Program for Climate Smart Livestock Systems (PCSL) **Futures Workshop**

UGANDA | MARCH 2021

Thinking about the future is challenging yet a prerequisite."

- WORKSHOP PARTICIPANT

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The PCSL workshop in Uganda

The International Livestock Research Institute (ILRI) is implementing the Program for Climate Smart Livestock (PCSL) in Kenya, Uganda, and Ethiopia. PCSL is designed to build the capacity of governments, the private sector, and livestock keepers towards improving livestock productivity, reducing greenhouse gas emissions while adapting to climate change. In March 2021, ILRI held a workshop with relevant stakeholders to discuss potential transformative pathways for the livestock sector in Uganda.

PARTICIPANTS

The workshop brought together 26 Ugandan stakeholders representing a variety of organisations, including government ministries, the private sector, NGOs and research institutes.

FORMAT

The 1-day workshop was carried out in a hybrid physical (75% of participants) + virtual (25% of participants) format. Digital tools were used for gathering individual reflections (**Mentimeter**) and group discussions (**Miro**).

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The workshop activities and outcomes are outlined in the following pages. They draw a lot of inspiration from the *Futures Thinking Playbook* by Kate Bishop King (2017) and the <u>Three Horizons</u> *Framework* as applied by Bill Sharpe and colleagues (2016).

REPORTING BACK

This report shares both the workshop methodology and exercises carried out, as well as the key outcomes.

Benefits of future thinking

Thinking about the future helps us consider what's possible. In thinking about what might happen, we can prepare for potential challenges and maximise the opportunities.

Types of futures

When thinking about future scenarios, there are 3 categories:

PROBABLE

Likely



POSSIBLE

Not as likely but not impossible

PREFERRED

What I want





Views of the future¹

We all think about the future differently. This is a good thing as we open each other to new ways of thinking and are able to contribute in different but ultimately complementary ways.

EXERCISE

Look at the following two sets of statements. For each set, select the statement that you most resonate with.

Combine the letters at the end of the two statements you selected and use this combination to discover your view of the future, on the following pages. What will happen in the future is mostly set and will follow the path we're already on. (A)



The future holds many possibilities and is not yet determined. (B)

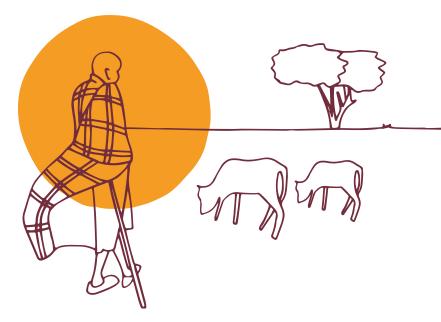
OR

We each don't have much individual influence over what the future will be. (C)



We each have a great deal of individual influence over how the future will be. (D)

Views of the future



AC: The observer

Observers can often see what is happening around them better than others and are willing to go with the flow.

Observers watch what is happening around them and see how all the pieces fit together to set us on a path toward the future. People with this future personality type believe that we can notice what will happen if we just pay attention. They believe their role is to watch out for the future but not necessarily to shape it.



AD: The navigator

Navigators are often confident and decisive and want to limit the amount of uncertainty in a situation.

Navigators know where the ship is headed, but they also know that we each have to take individual actions to make sure the trip goes smoothly. People with this future personality type believe that the future is not yet determined but that it will unfold on its own; our individual actions do have an influence on how it turns out.

Views of the future





BC: The explorer

Explorers are often dreamers and can see the best in many types of situations.

Explorers see a wide range of possibilities and are willing to go with any that come along. People with this future personality type believe that the future is not yet determined and that our individual actions don't have much influence over how the future turns out.

BD: The mapmaker

Mapmakers are often imaginative, optimistic, and strong leaders, ready to take charge

Mapmakers have the entire ocean in front of them and make decisions that will determine where the ship ends up. People with this future personality type believe that the future is wide open with possibilities, and that our decisions and actions determine how the future turns out.

INDIVIDUAL EXERCISE

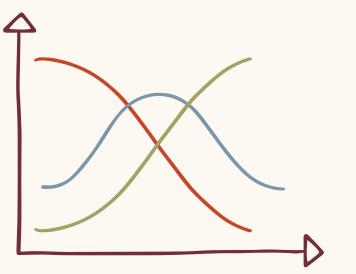
Participants were asked to state a word that best described what they thought about the future. "Unpredictable" was a common thought about the future but there was a strong sense of optimism – albeit with caution – about a green future.



The Three Horizons Framework²

Thinking about the future challenges us to think differently. A lot is unknown and it's likely a lot will change, so we are forced to use our imagination, in trying to prepare ourselves for different scenarios.

The Three Horizons Framework is useful to help us take this conceptual journey.



1ST HORIZON

We look at our current situation: world-views, patterns, assumptions, information, infrastructure.

3RD HORIZON

We imagine future world-views, ideas, patterns and innovations and consider what seeds there are for these, in the present moment.

2ND HORIZON

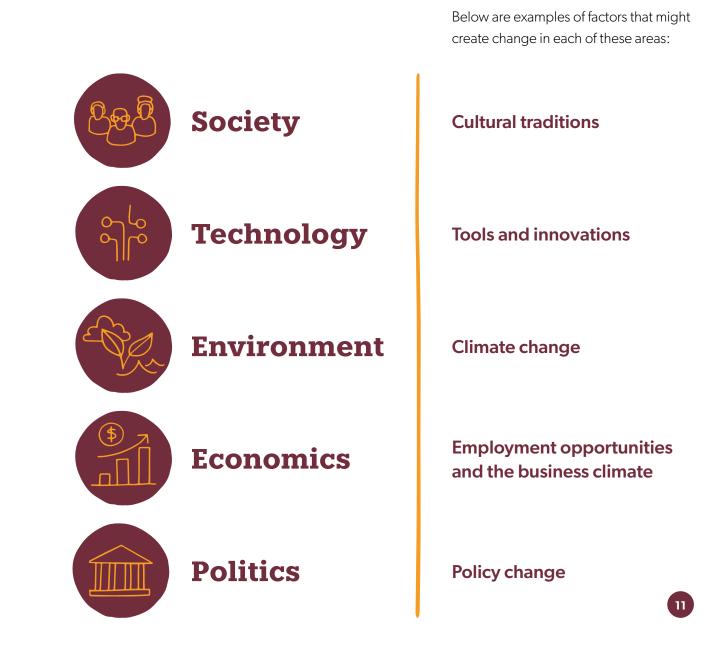
What steps, explorations and experiments could take place in the near future, to move us from the 1st to the 3rd horizon?

In looking at the past and considering the possibilities, what actions can create a bridge from our present to our desired future.

2 Sharpe, B., A. Hodgson, G. Leicester, A. Lyon, and I. Fazey. 2016. Three horizons: a pathways practice for transformation. Ecology and Society 21(2):47.

Introducing STEEP

The STEEP checklist is useful in helping us think about the different areas of our lives where change has and will occur.





- WORKSHOP PARTICIPANT

Participants were organised into groups to craft the third horizon and explore the question:

What does a climate smart and sustainable livestock system in Uganda look like to you?



GROUP EXERCISE

Step	1.
JUEP	

Introductions.

Step 2:

Quiet reflection: choose 3 of the 5 STEEP areas to describe a smart and sustainable livestock system for Uganda in 2050.

- Write down one thing you'd definitely like to see happen in the future.
- Write down one thing you'd like to stop from happening in the future.

Step 3:

Group discussion of reflections.

- What are the similarities? Group them.
- Note the differences.
- Discuss and reach a consensus on this vision of a smart and sustainable livestock system for Uganda in 2050.

Break

Step 4:

What is happening right now? What organisations, technologies and movements from around the world could help us get to our vision of the future?

Identify seeds in the present and things that need to grow, for this future to emerge.

Step 5:

Craft the following, from this future:

- 2 headlines/tweets
- A statistic

Also, come up with a name for your group that speaks to the future you've crafted.

The following pages include highlights from the different groups' discussions.

Tweets from the Third Horizon



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Team Sustainability

Group 1

SOCIETY:

- Food security is achieved through sustainable production.
- Adherence to the withdrawal period for veterinary drugs before consumption or sale of livestock products.

TECHNOLOGY:

- Strategic disease control and prevention.
- Creation of systems for better storage and regular updating of farmer data.

ENVIRONMENT:

- Sustainable rangeland rehabilitation and increased integrated farming practices.
- Sustainable waste management, including improved manure management, resulting in no pollution of the environment by livestock waste. Livestock has become a zero-waste sector.
- Less than a 1.5 degree temperature rise.

ECONOMICS:

- Products yielded through climate-smart practices demand higher prices.
- Easy access to affordable financing.

POLITICS:

- Political priorities are refocused, with regards to agriculture, creating a better political environment for farmers.
- Politicians are knowledgeable about climate-smart agriculture (CSA). As a result, they champion enabling laws to make enforcement easy.

Empowered Society

Group 2

SOCIETY:

- Increased awareness and literacy when it comes to policy.
- Strategies and policies designed in consideration of the local context.
- Livestock production integrated in farming systems.
- Increased access to milk for every child.
- Animal should not be transported over long distances for slaughter.

TECHNOLOGY:

- More focus on indigenous technologies, including breeding for faster growth of indigenous trees.
- Improved use of ICT in livestock production.

ENVIRONMENT:

- Climatic conditions favour livestock and feeds.
- Reduced greenhouse gas emissions from livestock and the conversion of off-farm waste into energy.
- Integrated rangeland management to avoid deforestation.
- More intensively managed dairy farms.

Reduced use of chemical (pesticides and herbicides).

ECONOMICS:

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- Increase commercial utilisation of livestock by-products.
- Sustainable, profitable livestock production which, enables poverty reduction.
- Improved sanitary and phytosanitary procedures.
- Establishment of abattoirs close to livestock areas.

POLITICS:

Efficient and effective governance structures for the livestock sector.

Green Livestock Optimists

Group 3

SOCIETY:

- Stronger farmer institutions (co-ops, societies etc.).
- Appreciation and conservation of genetic diversity.
- Effective extension services.

TECHNOLOGY:

- High-value breeds that are disease-resistant, higher yielding and forage-efficient.
- Harnessing ICT for extension

ENVIRONMENT:

- Circular bio-economy.
- Better soil and water management.
- Reduction in livestock emissions.

ECONOMICS:

- Improved food safety.
- Improved cold chains and infrastructure.
- Better valuing of livestock's multiple purposes.

POLITICS:

- Politicians responsive and in touch with what's happening on the ground, creating an environment of supportive policy implementation and enforcement.
- Improved regional coordination and cooperation.
- An end to cattle-rustling.

Balancing economic and environmental sustainability

Group 4 (virtual participants)

SOCIETY:

- Livestock is now a key employment sector in agriculture, attracting especially young people.
- One Health approach: recognising connections between animals, humans and the environment.
- Focus research on indigenous knowledge and practises.

• Social, economic and cultural barriers preventing women from accessing farming are eliminated.

TECHNOLOGY:

- Democratisation of climate-smart technologies and capacity building.
- Monitoring systems are effectively tracking 1) climatic changes, 2) livestock diseases, 3) variations in production.

ENVIRONMENT:

- Agricultural production is green and powered by clean energy.
- Antibiotic and antimicrobial resistance is minimised.

ECONOMICS:

- Investment in climate smart techniques and research has increased dramatically.
- Innovative entrepreneurship encouraged across livestock value chain.
- Livestock sector is globally competitive and GDP contribution keeps growing!

POLITICS:

- Decision-makers value the importance of the livestock sector.
- Effective public-private partnerships providing services at cheaper costs.
- Seamless data flows and cooperation across livestock system.
- Data informs sustainable development policies and effective monitoring.

Future visions

There were several commonalities between the groups and the following key points have been synthesised from across all the groups.



INCREASED MILK CONSUMPTION – AND PROFITS

Greater access to markets for dairy farmers, locally and internationally. More intensively managed dairy farms help farmers to supply these markets. Increased access to milk for local consumers means reaching recommended per capita levels, including milk for every child.



BETTER ANIMAL WELFARE

No malnourished livestock. The establishment of abattoirs close to livestock areas, to reduce the need for transportation over long distances for slaughter.

Future visions

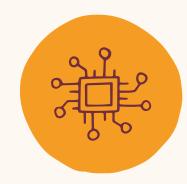




More focus on supporting women, indigenous groups and youth, including provision of the necessary resources to support their active contribution to farming.

A SUSTAINABILITY MINDSET

A climate-responsive society that approaches everything from a sustainability perspective.



LEVERAGING TECHNOLOGY

Technology used: to support knowledge development and exchange (e.g. harnessing ICT for extension services, apps for sharing market data and platforms for farmer data); to develop better breeds and upgrade value chains; and for disease surveillance and early warning systems.

Future visions



CIRCULAR FARMING

Farming is fully circular with minimal inputs (fertilizers/pesticides), all waste is repurposed and all GHG emissions are captured or offset. Resources are used at the highest efficiency.

BETTER LAND MANAGEMENT

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Integrated rangeland management reduces deforestation. In addition, the appreciation of and research into indigenous trees fosters increased agro-forestry which helps contribute to better soil and water management.

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I Thinking about the future is thinking for the next generation."

- WORKSHOP PARTICIPANT

Seeds

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The following are some of the key seeds identified by the groups – things that exist and can be built on, for the 2050 visions to emerge.

- Streamlined governance and government structures including the presence of local governments.
- Multi-stakeholder approaches including public-private partnership and the private sector investing in greening.
- The allocation of resources to sustainable livestock production, including government funding for research and the Comprehensive Africa Agriculture Development Programme (CAADP) commitment of 10% of its budget.
- Improved investment in public infrastructure such as roads and dams, and in specific agricultural infrastructure such as for processing and abattoirs.

Better feed achieved by: mechanisation for feed production; and promoting alternative inputs like Black Soldier Fly larvae.

- Better breeds achieved by training more technicians in reproductive technology, and dissemination by the National Animal Genetic Resources Centre and Data Bank.
- Better markets achieved by: quality assurance for
 international markets; organic farming; established
 Uganda Bureau of Standards; ongoing efforts towards
 regional integration; East African trade harmonisation;
 the ban on imported milk, sugar, maize and eggs; East
 Africa Dairy Regulatory Authorities Council; premium
 payments for quality (SNV project).
- Affordable and accessible financial services, including climate financing.
- The sensitisation of the public on climate change and climate smart practices.

Seeds

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- The increased presence of women and the official gender requirement of 30% participation by women in policy-making.
- East African Community policy on climate change, the Uganda National Climate Change Policy and the Parliamentary Standing Committee on Climate Change. Vision 2040, the National Agriculture Adaptation Plan (NAP-Ag) and the National Development Plan III (NDP3). Dairy development policy, agriculture extension policy and the Land Act of 2019.
- Increased emphasis on agro-industrialisation and the presence of agri-business incubators and value addition courses at institutions like Makerere University.

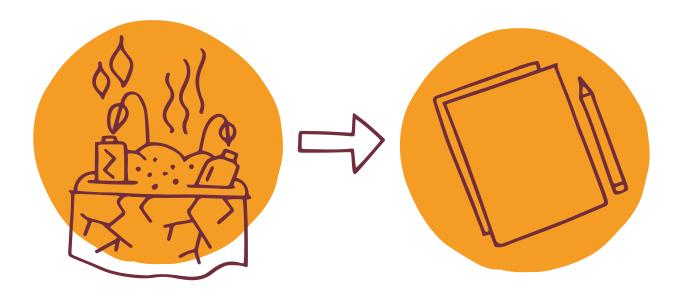
 The activities of the National Livestock Resources Research Institute (NaLIRRI) including: establishing a lab; a vaccine production centre; biogas digestors; circular bio-economy technology; forage breeding programmes.

- Education on land management; sustainable waste management; manure use; water management for crops and animals; and water harvesting on farms.
- The PCSL learning platform for information exchange.

Lunchtime Contemplations

Participants were asked to think about the following, in preparation for the post-lunch session of the workshop:

- 1. A big challenge that we need to overcome in the present to get to this future
- 2. A policy that currently exists that could help us get to this future



Trends

In the second half of the workshop, participants were asked to individually recall the challenge they identified and come up with a trend statement about it.

Is it increasing or decreasing? Is it changing consistently over time?

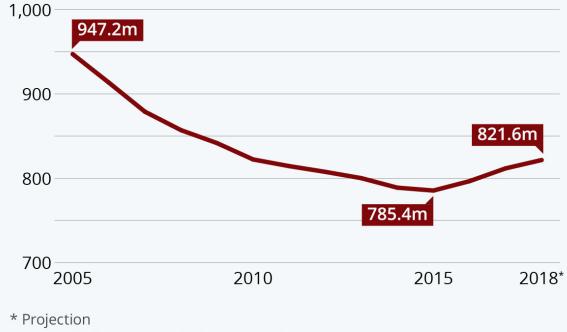
For example:

The number of people affected by hunger globally has been slowly on the rise since 2014, despite previously decreasing (FAO 2020).

World Hunger Rises For Third Successive Year



Number of malnourished people worldwide from 2005 to 2018



Source: UN Food and Agriculture Organization

statista 🗹

The First Horizon (challenges)

Brainstorming present challenges.

- **SOCIETY:**
- Low uptake of adaptation and mitigation options.
- Poor organisation of groups.
- Weak uptake of veterinary services.
- Marketing favours traders over producers.
- Poor extension and communication of livestock technologies.

TECHNOLOGY:

- Lack of traceability.
- Lack of data.

- Low mechanisation levels.
- Poor yielding breeds.

ENVIRONMENT:

- Greenwashing affecting value perception.
- Livestock diseases.
- Poor quality feed.
- Climate variability.
- Land degradation.
- Shortage of pastureland.
- Climate change impacts (e.g. drought).
- Poor soil and water management.

ECONOMICS:

- Poor donor coordination.
- Lack of exports.
- Informal meat marketing system.
- Little value addition.
- Lack of investment in agricultural sector.
- Supply struggling to meet market demand.

POLITICS:

- Trade restrictions in the region.
- Poor regulations.
- Disconnect between different priorities.
- Gaps in policy implementation.

Thinking about the future is such a puzzle, but interesting."

- WORKSHOP PARTICIPANT

The Second Horizon

WHAT IF?

Next, participants were asked to think about 'What if?'

What if something were to happen that changed their identified trend for the better? What could that something be?

GROUP EXERCISE

Somebody starts by asking:

What if... < the something they came up with >?"

The next person builds on this vision, saying: "yes and then what if...?"

The next person continues to build on the vision, "and then what if...?"

This continues for as long as possible within a 15 minute period.

GROUP EXERCISE

Participants returned to the same groups they had formed in the morning.

First, everybody had a chance to present their homework – their policy idea.

Thereafter, as a group, they were asked to look at all the ideas and consider:

- How the policies can contribute to getting to the future.
- What else needs to change?
- How we can overcome present challenges?
- How we can help the seeds to grow?

The following pages include a snapshot of ideas from the different groups.

Policy implementation

Team Sustainability

SPECIFIC POLICIES

- Emphasise the program mode of implementation in National Development Plan III.
- Traceability Bill fast-tracked into a law.
- Guidelines on agriculture financing developed and disseminated.

OTHER SUGGESTIONS

- Relevant institutions are empowered in data generation.
- Investment in technologies for sustainable water management.
- Increased lobbying for the agriculture sector.
- Trade block regularised to open international markets.
- Internal market systems built.
- The proposed Tree Fund is concretised.

 Sensitisation about and certification of organic products.

- Strategic disease control and prevention.
- Multi-stakeholder approaches used.
- Public-private partnerships strengthened and emphasised.

Working together

Empowered Society

TECHNICAL

- Veterinary services re-centralised.
- Acaricide zoning.
- Livestock production technologies promoted and popularised.
- Livestock identification and recordkeeping program, including regular livestock surveys.
- Disease control and diagnostic infrastructure better equipped and strengthened. Both passive and active disease surveillance in place.

- Equipment for increasing agricultural productivity.
- Plan to modernise agriculture revised.
- Community breeding program instituted, promoting good breeds.
- Institutions, such as local government, strengthened through training.

POLICY

- Policy for livestock identification and traceability.
- Public-Private Partnership policy to promote livestock production.
- Coordination between sector and development partners improved.

- Policies for media promotion.
- Regulatory bodies, such as DDA and UNBS, better equipped.
- Quality standards enforced at all levels of value chain, including standards for livestock feed.
- Complementary agencies merged to improve efficiency.
- Simplify existing policies.
- Cabinet lobbied for more budget allocation to livestock sector, including more funds for livestock development partners.



Better tools

Green Livestock Optimists

TECHNICAL

- Road and infrastructure improvements.
- E-extension updated, expanded and to include farmer success stories.
- Building on National Food and Agriculture System (NFAS) tool, to avoid having too many tools.
- Investment in livestock data: a data collection and centralisation policy with capacity building; a central data management system; data digitisation infrastructure and interoperability; improved decision-support tools.

- More livestock economists.
- Farmer Field School incorporation into government modules; more specialisation in tertiary agriculture education; and agro-industrial training for women and youth.

POLICY

- A policy for livestock production and marketing, including the reduction or elimination of tariffs and taxes on agricultural inputs reduced or eliminated.
- Improved data sharing between local and national governments, including a review of Local Government Act.
- Harmonisation of EAC, AFCTA and

COMESA regulations.

• Action plan for and funding to the animal genetic resources and breeding program.

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 Functioning of Uganda Bureau of Statistics (UBOS) and line ministries streamlined.

OTHER SUGGESTIONS

- Specialised financial services including: agricultural equipment co-funded by coops and individuals; livestock insurance; a specific bank dedicated to agriculture; climate financing; and payments for environmental services.
- Strong farmer co-ops and societies with more women involved.
- Private sector linkages.

Business leading the way

Balancing Economic and Environmental Sustainability

TECHNICAL

- Make climate smart technologies accessible to all people – not just the knowledgeable and rich ones.
- Create the right tools/capacities at the local level to increase resilience and adaptability.
- Incubation centres in Eastern Uganda, for breeding and other sustainable practices.

- Trained livestock economists.
- Animal feed production facilities.
- Increase focus on zero-grazing and paddocking.
- Private sector to drive sustainable farm practices.
- Initiatives in construction of water infrastructure for livestock. Use of man-made water resources to avoid depletion of natural resources.
- A centralised platform used to push this information to the public and all stakeholders.

POLICY

• Increase government investment in environment and ecology.

OTHER SUGGESTIONS

 Reduce poverty and secure livelihoods, enabling people to access sustainable and modern technological tools and resources.

- Leverage the private sector to maximise value across the chain.
- Foster and encourage entrepreneurship in the livestock sector, unlocking added value and new activities.
- Differentiate value chain activities and let actors can focus on what they do best, for greater value creation.
- Diversify livestock sector with new, complementary activities, e.g. rabbit farming, which can be cheaper and more efficient.
- Increase investment in pasture farming.

Second horizons summarised





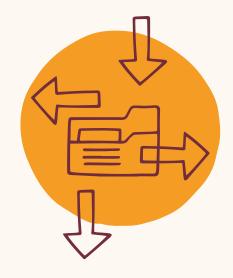
IMPROVED COORDINATION BETWEEN ACTORS

There is a need for better coordination between the multiple stakeholders including: between agencies; public-private partnerships; between producers and development partners; and between the media and policy-makers. These efforts improve knowledge, efficiency and ultimately, impact.

BETTER SUPPLY, MORE DEMAND

Quality standards should be raised across all levels of the value chain. Organic certification, better breeds and equipment for increasing agricultural productivity are just a few interventions to this aim. Improving local markets and opening up to more international ones creates an enabling environment for these improvements.

Second horizons summarised



INVESTMENT IN DATA

Systems for generating, digitising and centralising data, with the appropriate capacity building to manage it. Not only can this enable better data collection, sharing and interoperability amongst stakeholders. It can also facilitate better traceability through livestock identification and record-keeping, including regular livestock surveys.



SUPPORT INFRASTRUCTURE

Specialised financial services such as a dedicated bank for the sector; climate financing; and tailored insurance products. Improved disease control and diagnostic infrastructure allowing for passive and active disease surveillance. Technologies for sustainable water management. Centralised veterinary services and optimisation of e-extension. Road improvements.

Second horizons summarised

CAPACITY BUILDING

More human resources for the sector thanks to a focus on target education. Agro-industry training for women and youth; more specialisation in tertiary education; the incorporation of climate-smart modules in the government curriculum; incubation centres; and trained livestock economists.

INCREASED LOBBYING

There should be more lobbying for the agricultural sector which will result in greater budget allocation. In addition, a revision or elimination of tariffs and taxes on agricultural inputs.



LEVERAGING MEDIA AND MARKETING

Promoting and popularising better livestock products; livestock production technologies; and farmer success stories. Within the sector; with policy-makers and politicians; as well as to the wider public. Changing perceptions about the sector can encourage more people to pursue opportunities and entrepreneurship within the sector.

Revisiting thoughts about the future

INDIVIDUAL EXERCISES

At the end of the workshop, participants were asked once again to state a word that best described how they felt about the future. The workshop ended on an incredibly optimistic note with "positive," "hopeful," "optimistic" and "manageable" being the strongest thoughts about the future.



Revisiting thoughts about the future

Three actions

Participants were then asked to write down three things they could do to bring about their preferred future.

The following are just some of the actions pledged:

BEING AN EXAMPLE

- Invest more in acquiring knowledge about climate change
- Practice climate smart practices

BE INTENTIONAL

- Utilising resources in a sustainable way
- Using of livestock excreta as manure and energy

EDUCATION

- Sensitisation of community about climate change and its mitigation measures
- Create awareness on climate smart livestock
 technologies
- Do research and share research findings

- Train farmers in productive technologies
- Promote and popularise sanitary and phytosanitary procedures

INCLUSION

- Understand the various pathways to breaking barriers to women and youth inclusion in the livestock sector
- Focusing on the young generation to secure the future through training in climate smart practices
- Agribusiness incubation of young graduates
- Mentoring young people

PARTNERSHIPS

- Jointly implementing National Development plans
- Develop sustainable partnerships within the livestock sector
- Bring together private sector and public sector
- General mindset change of politicians to allocate more funds to agriculture

LOCALISED APPROACHES

- Pay more attention to local context and cultures
- Involve local population in designing policies

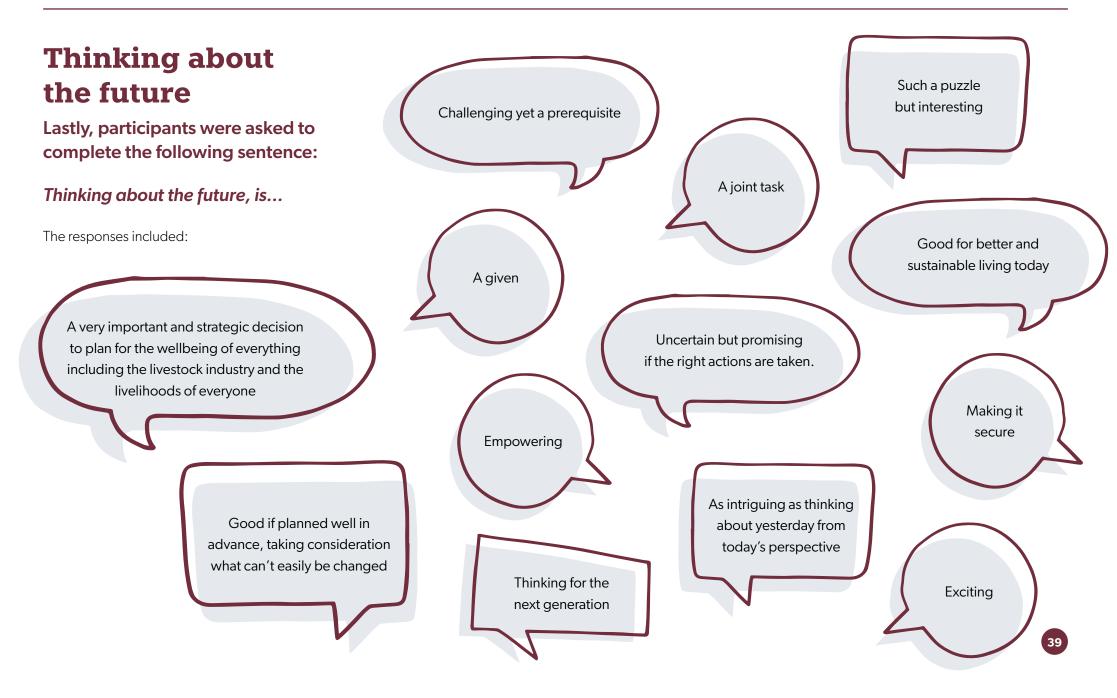
RESOURCES

- Financing for new technologies
- Innovate to ensure farmers access to climate smart technologies
- Work more with MAAIF to help spread technologies

ADDING VALUE AND GROWING DEMAND

- Market systems approach to greening the sector
- Use market systems facilitation approaches to develop livestock value chains
- Contribute to domestic demand creation
- Support meat markets
- Support nutrition
- Support genetics
- Improve disease control measures

Revisiting thoughts about the future



Workshop impact and feedback

FEELINGS ABOUT LEARNING APPLICATION PARTICIPATION THE FUTURE This workshop made me I learned something new This workshop helped me I would participate in feel more/less positive and useful from this process. with decisions I need to a similar workshop in about the future of livestock make in my work. the future. production. More positive Strongly agree Strongly agree Yes Somewhat agree Somewhat agree Neutral Neutral Somewhat disagree Somewhat disagree Strongly disagree Strongly disagree

Workshop impact and feedback

NEXT STEPS

Actions that I will now take for myself or my organisation:

- Strategic planning/policy focus for greening livestock.
- Sensitising my workmates on the Three Horizons framework and helping our organisation to postulate on the best livestock programming for the future.
- Stimulate thinking and action towards balancing the need for methane-free production and organic livestock value chains, with the market value of the end products.
- Getting more involved in the design, review and dissemination of appropriate policies for sustainable livestock and environmental production.
- Advocating more for private-public partnership engagement.
- Advocating for policy awareness and increased farmer sensitisation.
- Training colleagues on futures thinking.
- Planning for the future.

- Fast-tracking the implementation of climate smart practices in the Third National Development plan.
- Looking more at the opportunities to make dairy farming more green, with the existing economic and environment framework in the country.
- Sharing with my friends and influencing livestock financing.
- Interlinking all my activities with the future.
- Given that I now know some of the government priorities for the development of the livestock sector, I will be in position to propose actions in-line with the development of climate-smart livestock production in the country, during this period when the Country Program is being elaborated.
- Adopting the Three Horizon approach for planning.





Thinking about the future is empowering."

- WORKSHOP PARTICIPANT

From unpredictable to manageable

WHAT'S NEXT?

This report is intended not just as a report on the outcomes of the workshop, but also as a training tool for inspiring futures thinking in decision-making. A Future workshop has also taken place in Kenya and another in the other PCSL country site, Ethiopia. The findings will be collated and used as inputs for ongoing strategic conversations about the trajectory for livestock systems in East Africa.

RESOURCES AND FURTHER READING

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