and 2? Does it worth the cost of specific estimation? (Sonja)
- Feeding on ME requirement, how did you predict/estimate the animals DMI? (Sonja)
- Are the manure EFs applicable for all ruminant livestock since the research has been on dairy cattle research? (Sonja)
- Is the temperature of the locality of data collection important for experiment consideration? (Sonja)
- What is the variability of estimates in tier 2 within a system? (Sonja)
- Which parameters of milk quality have relevance to GHG estimates? (Phyllis)
- Do you also have emission intensities for beef since the production systems for Nyando are more of beef than dairy? (Phyllis)
- What is the relationship between type of production and GHG emissions? (Phyllis)
- What would it take to work with Phyllis on ground? (Phyllis)
- The innovations on methane reduction and increase in production are phenomenal. Do we have mechanisms of linking this research with extension services at the sub-national/county level? This is evidence that should inform our adaptation interventions under climate smart productions? (all)
- Was quantity and quality of feed intake changed? (Svenja)
- Do animals locked up in respiration chambers experience "mental" stress? If yes, does that affect manure production and emissions exhaled? (Svenja)
- The legume used in the trial, next to N, could it have nutritional factors that would influence Methane production? (Svenja)
- Is there room in the chamber for the animals to lie down? (Svenja)
- Animals fed on 40% ME, did they achieve Rumen fill or also DMI was under achieved? (Svenja)
- Which fodder have higher methane gas emission? eg. grass or legume (Svenja)
- We are developing a new highly digest-able feedstock solution to reduce farmers costs, improve milk and meat production and reduce methane emissions. Who can we engage at ILRI to help develop feed application and conduct field validation? (Lutz, all)
- Did you assess emissions from feedlot system where animals are usually fed adlib? (Mike)
- Are there initiatives to build local capacity on modelling? (Mike)

Adaptation session questions

- Why only molecular genetics for identification of adaptive forage species? How about conventional breeding procedures of selecting adaptive species through their performance in the field?
- I don't see aspects of conservation of indigenous and/or adaptable feed/forage species. What is being done on this?
- Adaptation to future climate will be built on the current platforms for managing negative climate-livestock interactions under current climate variability. What, therefore, is the current state of knowledge and proven technologies for responding to current climate stresses?
- What are the forage species that have been identified and are undergoing molecular processes?
- What could be the role of climate information and services going forward?
- At what point and how will the private sector be involved?
- Lucy, if u talk of adaptation is it how animals have adapted to changing climate over time, how do you differentiate how different animals have changed or adapted? (Lucy)

- In Kenya, what did you exactly mean by administration? (Lucy)
- Is the housing aspect (Debrebirhan) a mitigative or adaptive? (Birgit's work)
- Differentiating between normal extension and technology dissemination and adaptation per se is quite a challenge. How is this going to be defined? (Birgit's work)
- Considering that CCA is cross cutting, would it be wise for tracking to focus on livestock systems or areas (LUCY)

Futures session questions

- Scenarios are about co-production of knowledge and usually time consuming in nature due to the diverse interests including the political economy. How can this be speeded up?
- Since African agriculture is predominantly small scale involving over 70% of the farming community, which is the most suitable model to ensure regional food security?
- Do you have examples of such games? [that speed up the co-production process]
- Taking Uganda's case, we seem to have lots of policies which would have guided us through the paths of mitigation n adaptation. we even have endorsed pacts and treaties like allocation of resources to Agric, health etc. however, these appear to be overridden by politics!! is our future then to be hinged more on political and economic alignment?
- What scale is the visioning/scenarios targeting? Global, regional (Africa), national or all these scales? How significant do you think dominant narratives (e.g. neoliberal/free market) are in influencing the visioning and scenarios?

Annex 4: Notes from adaptation session breakout group discussions and Menti results

Discussion instructions: What do you see as the primary non-climate factors that will interact with climate change to shape how adaptation is done in livestock systems? Please keep in mind that this includes lowland pastoral (P), mixed crop livestock (MCL) and highland intensive dairy systems (D).

Group 1 (Edwige)

Environmental

- Land use and land cover change (all)
- Increasing carbon dioxide levels (all)
- Different agro-ecological zones
- Manure management (D)
- Soil degradation (all)
- Population pressure
- Breeding

Political

- Policy changes (communal lands)
- Weak enforcement of conservation policies
- Not enough prioritization of CCA, incl finance
- Need more political sensitization

Economic

- Change in breeds and production
- Insufficient capital to adapt
- Technical gaps
- Market development (export and import)
- Trade relations (within East Africa)

Social

- Shift from mobile to non-mobile systems
- Level of literacy affecting adaptation
- Knowledge & skills levels
- Population pressure
- Urbanization (adaptation gaps)

Discussion instructions: What do you see as the primary non-climate factors that will interact with climate change to shape how adaptation is done in livestock systems? Please keep in mind that this includes lowland pastoral (P), mixed crop livestock (MCL) and highland intensive dairy systems (D).

Group 2 (Lucy)

Environmental

- Competing resource uses
- Shifts in production systems
-
-
-

Political

- Land tenure shifts (extensive - SW)
- Policy environment
- Synergies between actors
-
-

Economic

- Markets & trade
- Demand for adaptation technologies
- Access to financial capital
- Incentives for adaptation
-

Social

- Indigenous knowledge (G)
- Security (P)
- Conflicts
- Cultural contexts (P)
- Gender (& youth) dynamics (G)

Discussion instructions: What do you see as the primary non-climate factors that will interact with climate change to shape how adaptation is done in livestock systems? Please keep in mind that this includes lowland pastoral (P), mixed crop livestock (MCL) and highland intensive dairy systems (D).

Group 3 (Todd)

Environmental

- Rangeland degradation (P)
- Invasive species (P)
- Feed shortages (Highland/lowland)
- Livestock disease
-

Political

- Pastoral insecurity/conflict (P)
- Devolution - county prioritization/budgeting
- AI service initiatives, improved forages
- Political instability
- Weak (local) governance (ET)

Economic

- Adoptability of technologies/practices
- Access to finance institutions and insurance improving
-
-

Social

- Youth unemployment
- Improving awareness of community engagement in development
-
-

Discussion instructions: What do you see as the primary non-climate factors that will interact with climate change to shape how adaptation is done in livestock systems? Please keep in mind that this includes lowland pastoral (P), mixed crop livestock (MCL) and highland intensive dairy systems (D).

Group 4 (Laura P)

Environmental

- Changing eco-zones
- Wildlife conservation (P)
-
-

Political

- Zoning- shift from food to housing
- Budget allocation to adaptation (also links to tech uptake and subsidisation)
- Access to basic utilities (water)
- Gender component
- Different policies at county level- alignment required at national
- Platforms to access info and data collection

Economic

- Higher feed utilization (cross-cutting)
- Economic power-generating income
- Markets (live animals and products)
- Consumers (awareness) (esp D)
- Technology uptake
- Digital divide: Access to tech/ICT

Social

- Smaller divisions of land
- Increased housing/infrastructure urbanisation
- Knowledge of the actual livestock keeper (about changes/adaptations etc)
- Cultural norms (that will be taken up) (esp P)

Discussion instructions: What do you see as the primary non-climate factors that will interact with climate change to shape how adaptation is done in livestock systems? Please keep in mind that this includes lowland pastoral (P), mixed crop livestock (MCL) and highland intensive dairy systems (D).

Group 5 (Polly)

Environmental (production)

- Land use (esp encroachment of crops in P)
- Manure management
- Livestock densities
- Livestock management (production systems)
- Disease prevalence
- Innovations in water management
- Forage management

Political

- Land tenure
- Leadership dynamics/ decision making patterns and capacity/ priorities
- Directions shaped by policies (and follow through) and budget allocation

Economic

- Demand and supply for livestock products
- Income affects ability to purchase inputs
- Marketing infrastructure
- Technologies (production, ICT)
-

Social

- Intra-household gender differences in responsibilities and decisions by species
- Cultural values around keeping livestock
- Knowledge of CC impacts
-
-

Discussion instructions: What do you see as the primary non-climate factors that will interact with climate change to shape how adaptation is done in livestock systems? Please keep in mind that this includes lowland pastoral (P), mixed crop livestock (MCL) and highland intensive dairy systems (D).

-> positive and negative points!

Group 6 (Lutz)

Environmental

- Change of land use systems (LULUC)
- Diversification of systems
- Degradation of resources (soil, water) due to humans not only climate
- Invasive species (Prosopis as example)
- New diseases and pests (Locusts)

Political

- Each election new thinking -> resource allocation changes
- Regional security (Lowlands) - ability to move/migrate
- Land tenure (Northern Kenya) is restricting movement - access to land
- Govt. policies are key for adaptation - access to markets

Economic

- Infrastructure (roads, water availability)
- Access to resources (breeds, feeds)
- Livestock Insurance
- New livestock diseases - lots of dropouts of pastoralists
- New economies (wind power, oil etc)

Social

- Population growth
- Access to services (extension)
- Change of system (ie change to camel farming might not always be feasible)
- Traditional systems may lose meaning

LINKAGES

Which do you think are the three most significant factors affecting adaptation in lowland pastoral systems?



Annex 5: Results of futures thinking session breakout group discussions

Group 1: Linna, Robina Abuya, Lutz Merbold, Jos Creemers

Similar concerns: Not including farmers in the process of changing the agricultural sector. The right technology is perhaps not available yet. Lack of available veterinarians. Disconnection between the policies and implementation.

Similar hopes: Willingness among farmers to adapt and bottom-up innovations.

Main differences:

What can be done to elevate hopes and minimise concerns: Village service providers/Local capacity builders are given knowledge/trained in a wide range of relevant skills. Perhaps these types of initiatives can be scaled up.

Group 2: Marta, Bernard Kimoro, Elisabeth Adobi Okwuosa, Lilian Kwamboka, Denis (all participants were based in Kenya)

Similar concerns: lack of data on emissions, technology is not used, policies are not implemented on county-level, institutional weaknesses and lack of institutions, weak capacity within institutions

Similar hopes: improved technology, increased awareness on adaptation, capacity building efforts, adaptation is on the agenda especially on livestock, increased interest about climate change

Main differences:

What can be done to elevate hopes and minimise concerns: building scenarios to develop different pathways that can inform the policy makers, ensure co-production of knowledge, capacity building at different levels, improved coordination amongst stakeholders.

Group 3: Chris, Roland, Jesca, Tsigereda, Rebecca, Dr. Wonekha

Similar concerns: many people acknowledge that livestock are one of the greatest contributors to climate change, across the EAC, but not enough knowledge across stakeholders/farmers. Lack of data/baseline - hard to develop appropriate policy. Indigenous breeds are still more adaptable to climate change, but their productivity is still low.

Similar hopes: People are starting to look at agriculture more through a climate lens. Research is being carried out to cross-breed indigenous seeds and increase productivity/adapt to climate change

Main differences: in Kenya people are producing more commercially, large farms, receiving many new cows per day. Uganda is more small-scale agriculture (predominantly). In Kenya there's a lot of value addition from livestock products, compared to Tanzania and Uganda

What can be done to elevate hopes and minimise concerns: follow pacts, allocate resources efficiently, inclusion of vulnerable groups, multiple stakeholders, intersectionality, look for synergies with other economic sectors, educate the public, invest in research, monitor climate change, assess new innovations, combine traditional with modern farming techniques (including indigenous seeds etc)

Group 4: Laura C, Su, Martin, Daphne, Sintayehu

Concerns: accuracy of livestock numbers (Ethiopia); effect of climate variability on production; **loss of indigenous breeds and their adaptive traits**; role of the private sector; low productivity; **low emphasis on the livestock sector**; frequency of policy changes; **lack of allocation of govt resources**

to extension; diminishing land sizes; strings attached to donor funds; too little attention to local context; CC implications on animal health and welfare, leading to food safety concerns

Hopes: Some more **attention** to livestock and climate change; good understanding of the nutritional and economic value of livestock; **better attention to the importance of indigenous breeds;** hope for more steady ministry support; growth in locally produced inputs and improved feed; **greater ability to use ICT tools** to communicate with smallholder farmers and pass on the needed knowledge and improve decision making

Main differences: Focus on export from Ethiopia; Kenya more internal focus; concern on productivity vs local conditions

What can be done to elevate hopes and minimise concerns: better and more open partnerships; work on county-national govt relations; coordination within the sector (research-policy-private); involvement of farmer reps. **Bring the farmer voices--from multiple systems-- to the table.** Pay attention to the local breeds we have and their adaptive traits; attention from govt to the importance of food security

Group 5: Edwige, Miriam Kyotalimye, Tigist, Svenja, Dr Atuhaire Andrew

Similar concerns: conservation of local breeds, extension services focused more on crops, lack of awareness

Similar hopes: better extension services, adjusting livestock species, improve welfare and nutrition, animal genetics

Main differences: different breeding systems, stage of development of using waste / fertilizers / dry feeding / crop-livestock integration

What can be done to elevate hopes and minimise concerns:

Policies: more attention to the livestock sector and animal health / Using ICTs for dissemination / Strengthening extension services: accessible, focus on livestock / Raise awareness and knowledge / Strengthening breeding services & learning from research / Learning from other countries: for example Ethiopia and Kenya's dry feeding

Group 6: Lucy - Francis, Erica, Willy (KE); Israel (UG)

Similar concerns:

- Inappropriate adoption of breeding tech → does not lead to adaptation goal
- Effectiveness of climate information for farmers
- Knowledge gaps among farmers on best adaptation options
- Concerns with management of livestock (esp manure) in urban systems (concern for mitigation)

Similar hopes:

- Government & other actors taking up adaptation → opportunity for up-scaling

Main differences:

- More challenging production conditions in KE compared to UG → comparative adv for UG in market access eg dairy

What can be done to elevate hopes and minimise concerns:

- Joint effort eg in developing dairy industry, adaptation projects
- Support feed industry in addition to fodder varieties
- Promoting indigenous production activities that support adaptation & mitigation
- Capacity building for farmers

Group 7: Todd/Phyllis

Similar concerns: Low productivity (ALL), farmers keeping large herds that lead to land degradation and big water footprint (UG, Ethiopia), Low adoption rates of mitigation options (ALL), Low implementation of policies at the farm level (ALL). Fast urbanization that is affecting pasture land available and hence productivity (Land tenure, ALL).

Similar hopes: Farmers are motivated by adaptation (ALL), synergy between adaptation and mitigation (ALL), Systems moving towards more intensive systems (ALL)

Main differences: None for now

What can be done to elevate hopes and minimise concerns:

Changing the narrative on mitigation and adaptation options towards farmers viewing keeping livestock as “income generating enterprise” rather than subsistence system and that would motivate the farmers to increase the adoption rate. Farmers are willing to adopt new technologies that would increase productivity - researchers to not disappoint the willingness by disseminating the new information timely :) e.g using media