

Proceedings of PARI Livestock Cluster Meeting

KALRO Headquarters

7th - 8th October 2019



The meeting reported in this document is organized as part of the Program of Accompanying Research for Agricultural Innovation (PARI) www.research4agrinnovation.org, a research program of Center for Development Research (ZEF), University of Bonn, Germany. PARI is supported with funding from BMZ. The logo of other partner organizations is appended



DAY I: 7th October, 2019

Session I: Welcome and opening remarks

Meeting was called to order by Dr. Lawrence Mose at 9.45am and thereafter Dr. Felister Makini led in a word of prayer which was followed by participants' self-introductions (see Annex I) after which the PARI coordinator Dr. Wole made his remarks.

Remarks by Dr. Wole (PARI Coordinator)

- He started with thanking all the participants for attending the meeting and looked forward to fruitful deliberations in the two-day meeting.
- He reiterated the role of the Livestock sector as an important component of the agriculture sector and which lately has seen stakeholders renew interest in it.
- He stated that the purpose of the meeting was to identify and discuss procedures of documenting proven innovations in the livestock value chains in Benin, Ethiopia, Kenya and Mali, with a view to upscaling the same in other African countries with similar circumstances in future.
- Concluding his remarks, he thanked KALRO for agreeing to host the meeting and subsequently called upon Dr Makini (KALRO's Deputy Director General, Crops) to make her opening remarks.

Remarks by Dr. Felister Makini

- She welcomed all participants to KALRO on behalf of the Director General who was out of office attending to other official matters. She wished the participants a pleasant two-days meeting.
- She gave an overview of KALRO touching on its Mandate, Vision and Mission. She also gave the organizational structure of KALRO which comprises 16 Institutes out of which six are devoted to livestock research namely: Dairy Research Institute (Naivasha), Beef Research Institute (Lanet), Small Ruminants Research Institute (Marsabit), Non-Ruminants Research Institute (Kakamega), Arid and Semi-Arid Lands Research Institute (Kiboko) and Apiculture (Perkerra) (Annex 2).
- She ended by wishing all fruitful interactions during the meeting and sharing of experiences from the participants' countries and with that declared the meeting officially open.

SESSION 2 – Livestock Study and AGRODEP

2.1 Livestock Cluster Study Consultant- Dr Carlos Seres

He started by thanking all participants for attending the meeting and KALRO for hosting the meeting.

- He reminded the participants on the primary objective of PARI as: scaling up proven innovations to enhance agricultural productivity with a view to improve food security and natural resource management in Africa
- He added that the meeting aimed at discussing and developing a strategy on how to operationalize the ideas contained in the earlier prepared and circulated Livestock Cluster Concept Note with a view to ultimately prepare policy briefs and documentation necessary for stakeholders, among the donors, policy makers in various governments, private sector and any other interested parties in livestock related work in the four selected countries for planning purposes.
- The meeting was expected to identify proven livestock innovations in the four countries representing tipping points in the sub sector and share these success stories with a view to replicate / upscale them beyond the four countries. However, he noted that livestock innovations are unlike those in crops are context specific with systemic issues which are complex to contend with.
- A case study approach will be used to document the scalable innovations from the four countries
- He shared his attempt to work on FAO livestock data from various African countries to explore if there are countries whose livestock sector growing faster than others but found inconsistencies in data and hence made no reliable conclusions.
- He reiterated that the study was premised on the continued high demand for animal sourced foods in the coming decades spurred by population growth, urbanization and accompanying rise in economic and social developments all over the world and Africa in particular.
- The following challenges are anticipated:
 - Dealing with technical, institutional or even political innovations across multiple commodities farming systems
 - Dealing with value chains and their forward and backward linkages and the enabling environments
 - We must focus on forward looking trends and new opportunities and provide concrete examples that have achieved a certain scale
- In order to identify success stories, a combination of approaches among them:
 - Analysis of national level data and trends
 - Literature reviews
 - Expert data consultations; will be employed.

- The country case studies that will comprise brief descriptions of recent developments which will facilitate spatial analysis and synthesis to give pointers as to where investments should be focused on.
- He concluded his presentation by stating that the Concept Note only served as initial thoughts that formed the foundation stone upon which participants could build on based on practical realities on the ground.

Q & A Session

Question 1. How will the case studies be conducted considering that different countries have different experiences? Will the synthesis be based on the overall success of the livestock sector in the specific countries?

Response: The idea is to come up with case studies that make policy makers think about whether the case can provide guidance on what can be done across board for example the livestock hubs in Kenya, the livestock master plans in Tanzania and Ethiopia. The question to be responded to is ‘Are these ideal institutional innovations? Another example could be tsetse fly control in Africa with question being are there new innovations in this regard etc? The overall case for livestock is not the key concern of the proposed study but rather “what innovations are available to give a group of people ideas on where to target investment decisions”.

Question 2: How wide should the coverage be? Are we to cover all livestock kinds in the study or focus on a few livestock kinds?

Response: Initially, the idea was to consider the whole sector but with more information and consultation, there was agreement that a focus on “feeds across all livestock value chains is important as issues on dairy and poultry”. For poultry, the issue of scale is important - whether we focus on small scale or large-scale industrial poultry.

Question 3: Should we focus on food security or poverty reduction

Response: It is not possible to separate the two; hence both will be considered.

Comment: It seems there is need to do a holistic overview of the sector before focusing on a specific intervention

Response: This is correct

2.2 AGRODEP Study - Dr Miriam Omolo

The title of her presentation was *“Identifying high potential areas for livestock investment in Africa: The case of Mali and Ethiopia”*.

The goal is to support the scaling of agricultural innovation through science, technology and innovation by means of dedicated cooperation between research and application. The main idea of the livestock typology study was to give due attention to geographical diversity and to address problems in a more comprehensive and holistic fashion and to be less data intensive. The first layer of information is to help design and improve targeting of innovations. Details of her presentation and the conceptual framework are presented in Annex 4.

Q&A Session

Question 1: From the presentation, it appears that the coverage is rather broad and the question is how can we interact with AGRODEP with a view to focusing on specific livestock species?

Response: There is an opportunity to make it more specific but there is need for consultation with the Dakar AGRODEP Team. A suggestion would be to focus on a region within a uniform farming system e.g. a pastoral system, peri –urban area etc. It is however important to wary of the sub categorizations.

Question 2: Is the work also going to include Benin?

Response: For now, “No” but will be included in a later phase

Question 3: On constraints, other issues that may be non-livestock and hence not relevant with an example being political turmoil where land may be available but not contribute to production. How do you address such?

Response: There is need to customize the analysis

Recap – SESSIONS 1 and 2: Dr. Wole

Dr Wole noted that the discussions on the (Concept Note and AGRODEP) will provide salient ideas on the general approach that could be taken in the proposed study. He however hastened to add that the next session on the status of the livestock sector in the study countries would help to clarify specific areas of interest for each country.

Session 3: Country Presentations

3.1: Kenya

Dr Nyambati presented an overview of the livestock sub sector in Kenya including the role and specific aspects of the various components (*Annex 5*)

Q&A

Several questions were asked after the presentation by Dr. Nyambati. Some of the questions include:

Question 1: Replacing maize with fodder seems quite striking as it seems to be upside down in a country like Kenya, what is happening? There is need for a quick intervention given the importance of maize.

Response: This could possibly be explained by disincentives for smallholder farmers growing maize some of whom have turned to fodder production which is more lucrative. The policy in maize production has been biased to large scale farmers.

Question 2: What is the government policy on substitution of maize with fodder?

Response: This is a recent development observed among farmers and hence no policy is in place yet. However, it is a situation that needs attention.

Question 3: About KALRO poultry, who is multiplying and who is distributing?

Response: KALRO is currently multiplying but there is need for private sector involvement. However, the private sector needs training on poultry management and incentives.

Question 4: Do the figures presented on red meat include both meat and whole (live) animals?

Response: The figures reported are on meat. Most beef is exported as meat, but camels are exported as live animals. It is however important to note that we also receive imports from South Ethiopia, Somalia and Uganda.

Question 8: Do you do rabbits and donkeys in Kenya?

Response: Yes, these are emerging livestock.

3.2 Ethiopia

Dr. Degu made the presentation in which he gave an overview of the Livestock sub sector in Ethiopia (*Annex 6*)

Q & A

Several questions were raised after the presentation:

Question 1: Elaborate on livestock development corridors, the agro industrial parks and the connection with livestock hubs. All these seem to be institutional innovations

Response: Livestock development corridors were in response to specific contexts. Their development involved identification of specific zones with specific livestock enterprises. Hence dairy and sheep was identified for an area near Addis Ababa. These corridors were developed before Agro Industrial parks. Specific agro industrial parks are linked to potentialities of an area (see map in annex)

Question 2: Explain more about community grazing lands in Ethiopia

Response: Communal grazing lands are assumed not to have rules used to govern them. However, various studies have demonstrated that traditional management structures/rules are in place and if properly managed can benefit both livestock and crop farmers.

3.3 MALI

Mr. Alpha made the presentation in which he gave an overview of the Livestock sub sector in Mali (Annex 7)

Q&A

Question 1: Is the Transhumance that you have mentioned internal or external to Mali for Benin, lots of conflict arise from external transhumance?

Response: There are both - internal and external transhumance in Mali. ECOWAS is now in the process of developing a policy to guide transhumance with a view to resolving conflicts.

Other questions raised include: In Ethiopia, no animal is allowed for export unless it is 330 kilos. Is this possible in Mali? In South Africa, cooked meat is exported and this avoids health concerns in the sector. To what extent would this be practical in Mali?

3.4 BENIN

Dr. Adegbola presented an overview of the livestock sub sector in Benin (Annex 8)

Q&A

Question 1: What plans are in place for poultry in Benin?

Response: There are commercial farms around the city in Cotonou, but local scavenging birds are abundant in homesteads especially in the country side

Question 2: Livestock production seems to contribute only a small amount to the GDP, what contributes the rest?

Response: Most contribution to the GDP of Benin is from cotton and pineapple but there are lots of reforms to the livestock sector to improve it.

Question 3: It appears the presentation did not indicate any export from Benin. Is this correct?

Response: Benin exports cotton seed, soya bean and palm oil cake but the government is in the process of introducing a quota to encourage domestic consumption. We export grass cutters to six countries and we import meat from Brazil.

Question 4: Elaborate more on agro-industrial parks and the products. How is the collection done?

Response: Local processors organize collection of produce

Question 5: Explain more on the issue of Ethno-veterinary versus modern veterinary knowledge

Response: Use of Ethno-veterinary knowledge is widespread, but this is not yet well documented and hence there is need for this.

Recap of session: Dr Wole

In his recap, Dr. Wole commended the presenters. He noted that from the presentations, issues of feeds, genetics, disease management and processing were key and appeared to be common among most countries. Specifically, the following were the issues in each of the countries (Table I).

Table I: Challenges to improving livestock sector by selected countries

Kenya	Ethiopia	Mali	Benin
Feeds	Rangeland management	Poor breeds	Genetics
Disease management	Feeds	Feed cost	Feeds
Grain/grass substitution	Climate change	Weak dairy processing	Processing
Processing – quality control	Disease control	Water access	
		Herders/farmers conflict	

SESSION 4: Framework conditions

Dr. Seres highlighted the following as framework conditions that influence livestock sector:

- Policy such as price incentives: It seems like policy on investments have a lot of impact
- Trade
- Crop production water use efficiency
- Infrastructure such as markets e.g. Could Livestock Management Information System (LMIS) be made more efficient?
- Consumption
- Education and skills
- Land tenure
- Others

He further stated that there seems to be a lot of emphasis on exports begging the question on whether this is correct. Where trade is concerned, there is a balancing act that is needed to avoid negative effects on the country's trade. There is also need to ensure food and feed safety.

In conclusion, Dr. Seres summed up the day's activities and gave the proposed overview of the next day's schedule. He stated that a list of issues distilled from day one deliberations could be presented and potential focus items drawn from here through group discussions.

DAY 2: 8th October 2019

Session 5: Identification of potential innovations

Participants were divided into two groups (Francophone – Benin & Mali and Anglophone – Ethiopia & Kenya) and provided with the list of issues arising from day one's deliberations.

The proposed identified innovations were thereafter presented in a plenary session as follows:

5.1.1 Issues proposed by Group 1: Ethiopia and Kenya

Feeds: Development of hay and crop residue value chain in Kenya and Ethiopia

Feeds: Youth involvement in livestock sector in Kenya and Ethiopia

Competitiveness: Policy change in export of oil crops and consequent impacts in domestic feed market in Ethiopia

Genetics: Community based genetic improvement in livestock (Sahiwal, Small ruminant) in Kenya and Ethiopia

ICT: i-COW (Kenya) and Africa Dairy Genetics Gain (Ethiopia)

Insurance: Managing risks in the livestock sector in Kenya and Ethiopia

Market integration: Pigs (Kenya) and beef (Ethiopia) value chains

5.2. Approach to documentation of identified innovations:

Following presentation by the two groups, each country was to undertake research and document three case studies following the agreed outline shown below and the expected timelines. The reports should include data (statistics), be rich and succinct, and include graphics and analysis.

Standardized Outline of Country Case studies

Each case study shall include the following in its write-up

1. Overview of the livestock sector mentioning the constraints
2. Highlight priority livestock commodities by country
3. Priority interventions for development
 - a. **Innovations**
4. Description of the innovation and context (*significant scale wise and not of necessity new*)
5. Technical and socioeconomic analyses
6. Adoption and impact
7. Trade-off analysis (Opportunity cost of resource use)
8. Potential for scaling up
 - b. **Lessons**
9. Broad implication for each country
10. Conclusion
11. Recommendation

Table 2 presents the timelines for preparation and delivery of country case studies.

Table 2: Proposed Timelines for deliverables

When?	What?
30 th Oct 2019	Consultation of key stakeholders (report conclusion)
9 th Nov 2019	Distribute presentation including selection of 3 innovations
12 th Nov 2019	Skype Call
29 th Nov 2019	First draft case study for FARA
2 nd Dec 2019	Advanced draft for FARA ZEF in English

10 th Dec 2019	Feedback of country reports
15 th Dec 2019	Advanced draft to be shared with FARA and ZEF in English

Session 6: CONCLUSIONS AND CLOSING REMARKS

Following the agreements on the outline and timelines, the following participants were invited to make their concluding remarks:

Dr Miriam Omolo (For AGRODEP)

She thanked the organizers of the two-day meeting which she stated was very informative to her team given the fact that their work involves dealing with analytical data from various databases. In this meeting, there was an opportunity to interact with researchers who are dealing with quantitative data and she observed that this was a rich and rewarding experience for her team. She indicated that there is room for synergy and this should not stop with this meeting but to be extended into the future.

Dr. Degu from Ethiopia on behalf of all participants

He expressed gratitude for having been invited to this meeting where there was an opportunity to interact with all participants and share rich experiences about the livestock sector. He hoped that there will be future opportunities to interact in this and other projects.

Dr. Seres

Expressed gratitude for the opportunity to interact with all countries involved together with the AGRODEP team. He stated that there were useful discussions on this difficult but doable task and was hopeful that all the timelines even though rather tight will be achieved.

Dr. Wole

He thanked all the participants for the good interaction and appreciated the good hospitality by KALRO and wished all participants safe return to their various destinations.

Dr. Felister Makini

She expressed her gratitude for the choice of KALRO as the host institution for the inception meeting of the livestock cluster project and was happy to hear that all enjoyed their stay and interaction. She wished all participants safe journey back to their destinations and welcomed them again to KALRO headquarters for their future meetings.

She then officially closed at 4.00 pm.

Annex I: LIST OF PARTICIPANTS

Name	Institution/Country	e-mail contacts
Dr. Fatunbi Oluwole	FARA/Ghana	ofatunbi@faraafrica.org
Dr. Carlos Seres	ZEF / Germany	carlos.o.sere@gmail.com
Dr. Tigabu Degu Getahun	Ethiopian Development Research Institute 24 79, Addis Ababa, Ethiopia	tigyget14@gmail.com/ tigabu@uni-bonn.de
Tewodros Kahsay	Ethiopia	tewodros.kahsay15@gmail.com
Dr. Patrice Adegbola	IER/Benin	patrice.adegbola@yahoo.fr
Dr. Charles Pomalegni	IER/Benin	cpomalegni@gmail.com
Alpha Kergna	INRAB/Mali	akergna@yahoo.fr
Bandiougou Dembele	AGRODEP/Mali	bandiougoud@gmail.com
Ousmane Nialibouly	INRAB/Mali	gabkolda@gmail.com
Dr. Felister Makini	KALRO / Kenya	Felister.makini@kalro.org
Dr. Lawrence Mose	KALRO / Kenya	Lawrence.mose@kalro.org
Dr. Elkana Nyambati	KALRO / Kenya	elkananyambati2010@gmail.com
Dr. Wellington Mulinge	KALRO / Kenya	Wellington.mulinge@kalro.org
Dr. Geoffrey Kamau	KALRO / Kenya	Geoffrey.kamau@kalro.org
Dr. Moussa Sall	AGRODEP/Senegal	admin@apr-institute.org
Dr. Miriam Omollo	AGRODEP/Kenya	

Annex 2: OPENING REMARKS BY DIRECTOR GENERAL & DEPUTY DIRECTOR GENERAL, CROPS

**PARI-LIVESTOCK CLUSTER INCEPTION MEETING HELD AT
KALRO HEADQUARTERS (07.10.2019)**

Dr. Carlos Seres - (Consultant ZEF)

Dr. Fatunbi Oluwole - (PARI Coordinator, FARA)

PARI-Livestock Cluster Researchers- Benin, Ethiopia, Kenya, Mali and Senegal
Ladies and Gentlemen,

It is my pleasure to welcome you all to Kenya and to KALRO, in particular for the PARI-Livestock Cluster Inception Meeting. KARIBU SANA!

We are indeed grateful to the organizers of this meeting for choosing KALRO as the venue for this important meeting. KALRO is the premier agricultural and livestock research organization in Kenya mandated to provide leadership and demand driven solutions to agricultural challenges both locally and internationally. It focuses to address the national challenges through cutting edge research and modern research methodologies and tools.

The Vision of KALRO is “Excellence in agricultural and livestock research towards transformed livelihoods. Its mission is to conduct agricultural research through application of science, technology and innovation to catalyse sustainable growth and development in agriculture livestock Product Value Chains. This is consistent with the aspirations of this meeting.

KALRO comprises 16 Institutes (six of which are livestock institutes) with 47 research centres scattered all over the Country. It has a staff complement of about 3,000 staff, among them 600 research scientists. To enable the organization achieve its mission, it works with partners, among them FARA and Centre for Development Research (ZEF).

It is in this spirit that we in KALRO are grateful to ZEF and FARA for choosing our institution to be part of the research on “increased demand for livestock derived foods”. The livestock subsector in Kenya is diverse, dynamic and a significant contributor to economic development. Its importance is recognized in food and nutrition security, employment, manufacturing, crop-livestock conservation, trade and livelihoods, among others. Through, these linkages, it is my considered opinion on that research outputs generated from Kenya will contribute significantly to the advancement of the livestock sector development not only in Kenya but also Africa as a whole by providing information and contribution of knowledge.

Ladies and Gentlemen,

With those few remarks, now let me take this opportunity to thank representatives of the various PARI livestock cluster countries and other participants for taking time off their busy day to day engagements to come and participate in this important research activity by wishing you fruitful deliberations during the meeting. It is my hope that the two- day meeting will yield the desired objectives. Finally, let me wish all of you a wonderful stay in Kenya.

Thank you and be blessed,

DDG- Crops, KALRO

Annex 3: Conceptual Framework

Potential and drivers for livestock production in Africa

Carlos Seré

Problem statement and state of research

Livestock production intersects with a range of broad societal issues ranging from its contribution to GHG production and climate change to food safety issues to livelihoods issues to youth employment to its role in nutrient cycling and biomass use, to health issues related high levels of red meat consumption, to dependence on international trade.

IPCC's latest report "Climate Change and Land" describes the multiple interactions between land use, farming, food systems and climate change. These interactions clearly imply a need to take a broader view of innovations and investments in the livestock sector.

These issues are global in nature but trade-offs are particularly complex in sub-Saharan Africa due to the high GHG emissions intensity of extensive ruminant production, the key livelihoods issues linked to pastoralism and smallholder livestock systems, the present low levels of per capita consumption of animal source foods and the ongoing growth of population and incomes leading to rapid growth of total demand, the limited hard and soft infrastructure to handle the expected transformation of the livestock sector over the coming years.

Key questions the study aims to address

This study starts from the premise that animal source foods will be in high demand on the African continent for the next decades driven by population growth, urbanization and economic development.

This paper seeks to provide guidance to policy makers, private and public investors on particularly promising innovations in the African livestock value chains and their context that could enable a transformation of the African livestock economy taking into account its multiple trade-offs and co-benefits. The study aims to provide private and public decision makers with guidance on investment opportunities building on a review of broad trends of the African livestock development and more in-depth analysis of success stories in selected countries to encourage wider lesson-learning and knowledge-sharing. In terms of a theory of change this information should contribute to reducing the risk of such investments and thus increasing the attractiveness of them.

Starting hypotheses

- I. Consumption of poultry will continue to grow rapidly on the African continent. The market will be supplied by poultry imports or by domestically produced poultry (and to a lesser extent pork) based to a significant extent on imported feed in peri-urban areas close to ports. The competitiveness of domestically produced feed and the import

policies for feed and for poultry will determine whether domestic poultry production will be competitive.

2. The composition of the meat consumption will evolve in a similar way to what has happened in the rest of the world: total per capita consumption will continue to grow for the foreseeable future, the share of poultry will grow significantly, in some settings pork production will expand and generally the share of ruminant meat will decline.
3. The domestic price of cereals is the key driver for this transformation. The domestic price ratio of cereals to animal source protein reflects the aggregate hunger situation and the degree to which humans and animals compete for calories and plant protein as food/feed.
4. Plant protein sources are another critical input. The capacity to develop soybean production on the African continent will be critical factor. The development path will not follow the Brazilian Cerrados experience because Brazilian technology is based on the use of GMO varieties adapted to the tropics.
5. Dual-purpose food feed crops and specific dual-purpose varieties will play an important role in the intensification of mixed crop-livestock systems.
6. The region is a net importer of animal protein. The future competitiveness of domestic livestock production, particularly poultry will be critically determined by the import policies for cereals and animal products. Structural protection of the domestic markets due to poor port facilities can be expected to decline over time as economies grow and infrastructure improves.
7. The development of a Pan African Free Trade Zone has the potential to significantly change trade flows of feed and animal products within the continent, if transport infrastructure is upgraded.
8. Food safety will increasingly be demanded by urban middle classes, This will enable investments in post-production such as hygienic slaughtering facilities, packaging, cold chains, traceability, etc
9. In more land-locked situations production based on locally produced by-products of cereal and oilseed production (cereal brans, oil-cakes, etc) will have a higher probability of being competitive with imports. This development will depend critically on the growth of the crop sector and on the organizational infrastructure to cost-effectively aggregate production and process it. Innovations such as feed additives, enzymes, aflatoxin management, small scale feed mixing equipment, feed testing laboratory services, distribution systems for inputs such as feed supplements, veterinary drugs, can increase productivity and competitiveness of the sector.
10. In the medium term the development of the feed market will stabilize the cereals and oilseeds markets by expanding the capacity to put cereals to diverse uses beyond direct human consumption (e.g. animal feed, biofuels) and thereby by increasing price elasticity for these crops.
11. Ruminant livestock systems based on rangeland utilization will remain an important segment of the rural economy. Overall efficiency may be increased by combining extensive rearing of young animals with more intensive finishing in feedlots close to urban demand.

12. Dairy production will develop more selectively in environmentally suited locations, particularly in highland areas.
13. Rangelands can potentially provide additional environmental services such as carbon sequestration, biodiversity and wildlife conservation, water conservation if effective incentives can be provided.
14. Climate change will play a major role in development of the African livestock sector. Adaptation to CC in ruminant livestock systems will be driven by changes in vegetation growth (particularly changes in crop production in mixed systems) and will be of quite location specific. Mitigation will include multiple technological interventions to reduce emissions intensity and will tend to increase the competitiveness of monogastric species vis a vis ruminants.
15. Backyard production of poultry and pigs within large urban conglomerations with low per-capita income will continue to be a major challenge for local and national governments to manage.
16. Overall livestock sector growth will be largely driven by investments in infrastructure (roads, ports, energy, storage, communications)

Methodology

I. Status and potential of livestock production

Brief review of the African livestock sector with emphasis on what is changing in the sector and in the environment: changing trade regimes, demographics, climate change considerations, NAMAs with livestock, urbanization and economic growth, changing consumption patterns, changes in composition of animal product consumption (poultry vs ruminants, growth in pig production, role of bush meat, etc
 this chapter is based on a literature review, use of country level data to develop indices to identify countries having been particularly success in sustainably developing their livestock sector as well as identifying countries with particular untapped potential.

Outline of this chapter:

- a) For each major commodity (chicken, pork, beef, total meat, dairy)

Statistical tables for SSA (data by country possibly excluding SA) FAOSTAT, RESAKSS

- Consumption (total, per capita, growth rates, latest 20 and 5 years)
- Production (total, productivity per head, growth rates, latest 20 and 5 years)
- Trade: net trade, self-sufficiency, growth rates

- b) Feed situation: cereals and cereal by-products, oil-cakes, supplements

- c) Major production systems and their evolution over time (based on outputs of existing models IIASA, etc)
- d) Trends in the provision of veterinary services
- d) Climate change and Africa's livestock sector

2. Identification of top 10 countries with the most dynamic and sustainable livestock sector (success stories)

Approach: creation of a synthetic index using some of the following variables:

Rank countries by growth rate of total meat production, total dairy production, possibly use per capita growth rates of production

Possibly create a weighted index of meat and dairy production growth???? E.g growth or per capita growth of total animal protein production

Need to include variables reflecting the sustainability dimension.....

3. Identification of top 10 countries with potential for growth

Approach: creation of a synthetic index using some of the following variables:

- Growth in per capita consumption (total meats, or each individual? Dairy (milk equivalents)

- Population growth

- Urbanization growth

- Growth of per capita income

- Growth of the domestic feed availability

- Price ratio of feed to livestock output

- Rate of decline of hunger index or other indices of food security (FAO or IFPRI)

- Doing business in agriculture index

- Importations per capita, level and or growth rate

- Public expenditure in agriculture or preferably in the livestock sector (ASTI data)

- Conduciveness of policy environment for livestock development

- Proxi for climatic conditions suitable for livestock production (possibly a combination of length of growing period, amount and seasonality of rainfall, etc)

Some proxi for livelihoods/jobs in the livestock sector?????

Based on these two rankings of countries, initial conclusions on investment priorities will be drawn. These will feed into the process for selection of innovations to study in detail in the country case studies.

Chapter 2 Lessons from livestock sector development in selected African countries

Case studies will be developed by national teams. These may vary in composition depending on the nature of the issues to be addressed.

Broadly standardized terms of reference and outlines for these country studies will ensure comparability and synthesis of the findings. These TORs will be agreed upon at the inception workshop in early October. Country reports will be peer-reviewed by the other country teams....

Selection of innovations to study in depth:

For each of the four country studies a small expert consultation will be organized early in the process (November) to identify most promising innovations and investment opportunities. This consultation will involve a range of stakeholders:

Government officials (policy, animal health, animal production, food safety)

Farmer organizations (by subsector, poultry commercial, dairy commercial, pastoralists)

Private sector (input suppliers, processors, traders, supermarkets, feed industry, importers, exporters)

Research and extension services

Development partners active in the livestock sector

NGOs related to the livestock sector

Banks, financial sector, IFIs financing

Ideally this should be a focus group-type exercise. Participants would get an invitation letter providing background to the purpose, and expected outcomes. Possibly a 3 to 4 - hour event.

A draft report of this meeting would be shared with participants and those key stakeholders not being able to attend for their reactions thereby seeking a Delphi-type convergence of views of the experts. All contributors would receive copy of the final country report.

Each national report would include:

1. Brief overview of the national livestock sector and its recent development, including the evolution of the policy environment and a description of major innovations

2. Analysis of major factors contributing to the success

3. Potential for further development and scaling
4. Lessons for other countries potentially wishing to apply similar innovations

The national reports should aim for a length of 40 to 50 pages maximum.

The synthesis report of the study will include the first chapter described above, a brief summary of the country case studies and a final chapter drawing the lessons from the cases and developing broader guidance on priority innovations to drive the sustainable growth of Africa's livestock sector.

Tasks:

Carlos Seré will

- Lead the development of a conceptual framework for the research
- Coordinate the research activities, including the research relationship with partners
- Harmonization and quality control of research results
- Lead the writing of the final report
- Undertake research visits to Africa incl. to ground-truth research findings

ZEF will

- Provide input into the conceptualization and review of the research
- Manage contractual arrangements with and payments to partners not currently engage in PARI, incl. ensuring timely submission of deliverables
- Disseminate the research results

FARA will

- Manage contractual arrangements with and payments to national partners
- Ensure timely submission of deliverables by national partners
- Review draft outputs

National partners will

- Undertake country studies using harmonized terms of reference for all countries
- Assist in the collection of national data
- Facilitate research visits and access to local partners
- One country to host a planning workshop to jointly develop the research plan
- Assist in ground-truthing and disseminating the research results

Timeline

Chapter 1	30 September
Country studies for Chapter 2	15 December
Full report	28 February

Annex 5: Agenda & Programme for Livestock research planning meeting

The workshop will bring together the research teams involved the following research outputs:

1. **Overview study** (Carlos Sere) which
 - a. provides a general introduction to the state of the livestock sector in Africa
 - b. identifies the countries that have made most progress in developing their livestock sector
 - c. identifies the countries with the highest potential for livestock sector development
2. **Country case studies** in Kenya (KALRO), Ethiopia (ILRI/PSI), Benin (INRAB) and Mali (IER) to draw Lessons from livestock sector development in the respective country
3. **Country-level mapping** (AGRODEP) of high-potential areas for livestock sector development in Mali and Ethiopia

Meeting objectives:

- Agree on a common conceptual framework for the livestock research
- Identify linkages/synergies between the Country Case Studies and the AGRODEP research
- Develop a common research approach for the Country Case Studies carried out in Kenya, Ethiopia, Mali and Benin

Expected output:

- Agreement on mode of collaboration between teams
- Annotated outline and common research methods for Country Case Studies
- Clear timeline and responsibilities

Day 1: 7 October

Session 1: Introduction to the research activities <i>Chair: Dr. Oluwole Fatunbi</i>	
9:00	Welcoming words by KALRO and FARA representatives
9:15	Introduction of participants
9:30	Overview of the concept note and research approach (Carlos Sere)

9:45	Overview of the AGRODEP modeling approach
10:00	Discussion
10:30	Coffee break
Session 2: Introductory presentations of the national teams and AGRODEP These presentations by the respective country teams will describe the recent development of the national livestock sector and will address major innovations impacting it.	
10:45	Kenya (KALRO)
11:15	Ethiopia (ILRI/PSI and AGRODEP)
12:00	Mali (IER and AGRODEP - tbc)
12:30	Benin (INRAB)
13:00	Lunch
Session 3: Development of a common conceptual framework and research approach Chair: Carlos Sere	
14:00	Brainstorming on framework conditions that influence livestock sector development (incl. feed availability) in the areas of <ul style="list-style-type: none"> • Policy • Trade • Crop production • Infrastructure • Consumption • Education and skills • Land tenure • Others?
17:00	Assessment of progress of day 1 and adjustment of the agenda for day 2
17:30	Adjourn (Group dinner at)
Day 2	
9:00	Re-cap of day 1
Session 4: Identification of promising innovations in the livestock sector	
9:15	Work in two small groups:

	<ol style="list-style-type: none"> 1. What key technological and institutional innovations that have proven successful in your respective countries? 2. Which factors have contributed to scaling these innovations?
11:00	<i>Coffee break</i>
11:15	Presentation and discussion of group outputs
13:00	<i>Lunch</i>
Internal session for case study countries	
14:00	<ol style="list-style-type: none"> 1. Development of an annotated outline for the country reports 2. Research methods to identify success factors and assess potential: <ul style="list-style-type: none"> ○ Qualitative (focus groups, key informant interviews etc) ○ Quantitative (modelling, mapping, secondary data analysis) 3. Development of the approach on how to working collaboratively, share and review outcomes across country teams 4. Timeline for the execution of the project and review of individual commitments 5. Any other business
17:00	Closing