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Livestock sector training needs assessment report for Southern Africa

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LIVESTOCK SECTOR TRAINING NEEDS ASSESSMENT REPORT FOR SOUTHERN AFRICA

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Acronyms

ACP	Caribbean and Pacific
CBOs	Community-based organizations
CBPP	Contagious bovine pleuropneumonia
CGIAR	Consultative Group on International Agricultural Research
CTTBD	Centre for Ticks and Tick-Borne Diseases
EC	European Commission
FANR	Food, Agriculture and Natural resources
FARA	Forum for Agricultural Research in Africa
FMD	Foot and Mouth Disease
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
IAEA	International Atomic Energy Agency
IFAD	International Fund for Agricultural Development
ILRI	International Livestock Research Institute
IPCC	Intergovernmental Panel on Climate Change
LDT	Livestock Development Trust
LLPs	Livestock and livestock products
NARS	National Agricultural Research Systems
NGOs	Non-governmental organizations
OIE	Oficina Internacional de Epizootias (Spanish)
PRINT	Promotion of Regional Integration
RUFORUM	Regional Universities Forum for Capacity Building in Agriculture
SACU	Southern Africa Custom Unit
SADC	Southern Africa Development Community
SPS	Sanitary and Phytosanitary
TADs	Transboundary Animal Diseases
TBT	Technical Barriers to Trade
TNA	Training Needs Assessment
TORs	Terms of reference
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development
WTO	World Trade Organization

Preface

The recent World Development Report concluded that in the 21st Century, for the agriculture based countries, agriculture continues to be a fundamental instrument for Sustainable Development (World Development Report, 2008). The lack of capacity has been a major limiting factor in a wide range of development programs and initiatives that have failed in the past.

Research-based capacity building is a core priority of ILRI because of the important role that research plays in economic growth and development as well as in addressing the rapid changes in bio-physical, socio-cultural, technological and the policy environments of the agricultural innovation systems in the developing as well as the developed world.

An effective innovation system in the livestock sector requires a cadre of professionals with a specific skill mix. The changing paradigms and the ongoing transformation processes within the agricultural research and development system are calling for a changed behaviour of the change agents. To be relevant any capacity strengthening activity should be geared towards some specific outcomes. These outcomes are tied to skills and performance levels of the various actors in the innovation system. Capacity strengthening therefore should contribute to the overall performance of individuals, organizations and the society at large and should support the strategic directions of agricultural research for development and the broader developmental goals.

As a development input, capacity strengthening is a dynamic phenomenon that must always be present, but should truly reflect the changing conditions and ongoing transformations. To make the capacity strengthening activities more relevant in addressing the needs of the livestock innovation system the capacity strengthening unit of ILRI, in collaboration with the Food Agriculture and Natural Resources (FANR) sector of the Southern African Development Community (SADC), conducted during 2007 a livestock training needs assessment for SADC region. The preliminary findings of this study were presented and validated at a multi-stakeholder workshop held in Johannesburg, South Africa. This report is a synthesis of the findings of the livestock training needs assessment study and the recommendations of the multi-stakeholder workshop.

This task would not have been possible without the support and commitment of a number of individuals. We would like to appreciate and acknowledge the contributions made by Drs JW Banda and JA Kazembe of the University of Malawi, Bunda College and Moyo Siboniso, ILRI's Regional Representative in Southern Africa, in conducting this study and preparing this report. All organizations and individuals who responded to the survey questionnaire and attended the consultative workshop are recognized for spending their valuable time and for making significant contribution towards this study. The support and continuous encouragement provided by ILRI senior management is also gratefully acknowledged and appreciated. We also sincerely thank WK Kellogg for providing financial support to complete this study.

We recognize that the regional priorities identified in this document need to be complemented with focused national and sub-regional activities. It is our sincere hope that the findings of this study will pave the way for developing and implementing the livestock-related capacity strengthening activities in the SADC region. We will make every effort to support the national and regional initiatives in implementing these priorities.

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Executive summary

1 Introduction

Livestock in the SADC region is an important sector of the agricultural production accounting for some 20 to 40% of the agricultural GDP. A training needs assessment was instituted to identify priority learning and capacity strengthening activities to be facilitated and/or undertaken by ILRI in order to improve performance of the sector. To achieve this objective, the study involved desk work to review grey literature, a questionnaire to collect primary data and consult key stakeholders, and a consultative workshop to consolidate and reach consensus on regional training needs.

2 Key findings

2.1 Livestock development priorities and training needs

Priority needs in animal production and target groups

Animal production requires a vast array of skills. The study showed the most important among them including skills in animal production, feed analysis and formulation, genetic conservation and improvement, and farm economics, prioritized in that order. The most important target stakeholders for training in these areas include researchers, extension workers, farmers and farm organizations, the private sector, NGOs and trainers.

Animal health, priority needs and target groups

Emerging diseases were identified as the most important issues in animal health. Dealing with this issue requires skills in identification, surveillance, eradication and control. The most important skills needed in the region include diagnosis and surveillance. Educators/trainers, extension workers and farmer organizations were suggested as the most important stakeholders for training.

Market/trade, SPS and TBT, priority needs and target groups

Regional and international trade in livestock requires meeting specific standards and norms. Key issues affecting market/trade, SPS and TBT require skills in quality control, enforcement, market value chain analysis, and impact orientation. More skills are needed in interdisciplinary research planning and implementation, participatory research, impact assessment, monitoring and evaluation, value chain analysis, and value addition. Skill gaps in most NARS in the region exist in these areas and require capacity building and/or capacity strengthening.

Emerging challenges, priority needs and target stakeholders

The SADC region is susceptible to climate and climate change demanding the need to develop technologies for adaptation. Thus, skills in integrated agricultural research for development, innovation systems, and development of mixed crop–livestock systems are needed to cope with impacts of climate change. Specific technical skills are needed in integrated systems modelling, surveillance, diagnosis, mapping climate change and vulnerability assessment and developing adaptation measures.

Additional soft skills

Both literature and the survey suggested the need to equip individuals with specific skills in project and research proposal writing. The need for skills in proposal writing was suggested in the context of

generating fundable projects as many NARS of the livestock and agriculture rarely get sufficient funding for research.

The need for information systems was echoed in both the survey and the literature. The need to set up information systems with up-to-date information at both regional and national scale is necessary. As such, skills are required for proper management of the information systems especially at the national departmental livestock units.

Computer proficiency, GIS, policy formulation, human resources management, project design, planning, monitoring and evaluation, and skills in leadership as well as decision-making were suggested by many respondents. In addition, skills in livestock entrepreneurship are needed among university graduates to enable them undertake commercial livestock production in their future career endeavours.

2.2 Capacity building and strengthening activities for SADC

1. Establishing and coordinating sustainable resource mobilization mechanisms for capacity building of the region, e.g. initiate post-graduate fellowships
2. Building teams to address regional livestock issues identified in the workshop
3. Facilitating training of trainers programs for the region in collaboration with international partners
4. Ensure access to information among farmers and the general public on regional emerging issues such as diseases and regional livestock market dynamics
5. Facilitating regional integration in regional training programs, accreditation of programs, monitoring and evaluation and quality assurance and harmonization of different degree programs in the region.

2.3 Capacity building and strengthening activities for ILRI

1. Facilitating strategic formation of regional strategic partnerships in livestock research training
2. Initiating and facilitating the process of developing relevant training modules on SADC training priorities identified in priority areas of animal production, animal health, emerging challenges and SPS and TBT
3. Initiating and facilitating resource mobilization specifically for training programs
4. Training various stakeholders in collaboration with training institutions in the region including NARS, colleges, institutes and universities.

3 Major conclusions and recommendations

This study has identified a number of capacity building/strengthening activities to be facilitated and/or undertaken by ILRI in the region. The activities include documenting existing capacity building/strengthening initiatives in the region, developing learning materials based on training needs identified in this study, training NARS and conducting training of trainers among NARS. The study further identified potential partners in capacity in these activities including NARS, universities and the SADC Secretariat. To undertake the activities, the following recommendations were made for both the SADC and ILRI.

1. Through process of literature review (desk study), questionnaire survey and consultative workshop, a number of key priority areas for the SADC are recommended and the major training needs are as follows:
    - Animal production
        - management practices
        - feeds and feeding
        - breeds and breeding
        - economics of production
    - Animal health
        - emerging diseases
        - identification and surveillance

- SPS and TBT
  - compliance with specific standards and norms
  - HACCP to be in place or manufactured
  - standards and norms (codex)
  - products of animal origin confirmation to standards and norms
- Emerging challenges and changing paradigms
  - value chain analysis
  - market orientation and implications for research and development
  - climate change impact assessment and adaptation strategies
  - integrated crop–livestock management
  - strategic planning

2. The ILRI training program should be focused, collaborative and participatory in order to address relevant issues revealed in this study in terms of scope of training areas. ILRI should start a process of developing strategic partnerships and networking for collaboration with other regional stakeholders in training.
3. Training programs should be initiated on the basis of best practices. ILRI in conjunction with SADC secretariat should document past and/or current best practices in capacity building and capacity strengthening initiatives in the region for lessons.
4. ILRI in collaboration with regional training institutions should start developing information packages, i.e. modules for priority training areas of animal production, animal health, trade/ marketing and climate change and adaptation.
5. Past training programs have been *ad hoc* or project-based and therefore lacked continuity due to limited funding. SADC should collaborate with ILRI to facilitate creation of sustainable funding mechanisms for capacity building and capacity strengthening activities.
6. The study reveals an urgent need for capacity strengthening. ILRI in collaboration with SADC should mobilize resources and start training personnel at regional level who could train others at both regional and national levels considering the vast number and diversity of people to be trained.
7. ILRI in partnership with SADC should conduct training needs assessment and capacity building and strengthening needs in emerging issues and disseminate all stakeholders.

1 Introduction

Livestock are important in supporting the livelihoods of poor farmers, consumers, traders and labourers throughout the developing world. In the SADC region, livestock is an important sector of the agricultural production accounting for some 20 to 40% of the agricultural GDP. Livestock provides a steady stream of food and income, helps to raise farm productivity and, for many, offers a livelihood option available as they exploit common resources for private gain. An estimated 70% of the rural poor are vulnerable groups including women and children for whom livestock play an important role not only by providing a source of income but also by conferring status. Livestock also creates opportunities for employment beyond the immediate household. Improvement of livestock productivity in the region has considerable potential for poverty alleviation, in particular for small stock (small ruminants, pigs and poultry), forming a large part of traditional livestock production, and involving a great number of women. More importantly, livestock help the poor communities during shock periods such as drought. In addition some countries in the region use livestock as a source of draught power for tillage.

1.1 Features of the SADC livestock sector

The current livestock population in the SADC region is largely dominated by ruminant species estimated to be 47 million cattle, 28 million goats, 31 million sheep, and roughly 245 million poultry. Recent statistics indicate very low or negative growth rate for cattle, but reasonable growth for sheep and goats. More than 75% of these animals are raised under the smallholder traditional systems, where livestock ownership sustains livelihoods of an estimated 150 million rural poor in the SADC region.

Characteristics of the livestock subsector vary substantially between SADC member states in respect of economic relevance and livestock technology. Five SADC states have, for instance, meat-processing facilities that are certified to handle meat for export. Although the region has not been able to take full advantage of the beef protocols of the successive Caribbean and Pacific (ACP)–European Commission (EC) agreements recently, exports to the EU markets nevertheless generate a significant flow of resources to the relevant economies. Deregulation of marketing of livestock products, mostly undertaken in the 1990s, has improved prospects for an increased intra-regional trade.

Regional collaboration has in the past mostly taken place in combating major transboundary animal diseases like foot and mouth disease, contagious bovine pleuro-pneumonia, trypanosomiasis and tick-born diseases. Through this collaborative effort, specialist expertise has been developed in some institutions (regional centres of excellence): Centre for Ticks and Tick-Borne Diseases (CTTBD, Lilongwe, Malawi) in epidemiology and other matters beyond its initial focus; Lobatse Meat Inspection Training Centre (Botswana); Tsetse and Trypanosomiasis Control Centre in Zimbabwe.

1.2 Background to the study

The International Livestock Research Institute (ILRI) is in the process of preparing its learning and capacity strengthening strategy and policy. Its Capacity Strengthening Unit is designed to build and strengthen the scientific knowledge and technical capacity for National Agriculture Research Systems (NARS), scientists and technicians in developing countries. The livestock sector in the sub-Saharan African countries has seen an enormous attrition of the individual and organizational capacity. ILRI works at the crossroads of livestock and poverty, by bringing high quality science and capacity building to bear on poverty reduction and sustainable development. As part of the research-based outreach and capacity strengthening, ILRI offers opportunities for long- and short-term training for research and development practitioners within the agricultural innovation system, and value chains focusing on livestock related issues.

Capacity strengthening is defined as the process by which individuals, groups, organizations and societies increase their ability to: perform core functions, solve problems, define and achieve objectives and understand and deal with their development in a broader context and sustainable manner. Without critical mass of well-trained professionals, the quality and quantity of research will diminish, as will the return to the global investments in agriculture and the reform agenda. The term capacity strengthening or capacity development does not imply that there is no capacity in existence; rather it includes the building up, strengthening and developing the required capabilities to meet immediate and future needs. Capacity strengthening is an ongoing process and it has direct links with human development. As a development input, capacity strengthening is a dynamic phenomenon that must always present, but truly reflect the changing conditions and ongoing transformations. Capacity strengthening is about empowering people on a sustained basis. This can happen by developing competencies (skills, knowledge, and attitudes) that will enable people to develop themselves. To be effective, such a strategy should be based on: broad-based participation, long-term investments and integration of activities at various levels to address complex problems. One of the key activities should be provided to enhance the productivity, performance and impact of individuals, organizations and the society at large. Against this backdrop, ILRI instituted a Livestock Training Needs Assessment for the SADC region. Procedures and methodologies, key findings of the study, and recommendations are presented in this report.

1.3 Purpose and objectives

The purpose of this study was to identify the priority learning and capacity strengthening activities to be facilitated and/or undertaken by ILRI. Based on Terms of Reference (TORs), the objectives of the study were therefore to:

- Conduct a livestock training needs analysis in the SADC region
- Identify the priority learning and capacity strengthening activities of the subregion
- Identify the priority capacity strengthening activities to be undertaken/facilitated by ILRI in the SADC region
- Identify the potential partners and collaborators for the learning and capacity strengthening activities in the region.

1.4 Procedures/methodology

1.4.1 A desk study

A desk study was conducted to synthesize secondary information in order to identify critical issues affecting the livestock sector in the southern African region. The desk study also identified training needs from previous studies. Internet web search was done to access more information about the livestock sector in the context of the SADC region.

1.4.2 Questionnaire

A total of 58 questionnaires were sent to SADC member states 47 of which were returned completed. These questionnaires were developed in accordance with the terms of reference (Appendix A). Additional questionnaires were also distributed to Deans as well as Vice Chancellors belonging to the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM) that convened in Maputo, Mozambique, from 26th to 29th August 2007. Most questionnaires were sent through email except for those administered in Malawi. Taking advantage of proximity, the Livestock Department in Malawi was consulted specifically to discuss issues of livestock relevant to the country. Appendix B displays details of the people who were consulted and some of those who responded to the questionnaire and the countries where the questionnaires were sent. The consultants also took advantage of the workshop participants and administered the questionnaire among those who did not respond to it. Countries which responded

to the questionnaire are as follows: Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.

1.4.3 Consultation workshop

A three-day workshop drawing participants from SADC member states was organized and took place in Johannesburg in October 15–17, 2007. A total of 26 participants attended the workshop. The workshop aimed at achieving the following objectives:

- To share the preliminary findings of the livestock TNA study as generated from the survey questionnaire and desk study
- To seek consensus on the priorities and opportunities for learning and capacity strengthening
- Based on the outcome of the workshop, to develop a long-term capacity strengthening strategy for SADC region and for ILRI.

The workshop scheduled five major presentations to form the basis for group discussions. The presentation bordered on the following thematic areas:

- Livestock research and development priorities of SADC
- ILRI's proposed livestock research and development priorities in the region
- Learning and capacity strengthening at ILRI and the long-term strategy
- Preliminary results of the training needs assessment study
- Priority areas: Training needs assessment report (PRINT project).

2 Results and analysis

2.1 SADC livestock research and development priorities

The SADC livestock research and development priorities focus on three main areas of animal production: animal health, management, conservation and utilization of the farm animal genetic resources. The animal production addresses problems of mixed, peri-urban and agropastoral systems. Training needs as suggested by the PRINT report on animal production focuses on production systems and production of marketable surplus and micro-economics at farm level.

The livestock health component includes organization of the veterinary services and progressive control and effective prevention of transboundary animal diseases. Besides inadequate animal disease control and husbandry, lack of marketing infrastructure and information, lack of harmonized policy and strategy and inadequate capacity for coordination affect the livestock sector in the region. This chapter further analyses these issues based on results from the literature review and questionnaire. The chapter also identifies areas which require enhancing knowledge and strengthening skills to enable various categories of stakeholders to address these issues.

2.2 Animal production issues and training needs

2.2.1 Limited production technologies

Most respondents indicated that slow technology advancement has derailed livestock production in the region. In particular, techniques used to improve production, nutrition, breeding initiatives, and product quality are required. The challenge is to identify innovative and appropriate technologies that can be used at farm level and that do not necessarily require expensive or complicated infrastructure. Out of 10 countries, 7 expressed concern over the absence or lack of research to generate knowledge on the best practices in integration of livestock systems with non-livestock systems and integration of wildlife–livestock systems. These areas have not been fully pursued in many countries chiefly due to lack of knowledge and skills. Complementary to that, lack of sustained uptake of such technologies by end users curtails progress in this field. In general, basic skills in livestock production require attention, e.g. appropriate feeding, breeding and animal management practices.

2.2.2 Rangeland degradation

Some respondents of the questionnaire suggested overgrazing as one of the factors affecting livestock production in pastoral systems. Similarly, the literature on overgrazing is vast and indicates it as one of the most pervasive causes of reduced livestock productivity in the rangelands (IFAD 2003). Soil erosion specifically in rangelands is likely to exacerbate, and at worst degraded areas may not return to the original state even when rested for decades (O'Connor 1991). Bush encroachment prevalent in semi-arid rangelands has been attributed to the effects of overgrazing. Other factors have been also implicated in promoting shrub invasion (Humphrey 1987). Recently, bush encroachment is presumably speculated in the context of increasing global levels of atmospheric CO_2 (Weigand et al. 2006; Tietjen and Jeltsch 2007) although others have argued to the contrary (Bond et al. 2003). While the causes of shrub invasion are variable and often poorly understood the consequences are generally counterproductive. Rangeland degradation is complex requiring skilled human resources to assist the region in decision-making that have a bearing on livestock production.

2.2.3 Animal production training needs

During the workshop discussion, skills in animal production were identified and prioritized (Table 1 and Appendix F). Major areas of animal production included mixed crop–livestock systems and pastoral systems. For the purpose of collaboration, various current training providers were also identified. The most important gaps in animal production include limited number of personnel experienced in animal production, skills in vulnerability assessment, integrated modelling. Regional universities and colleges are providing training in these fields. Priority areas based on various stakeholder needs are given in Appendix F.

Table 1. *Animal production priority areas, skill gaps and current training providers*

Priority	Specific skills needed	Providers
Animal production		
Management practices	Animal production	Consultative Group on International Agricultural Research (CGIAR)
Feeds and feeding	Feed analysis and formulation	CGIAR, regional universities, colleges and commodity groupings
Breeds and breeding	Genetic conservation and improvement	
Economics of production	Farm management	
Pasture and pasture production	Analyse and interpret data, for example, animal performance and pasture production data, and pasture management	
Production systems	Integrated systems modelling	
Pastoral systems—vulnerability and sustainability	Grazing and grazing practices (rangeland management), vulnerability assessment, integrated modelling and enhancing sustainability of pastoral systems	

2.2.4 Target groups

Except for policymakers and research managers, all stakeholders including extension workers, farmer organizations, educators/trainers and NGOs require training in production (Appendix F). Other areas of priority in animal production and the corresponding target groups are also displayed in Appendix F.

2.3 Animal health, priority issues, training needs and target groups

2.3.1 Key animal health issues

Zoonoses like brucellosis, tuberculosis, and foot and mouth disease are major problems in SADC and require urgent attention. Transboundary animal diseases (TADs) comprising rinderpest, contagious bovine pleuropneumonia (CBPP), foot and mouth disease (FMD), African swine fever, Newcastle disease (ND), avian influenza (AI), Rift Valley fever and lumpy skin disease have serious socio-economic impacts with regard to trade in livestock and livestock products (LLPs). The SADC region, notably South Africa, Swaziland, Lesotho, Botswana, Namibia and Zimbabwe, has enjoyed good economic opportunities for intra- and inter-regional trade in LLPs after having eliminated rinderpest and CBPP. Angola, Malawi, Zambia, Mozambique and Tanzania have not been able to participate in this trade on a large-scale due to the continued risks and/or occurrence of FMD and CBPP. The PRINT training needs assessment report (2006) suggested epidemiology with special emphasis on emerging and transboundary diseases as a priority area for professionals in animal health.

2.3.2 Animal health priority training needs and target groups

Emerging diseases and the corresponding priority areas for training was rated the most important issue in dealing with animal health (Table 2 and Appendix F). There is lack of ability to establish epidemic surveillance systems or networks. There is equally inadequacy in knowledge to deal with emerging diseases, i.e. HPAT. This issue is compounded by other related issues such as:

- Lack of striking public/private partnerships in developing sustained vaccines to be made available at cheaper cost to the livestock producer
- Diagnostic facilities that expedite laboratory analyses and quicken response to producers' queries/ needs.

The target groups (stakeholders for training) include researchers, extension workers, farmer organizations and trainers.

Table 2. *Animal health training needs in order of priority and current training providers*

Priority	Specific skills needed	Providers
Animal health		
Emerging diseases	Diagnosis and surveillance	OIE (World Organization for Animal Health) and IAEA
Identification	Diagnostic	
Surveillance	Surveillance skills	
Eradication	Control	
Control	Mobilization and enforcement	

2.3.3 Target stakeholders

The most important stakeholders for training in animal health were suggested as researchers, extension workers, farmers and farmer organizations, and educators/trainers.

2.4 Markets and trade

2.4.1 Key issues in SPS and TBT

Intra-regional trade in livestock and meat is currently confined to only a few countries, specifically members of the Southern Africa Customs Union (SACU). South Africa is the major regional market, although it is in itself an important exporter of livestock and meat to the region. The overriding importance to smallholder dairy development of effective milk collection and marketing strategies is one of the critical issues. Information exchange and networking on the lessons learnt on appropriate marketing strategies is a key topic to be addressed through the continuing interactions amongst the countries of the South. This calls for the need to equip personnel of the region with skills in regional priority areas which were identified during the workshop (Table 3). Major gaps exist in participatory research and extension skills in marketing. The workshop discussions further identified various priority training needs and the target stakeholders for training (Table 3 and Appendix F). There was a general agreement from nine countries on the lack of information generation related to livestock markets as well as knowledge on adding value and chain analysis. This was a result of lacking marketing intelligence skills. The problem was critical especially among producers. Local farmers lack basic skills in processing and marketing.

Table 3. *Market/trade priority areas, skills needed and current regional training providers*

Priority	Skills needed	Providers
SPS and TBT		
Compliance with specific standards and norms	Enforcement skills	World Trade Organization (WTO), universities and colleges
Ensure HACCP concept is in place or manufactured	Quality control	
Product certification	Quality control	
Standards and norms (codex)	Awareness	
Products of animal origin conform to standards and norms	Awareness, handling, processing and trade	
Market value chains		
Participatory market chain analysis methodologies	Participatory research and extension skills in marketing	Commodity groupings, universities, colleges and ILRI
	Facilitation skills at grassroots level	
Marketing and market development	Market research and product development	

2.4.2 Target stakeholders

Priority areas in issues of SPS and TBT include compliance with specific standards and norms and ensuring food safety through Hazard Analysis and Critical Control Points (HACCP) approach. Specific skills required include quality control, awareness and enforcement. The target groups for training are extension workers, the private sector, trainers, policymakers and farmer organizations.

2.5 Emerging challenges and training needs

2.5.1 Key emerging issues

Emerging challenges include disease outbreaks but these have been addressed under animal health section. In this section we address climate change as a matter of focus. The SADC region faces well-documented challenges in maintaining and, indeed, improving food security in the light of multiple stresses. Climate stress, in particular, has received a great deal of attention as an external stress that can compromise the ability of the region's agricultural sector to sustain production. The USAID project 'Mitigating the effects of hydroclimatic extremes in southern Africa' has taken as one of its foci the diagnosis of problems relating to dissemination and interpretation of climate information in the SADC region. The application of climate information by the agricultural sector using a targeted multi-stakeholder analysis to identify gaps and present recommendations require relevant skills. A report on livestock, livelihoods and vulnerability in Lesotho, Malawi and Zambia identified economic shocks, drought in particular, animal diseases and the general decline in delivery of livestock services as major sources of vulnerability to poverty among the rural masses (Freeman et al. 2007).

2.5.2 Priority training needs

In response to emerging challenges the following activities which require training were specifically suggested:

- Analysis of how livestock assets are affected by emergencies such as floods and drought
- Designing programs with clear linkage to livelihoods
- Improving knowledge of emergency context and monitoring and evaluation for learning lessons and identifying issues for scaling up.

In addition, the workshop identified priority areas related to climate change and they are displayed in Table 4.

Table 4. *Priority training needs in emerging challenges*

Climate change	Skills needed	Current providers
Mapping climate, vulnerability and poverty Mitigation practices and strategies Farming/drought risks	Modelling vulnerability/sustainability of pastoral systems	United Nations Framework Convention on Climate Change (UNFCCC), IPCC

2.5.3 Target stakeholders

The workshop did not identify specific stakeholders for training in climate change. It is suggested that all stakeholders need to be aware of the importance of climate change and its impacts on livestock production. Researchers however need to be equipped with skills and knowledge suggested in Table 4. Farmers need skills in developing adaptation measures that reduces or averts the impacts of climate change.

2.6 Policy/institutions research

Responses from the questionnaire mentioned the existence of national policy which lacks relevance with current situations in the livestock sector. This requires strengthening skills in policy formulation, evaluation and analysis to understand the impacts of policies on agricultural import and export, product quality issues, traceability and labelling, and intellectual property rights issues. There is also a substantial body of evidence suggesting that policies have been a major determinant of progress or the lack of it in various sectors; it seems highly probable that the same will be true for livestock. Much as it is easy to point to defects in existing policies, we also need to design better ones. If governments are to be persuaded to pay more attention to policy issues and to abandon previous inappropriate policies and embrace new ones, they need to be convinced that these new policies will bear the fruits promised. To do that requires expertise at national level with clear understanding of the local situations of the policy context and that of their countries; and the same applies to the regional level. For example, in Malawi, documentation indicates general consensus on the importance of sharing the lessons learnt from policy studies as related to dairy development, role of governments etc. There is also agreement in the region on the need for exchanging information on approaches and methods for carrying out policy research, for the presentation of the research outcomes to policymakers and their advisers and for advocating policy reforms related to smallholder dairy production and marketing.

2.7 Previous training needs for SADC

2.7.1 Suggested needs from PRINT report

The TNA study (Muenstermann 2007) was carried out in the form of workshops for eight SADC member states during the identified important regional training needs, as well as needs for a group of countries and limited country specific training needs, which are also relevant to this study. The PRINT training program has been designed to address three main areas of animal health, animal production and livestock marketing and trade. The regional needs were grouped according to various job descriptions or categories, and some of these were key and closely related to PRINT objectives, but also relevant for the ILRI Learning and Capacity Strengthening (L&CS) needs. Results of the PRINT TNA are summarized below and include:

a) Formulation of extension messages

This area of training is suggested to be offered to professionals and technicians at district and province level. More focus will be placed on data recording, analysis and reporting.

b) Project management

The report also identified areas of training relating mainly to project management, including project proposal writing. Amongst the specialist services, the epidemiology units and central veterinary laboratories were identified by most countries to have common TN of relevance to these services.

c) General needs

The following general needs were also identified by the workshop as also relevant to ILRI and its potential partners: improved management of all aspects (collection of data, filling of forms correctly, compilation of resulting information, provision of appropriate data sets to data analysts, summary presentation of data) of the chain of information. However, prioritization of these and linkages to regional needs has to be made by ILRI and its partners.

d) Quantitative human resource training needs for the region

The TNA by PRINT revealed great diversity of identified training needs and identified large number of potential trainees in the eight countries that were analysed, with implications on the mode and mechanisms of training, in order to initiate a greater impact and attempt to take training contents to a larger number of people than those attending the actual training course. The numbers range from as low as 1 to 40 or 50 at professional levels per country and from as many as 40 to 600 per country at field level. There are great variations between countries on the needs due to different set ups and resource endowments (Appendix D).

2.7.2 Summary of the PRINT TN

The PRINT TN were grouped in three components of their training program and we summarize them as follows:

(a) Regional TN

The training needs for the regional program relate to PRINT objectives designed for various job categories, starting at field level to professionals and technicians at district and province levels. Specifically, the TN includes the need for skills in formulation of extension messages, data recording, analysis and reporting and epidemiology in emerging and transboundary diseases. The TN in animal production focused on production systems, production of marketable surplus and micro economics at farm level and data recording, analysis and reporting.

For the animal health and animal production group together, some general TN were identified relating mainly to project management, including project proposal writing. Amongst the specialist services, the epidemiology units and central veterinary laboratories were identified by most countries to have common TN of relevance to these services.

A general need was expressed for improved management of all aspects (collection of data, filling of forms correctly, compilation of resulting information, provision of appropriate data sets to data analysts, summary presentation of data) of the chain of information. 'Chain of information' should be based on concrete understanding of data flow in the respective organigrams.

(b) Groups of countries TN

These represent the needs of different job categories but more restricted to selected topics, i.e. topics in *meat inspection, meat processing and quality control*, including basic epidemiology, data collection, recording, reporting basic diagnostic skills, specimen collection and handling, as well as handling of drugs and vaccines.

(c) Country specific needs

Country specific needs relate to the needs of eight SADC countries which participated in the training needs assessment. Areas of skills include evaluation of extension impact, agribusiness, GIS, quality assurance, toxicology for poisonous plants, data collection, analysis and reporting, diagnostics meat inspection, disease control and animal production policies.

2.7.3 PRINT major target groups

The major target groups for the PRINT TN are mostly civil servants at various levels including professionals, technicians, district and provincial officers. The results of the PRINT TNA suggest that all stakeholders need capacity in all areas suggested above for effective delivery of livestock research and development services. However, specific stakeholders including farmers and farm organizations, the private sector, local communities, policymakers, and researchers in general were not given much attention in the analyses.

2.8 Alternative supplier in the region

Training in animal sciences, veterinary sciences and production courses as well as other relevant courses are offered by universities and colleges, although a few private sector firms are now mushrooming within the region offering short courses mostly. Consultancy firms and NGOs offer project type training in soft skills to improve on-the-job performance.

2.9 Potential partners for collaboration

Various training institutions including faculties of agriculture in universities that offer animal sciences or animal production and health courses, particularly for the middle managers upwards were identified in the questionnaire. The colleges in agriculture or veterinary medicine and institutes are as follows:

- Botswana: Institute of Training in Botswana and Vaccine Development Centre
- Malawi: Centre for Ticks and Tick Borne Diseases (CTTBD) in Lilongwe, Natural Resources College, Mikolongwe Veterinary School, University of Malawi, Bunda College of Agriculture
- Namibia: Polytechnic of Namibia, University of Namibia
- South Africa: The Department of Animal and Wildlife Sciences at University of Pretoria, University of Fort Hare, University of KwaZulu Natal, the Agricultural Research Council (ARC) in the Agricultural, Onderstepoort Vaccine Institute, Research for Development Programme plus other agricultural institutions in the country
- Tanzania: Sokoine University of Agriculture
- Zimbabwe: Trypanosomias School, University of Zimbabwe, Free University of Bulawayo
- Zambia: Livestock Development Trust (LDT).

All these are involved in livestock issues and training.

3 Key conclusions and recommendations

3.1 Introduction

The specific objectives of this study were to conduct a livestock training needs analysis in the SADC region in order to identify the priority learning and capacity strengthening activities; to identify potential partners and collaborators for the learning and capacity strengthening activities in the region; and to identify the priority capacity building and strengthening activities to be undertaken/facilitated by ILRI in the SADC region. This chapter concludes on key areas of capacity building and capacity strengthening and further makes recommendations for SADC and ILRI in particular. Respondents in the survey and literature suggest a wide range of capacity building and capacity strengthening activities for the sector in the region. The most common among these broadly include capacity strengthening in dealing with animal production, animal health, markets/trade, SPS and TBT.

3.2 Priority training needs

Based on the results of the survey, literature and consensus of the workshop deliberations, SADC priority issues, skills and existing gaps have been identified as follows:

3.2.1 Animal production priority training needs and target groups

Animal production priority areas require skills in production, feeds and feed analysis and formulation, farm economics, genetic conservation and improvement. The most important target stakeholders for training in these areas include educators/trainers, farmers and farmer organizations, extension workers and researchers.

3.2.2 Animal health

Emerging diseases are the most important issues in addressing animal health. Stakeholders especially researchers, extension workers, farmers/farmer organizations require skills in diagnosis and surveillance to deal with emerging diseases. Other skills needed include control, mobilization and enforcement.

3.2.3 Market/trade, SPS and TBT, priority needs and target groups

Regional and international trade in livestock requires meeting specific standards and norms. Key issues affecting market/trade, SPS and TBT require skills in quality control, enforcement, market value chain analysis and impact orientation. More skills are needed in interdisciplinary research planning and implementation, participatory research, impact assessment, monitoring and evaluation, value chain analysis, and value addition. Skill gaps in most NARS in the region exist in these areas and require capacity building and/or capacity strengthening.

3.2.4 Emerging challenges

Climate change is the single most important emerging challenge in the livestock sector with the potential of affecting productivity. Modelling, mapping and vulnerability assessment are required skills to understand the impacts of climate change on livestock productivity.

3.3 Priority learning and capacity strengthening activities of the subregion

- Developing partnerships and networking in regional training programs
- Developing modules on priority training areas of animal production, animal health, market/trade, SPS and TBT
- Developing sustainable financing mechanisms for capacity building and capacity strengthening activities for the region in collaboration with SADC
- Conducting short course training and professional courses in livestock research and development.

3.4 Other specific regional training needs

3.4.1 Proposal writing

Both literature and the survey suggested the need to equip individuals with specific skills in project and research proposal writing. The need for skills in proposal writing is suggested in the context of generating fundable projects as many national departments of the livestock and agriculture rarely get sufficient funding for research.

3.4.2 Capacity in epidemiological skills

Professional skills in epidemiology are also needed to confront the problems of general diseases specific to countries. More importantly, this is to strengthen skills required to generate affordable innovative initiatives to assist farmers handle animal diseases.

3.4.3 Information system management

The need for information systems was echoed in both the survey and the literature. The need to set up information systems with up-to-date information at both regional and national scale is necessary. Subsequently, skills are required for proper management of the information systems especially at the national departmental livestock units.

3.4.4 Additional soft skills

Computer proficiency, GIS, policy formulation, human resources management, project design, planning, monitoring and evaluation, and skills in leadership and decision making were suggested by many respondents. In addition, skills in livestock entrepreneurship are needed among university graduates to enable them undertake commercial livestock production in their future career endeavours. Additional skills are posted in Appendix G.

3.4.5 Target stakeholders

- Researchers, extension workers, farmer/famer organizations and trainers are the major stakeholders for training in animal production issues. Policymakers and research managers may only need awareness in animal production issues
- Policymakers, farmer organizations and the private sector are the target stakeholders for the SPS and TBT issues. On the other hand, research managers, researchers and trainers may just need awareness of these issues.

3.5 Lessons from past capacity building activities

In a plenary session, the following lessons were discussed as having been drawn from past activities in capacity strengthening efforts.

- Activities have been *ad hoc* or project-based and overly depended on outside funding. Therefore there is a need for local mobilization of training funding
- Past training and capacity strengthening activities have been unsustainable due to inability to mainstream the activities within routine and existing programs
- Monitoring and evaluation system has been absent. As such impact assessment of past training initiatives are rare
- Inability on the part of governments to ensure sustainable training programs at national levels
- Lack of coordination of various training initiatives in form of information sharing
- The socio-economic component of livestock training has been missing in most past initiatives.

3.6 Capacity building and strengthening activities for SADC

- Establishing and coordinating sustainable resource mobilization mechanisms for capacity building of the region, e.g. initiate postgraduate fellowships
- Building teams to address regional livestock issues identified in the workshop
- Facilitating training of trainers programs for the region in collaboration with international partners
- Ensure access to information among farmers and the general public on regional emerging issues such as diseases and regional livestock market dynamics
- Facilitating regional integration in regional training programs, accreditation of programs, monitoring and evaluation and quality assurance and harmonization of different degree programs in the region.

3.7 Capacity building and strengthening activities for ILRI

ILRI was suggested to assume various roles. Some of the roles are general while others are specific to capacity building and capacity strengthening activities and these include:

- identifying cross-cutting issues of livestock in the region
- ensuring research requirements and facilitate networking among various regional research institutions
- facilitating on strategic research in livestock issues
- strategic planning for several stakeholders
- facilitating training of trainers in strengthening skills in the regional livestock sector
- initiating and facilitating the process of developing relevant training modules on SADC training priorities identified in the workshop
- initiating and facilitating resource mobilization specifically for training programs.

3.8 Workshop recommendations

As a way forward, deliberations of the workshop finally made recommendations on a number of issues including:

- Involvement of various stakeholders in training is vital for redressing of the current issues affecting the livestock sector in the region. Regional training institutions and other livestock stakeholders especially NARS should be made aware of the capacity building and strengthening gaps in the region
- Collaboration will be an important aspect of successful capacity building and capacity strengthening initiatives in the region. ILRI should use existing institutions in the region to embark on training activities
- The ILRI training program should be focused in its scope of training areas. Therefore, there is need to develop an inventory of existing capacity building and strengthening activities in the region in order to avoid duplication of the same
- Successful training programs should be initiated in the region based on best practices. The workshop made a recommendation to document best practices in capacity building and capacity strengthening initiatives for better performance

- Based on findings of the workshop, ILRI should start developing information packages, e.g. modules for priority training and strengthening areas
- SADC should facilitate creation of sustainable funding mechanisms for capacity building and capacity strengthening programs.

3.9 Potential partners and collaborators

The region has many organizations and institutions dealing with capacity building and training in particular. These include universities, colleges and management schools. The SADC secretariat is responsible for capacity building in the field of FANR. Similarly the RUFORUM and Forum for Agricultural Research in Africa (FARA) is also another opportunity for networking in research and training. Other specific institutions are as follows:

Institutes and Centres: The Institute of Training in Botswana and Vaccine Development Centre, Centre for Ticks and Tick Borne Diseases (CTTBD) in Lilongwe, and Onderstepoort Vaccine Institute

Universities and Colleges: Natural Resources College, Mikolongwe Veterinary School, University of Malawi-Bunda College of Agriculture, the Polytechnic of Namibia, The Department of Animal and Wildlife Sciences at University of Pretoria, University of Fort Hare, University of KwaZulu Natal, Sokoine University, Tryponosomias School in Zimbabwe, and Livestock Development Trust (LDT) in Zambia.

3.10 General recommendations

1. Through process of literature review (desk study) questionnaire survey and consultative workshop a number of key priority areas for the SADC are recommended major training needs as follows:
   - Animal production:
     - management practices
     - feeds and feeding
     - breeds and breeding
     - economics of production
   - Animal health
     - emerging diseases
     - identification and surveillance
   - SPS and TBT
     - compliance with specific standards and norms
     - HACCP to be in place or manufactured
     - standards and norms (codex)
     - products of animal origin confirmation to standards and norms
   - Emerging challenges and changing paradigms
     - value chain analysis
     - market orientation and implications for research and development
     - climate change impact assessment and adaptation strategies
     - integrated crop–livestock management
     - strategic planning
2. The ILRI training program should be focused, collaborative and participatory in order to address relevant issues revealed in this study in terms of scope of training areas. ILRI should start a process of developing strategic partnerships, linkages and networking for collaboration with other regional stakeholders in training.
3. Training programs should be initiated on the basis of best practices and institutions. ILRI in conjunction with SADC secretariat should document past and/or current best practices and institutions in capacity building and capacity strengthening initiatives in the region for lessons and make these available to various stakeholders.

4. ILRI in collaboration with regional training institutions should start developing information packages, i.e. modules for priority training areas of animal production, animal health, trade/ marketing and climate change and adaptation.
5. Past training programs have been *ad hoc* or project-based and therefore lacked continuity due to limited funding. SADC should collaborate with ILRI to facilitate creation of sustainable funding mechanisms for capacity building and capacity strengthening activities.
6. The study reveals an urgent need for capacity strengthening. ILRI in collaboration with SADC should mobilize resources and start training personnel at regional level who could train others at both regional and national levels considering the vast number and diversity of people to be trained.

3.11 Limitations of the study

The consultants were limited in respect to time. This constrained the scope and breadth of the study, and the range of the stakeholders that could have been consulted within the time limits. However, the study still provides useful insights based on the views of those who gave the feedback. The study was limited to professionals of livestock ignoring farmers who have better experience about the issues affecting their production. Nevertheless, there was ample information based on experiences from the workshop participants with field experience.

3.12 Significance of the study

The results of this study are significant in various respects. First, from the findings it is evident that there are glaring regional, national and individual gaps in specific reference to capacity building and capacity strengthening in the livestock sector. Second, certain issues clearly call for further research such as climate change and risk management, regional trade and detailed content required at each level of training.

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Appendices

A Terms of reference

1 Introduction

The International Livestock Research Institute (ILRI) is one of the 15 future harvest centres, which conduct food and environmental research to help alleviate poverty and increase food security while protecting the natural resource base. ILRI works at the crossroads of livestock and poverty, by bringing high quality science and capacity building to bear on poverty reduction and sustainable development. As part of the research-based outreach and capacity strengthening, ILRI offers opportunities for long- and short-term training for research and development practitioners within the agricultural innovation system, and value chains focusing on livestock related issues.

The Capacity Strengthening Unit of ILRI is designed to build and strengthen the scientific knowledge and technical capacity for NARS scientists and technicians in developing countries. In a rapidly changing world, the R&D systems in developing countries confront new and increasingly complex challenges. Over the years especially the sub-Saharan African countries have seen an enormous erosion of both individual as well as organizational capacity. The need for building capacity in developing countries to achieve development goals and objectives have been recognized in many recent studies (UN Millennium Project 2005; NEPSD 2004; Inter Academy Council 2004; Commission for Africa 2005).

Capacity strengthening is defined as the process by which individuals, groups, organizations and societies increase their ability to: perform core functions, solve problems, define and achieve objectives and understand and deal with their development in a broader context and sustainable manner. Without critical mass of well trained professionals, the quality and quantity of research will diminish, as will the returns to the global investments in agriculture and the reform agenda. The term capacity strengthening or capacity development does not imply that there is no capacity in existence; rather it includes the building up and strengthening of capacity, usually on the basis of existing capacity that has been eroded or destroyed. The term encompasses developing the required capabilities to meet immediate and future needs. Capacity strengthening is an ongoing process and it has direct links with human development. As a development input, capacity strengthening is a dynamic phenomenon that must always present, but truly reflect the changing conditions and ongoing transformations. Capacity strengthening is about empowering people on a sustained basis. This can happen by developing competencies (skills, knowledge, and attitudes) that will enable people to develop themselves.

Currently the Capacity Strengthening Unit of ILRI is in the process of preparing its L&CS strategy and policy. To be effective such a strategy should be based on: broad-based participation and locally driven agenda, building local capacities, ongoing learning and adaptation, long-term investments and integration of activities at various levels to address complex problems. One of the key activities in the strategy development process is the assessment of the capacity requirements at individual, group, organizational and societal level—a needs assessment study. Training needs assessment is a tool utilized to identify what learning and capacity strengthening activities should be provided to enhance the productivity, performance and impact of individuals, organizations and the society at large.

This proposed needs assessment is different from the other typical needs assessment studies. The objective here is to identify the priority learning and capacity strengthening activities to be facilitated and/or undertaken by ILRI. Although ILRI's mandate is global, the priority regions for ILRI's L&CS activities are sub-Saharan Africa and Asia. There is a growing awareness that ILRI needs to continue to provide a variety of training types, themes and delivery modes to suit the heterogeneous needs of NARS. While recognizing this diversity to be cost effective, it was decided to perform the needs analysis on

a subregional basis using the existing geopolitical grouping. The five subregions identified are: West-Africa (CORAF Region), Eastern and Central Africa (ASARECA Region), Southern Africa (SADC Region), South Asia and Southeast Asia. ILRI recognizes the activities of the other national and regional players in strengthening capacity of the NARS. ILRI is keen to identify the 'niche' in L&CS based on its mission, mandate, research base as well as its competitive and comparative advantage. ILRI wants to reinforce and add value to the ongoing national, regional and global initiatives by working through innovative partnership and networking arrangements. The greatest demand in future is anticipated for specialized short courses, individual non-degree and higher degree training. Emphasis on support to local universities and subregional entities are strongly justified as possibly the most sustainable road to impact on the rest of the national R&D system. ILRI is not a university or a training college and therefore guards against attempts to give courses which could be offered by other formal learning institutions. The strength and advantage ILRI presents for learning is its strong research base. ILRI does not compete with national institutes and courses offered by universities throughout the world. These principles should guide the priority activities of the CaSt unit.

2 Terms of reference

The broader terms of reference for this consultancy service are to:

1. Collect and synthesize all available relevant secondary information related to the study
2. Collect the relevant primary data needed to complete the assignment
3. Using the primary and secondary information collected, prepare a draft report on the 'learning and capacity strengthening needs of the subregion'. This report should also identify the alternative suppliers, strategic partners, as well as the priorities for ILRI
4. Present the draft report during the regional stakeholder workshop
5. Based on the comments and additional information generated during the workshop, revise and prepare a final report.

3 Expected output

The expected output of this assignment is a document identifying the learning and capacity strengthening needs of the livestock production system of the subregion. The report should specifically address the needs of the individuals, groups, organizations (research, education and civil society) and the society at large. In addition it should also address the alternative suppliers of such activities, potential key partners as well as the priorities for ILRI (justification for the priorities).

B List of some of the people consulted

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C Questionnaire for training needs assessment

Introduction

The International Livestock Research Institute (ILRI) is conducting a training needs assessment for its own and partner Capacity Strengthening Unit. Your country has been identified to participate in this exercise of identifying priority areas of training for the SADC region. We realize that during the period from March to May (2006), PRINT project carried out a training needs assessment in the form of a workshop. We need more information following the questionnaire displayed below.

Name: _____ Position: _____

Organization: _____ Country: _____

Gender: _____ Contact address: _____

Instruction: Please address Q1 and Q2 to research managers only.

Please identify the key research management issues that you are facing. Please rank them. For research managers only.

_____

_____

_____

_____

What additional skills and training are required to address them?

_____

_____

_____

_____

What key research issues is the livestock production system facing in your region?

Animal production

_____

_____

_____

_____

Animal health

_____

_____

_____

_____

Policy/institutions

_____

_____

_____

Marketing/trade

Others

Given the ongoing training activities at the national and regional level, identify areas in which additional scientific technical knowledge is required in addressing these issues.

In the recent past a number of changes have occurred in the agricultural research and development (R&D) arena. Given these changes, some additional 'soft skills' are needed to be an effective manager/researcher/trainer. These soft skills are listed in the following table. Could you please identify the priority skills that you would require? Please use the following keys: Extremely Important (EI), Moderately Important (MI) and Not Important (NI).

Skill areas	Degree of importance (EI, MI, NI)	Additional comments
1. Participatory research methods		
2. Leadership and decision-making		
3. Strategic planning		
4. Intellectual property rights policy		
5. Negotiation and conflict resolution skills		
6. Facilitation skills		
7. Design, implementation and assessment of networks and partnerships		
8. Monitoring, evaluation and impact assessment		
9. Planning and priority setting		
10. Climate change; implications and adaptation strategies		
11. Poverty, vulnerability and risk analysis		
12. Value chain analysis, market orientations and implications to R&D		
13. Innovation systems perspective and implication to R&D		
14. Interaction of crop–livestock–water		
15. Gender analysis		
16. Sustainable use of animal genetic resources		
17. Gene bank management		
18. Convincing proposal writing		
19. Scientific writing		
20. Effective communication		
21. Others (please specify)		

1. Which other institutions are currently offering such training in your country/region?

_____
_____
_____
_____
_____

2. In your country/region, who could be the potential partners of ILRI to deliver these courses in a sustainable manner?

_____
_____
_____
_____
_____

3. Any other suggestions that you may have for ILRI in identifying its priority learning and capacity strengthening activities and collaborating partners in your country/region?

_____
_____
_____
_____
_____

D Country TNA and total personnel in need of training

Training need	Job category	SWAZ	Number of staff per country								TOTAL
			LISTH	ZIMB	MLW	ZAMB	MAUR	MADG	BOTSW	NAM	
Animal health and epidemiology	Extension workers	85	60	600	551	40	4	150	120	48	1658
	District and head-quarter officers	16	20	156	227	10	2	22	40	15	508
	Technicians		20	56			2	5	40	none	123
Processing, marketing and economics	Headquarter officers	3	30	100	64	9	2	22	none	none	230
Project design, planning, management monitoring and evaluation	Extension workers	none	none	none	none	none	none	none	none	none	0
	District and head-quarter officers	4	10	40	44	10	1	7	50	30	196
Participatory research (extension methods and communication)	Extension workers	20	10	40	69	20	4	26	30	48	267
Financial and human resources management	Headquarter officers	2	6	36	69	10		5	50	12	190
Information technology, computer literacy and GIS		9	6	112		9	30	5	500	10	681
Research and project proposal writing	All levels	50	50	40	47	2	6	22	10	10	237
Livestock production and management	District officers and extension workers	8	60	40	116	10	2	22	120	63	441
Policy development, analysis and evaluation			30	40	10	5	5	7		10	107
Approximate total		197	302	1260	1197	125	58	293	960	246	4638

Adapted from PRINT (2006).

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F Summary of training needs/priorities by stakeholders

Priority areas and skills needed for all stakeholders. Scale used: 1= less important (this category requires awareness only), 2= moderately important (this category may need training depending on demand) & 3= very important (this category needs training in this priority area).

Priority	Skills needed	Stakeholders							
		Policy-makers	Research managers	Research-ers	Extension	Farmer/ FOs	Private sector	NGOs/ CBOs	Educa-tors/ trainers
Animal production									
Management practices	Production	1	2	3	3	3	3	3	3
Feeds and feeding	Analysis, formulation, genetic conservation and improve-ment	1	1	3	3	3	3	1	3
Breeds and breeding		1	1	2	2	3	3	1	3
Economics of production	Farm manage-ment	1	1	3	3	3	1	1	3
Pasture and pasture production	Pasture manage-ment	1	1	2	3	3	1	1	3
Production systems	Models	1	1	3	3	3	1	1	1
Grazing and grazing practices	Rangeland man-agement	1	1	2	3	1	1	1	3
Animal health									
Emerging diseases	Diagnosis and surveillance	1	1	3	3	3	2		3
Identification	Diagnostic	1	1	3	2	3	2	1	3
Surveillance	Surveillance skills	1	1	2	3	2	1	2	3
Eradication	Control	2	1	1	3	3	2	1	1
Control	Mobilization and enforce-ment	2	1	1	3	3	1	1	1
SPS and TBT									
Ensure HACCP concept is in place or manufactured	Quality control	3	2	2	3	3	3	1	3
Product certification	Quality control	2	2	3	2	3	3	2	3
Standards and norms (codex)	Awareness	3	2	2	1	1	3	1	2
Products of animal origin conform to standards and norms	Awareness, han-dling, process-ing and trade	3	2	2	1	1	3	1	2

G Additional soft skills (training needs)

Skill areas	Degree of importance
A: Extremely important Skills	
Value chain analysis, market orientations and implications to R&D	98
Climate change; implications and adaptation strategies	90
Effective communication	89
Interaction of crop–livestock–water	87
Strategic planning	85
B: Moderately important skills	
Poverty, vulnerability and risk analysis	78
Negotiation and conflict resolution skills	75
Gene bank management	75
Participatory research methods	72
Scientific writing	71
Planning and priority setting	69
Sustainable use of animal genetic resources	67
Leadership and decision making	65
Convincing proposal writing	60
C: Not important skills	
Intellectual property rights policy	59
Innovation systems perspective and implication to R&D	35
Gender analysis	25
Design, implementation and assessment of networks and partnerships	20
Monitoring, evaluation and impact assessment	15
Facilitation skills	3

Key: 80–100% = Extremely important; 60–80% = Moderately important; Below 60% = Not important.

Of the above additional soft skills required, the following were identified as extremely important training needs for the SADC region:

- Value chain analysis, market orientations and implications to R&D
- Climate change; implications and adaptation strategies
- Effective communication
- Interaction of crop–livestock–water
- Strategic planning

These cross-cutting issues are normally not the core functions of institutions or organizations or stakeholders dealing with training in livestock, but are important in dissemination and business orientation of livestock issues. Collaboration and linkage with organizations or stakeholders providing these skills are important in strengthening the capacity of SADC stakeholders in improving the livestock subsector.

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