SADC SECRETARIAT **EUROPEAN DEVELOPMENT FUND**

Promotion of Regional Integration in the SADC Livestock Sector
(PRINT Livestock Project)

9 ACP SAD 002

Report of a Mission to the Republic of Zambia

LIMS adoption mission (Stakeholder meeting, Training on application and Standards Operating Procedures)
PRINT Report N°: PB-BB-LIMS-ZAM-08-2008

Dr. Pascal BONNET, Chief Technical Adviser, PRINT
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Dates: 6th August – 14th August 2008

Acknowledgments

The reporting officer would like to thank the staff members of the Department of Veterinary Services and Livestock Development (DVLD) of Zambia who participated in the discussions and provided valuable information. Special thanks go to Dr Peter Sinyangwe, the Director of the Department for launching the LIMS in Zambia and Dr David Elias Daka who facilitated the launching seminar in a tremendous way. The PRINT team also acknowledge with thanks the organisation of the mission by Dr. Christine Chisemele and her staff from NALEIC, i.e. Dr Maata Liywalii and Dr Yona Sinkala and all the trainees who participated actively into the LIMS training.

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BACK TO OFFICE MISSION REPORT

Summary

Country : Zambia

Mission team : Pascal Bonnet CTA PRINT, Dr Bedane Information specialist PRINT

Dates : : 6th August – 14th August 2008

Venue : **Ministry of Agriculture & Cooperatives Zambia MACO**

Introduction: mission rationale and objective
The Livestock Sector Unit (LSU) in the Food, Agriculture and Natural Resources (FANR) Directorate of the SADC Secretariat is entrusted to promote regional integration and sustainable livestock development. The PRINT Livestock Project in FANR became operational in July 2005. The project's specific objective is to establish a livestock information management system (LIMS) in Animal Production and Health, Marketing and Trade. The generation of up-to-date and reliable information will assist the coordinating role of FANR as well as the development of harmonized policies and strategies in the SADC livestock sector.

The mission team comprised two SADC staff, namely, Dr. Pascal Bonnet (Animal Health & Livestock Economist, CTA Chief Technical Adviser PRINT – CIRAD), Dr Bedane Information specialist PRINT.

Summary of SADC PRINT mission:

The mission was the launching of the SADC LIMS system and comprised three components:

- the organisation of a AIMS-LIMS Stakeholders workshop, with potential contributors to LIMS and potential users of the system
- a 3 days Training of trainers on the LIMS application and
- the drafting of the first elements for establishing Standards Operating Procedures of LIMS in Zambia.

Detailed ToR's and timetable of the mission are provided in full in the annexures.

Funding of mission:
PRINT DL, corresponding budget line in PE4 / Addendum number 1 by DEC.

1. OBJECTIVES OF THE MISSION

This mission is a follow up of the comprehensive situation analysis and information needs assessment started by PRINT in SADC member states in 2007. The overall objective of the mission, nevertheless, was to launch the LIMS system. The LIMS system is made of 1/ the LIMS software which some staff were sensitized and trained on, 2/ procedures for information exchange (SoP) and for using LIMS applied by 3/ a network of stakeholders working in collaboration, i.e. the various institutions as sources of livestock data / information in Zambia, all sharing the effort to collect and compile data into LIMS. A selection of professionals was trained on the harmonized templates, the software and on the procedures.

One purpose of the mission was also to evaluate again data sources in areas of Animal Health, Animal Production and Livestock Trade and Marketing in order to start drafting the SoP's for running the LIMS.

This report complements the following report on the first formal situation analysis made in Zambia in June 2007 and therefore the later should be considered as an annexe.

Report on the situation analysis in Zambia
Report of a Mission on LIMS situation analysis to the Republic of Zambia, PRINT Report N°: LIMS-ZAM-06-2007, By Dr. Pascal BONNET, Chief Technical Adviser, PRINT, Part 1: LIMS situation analysis, Part 2: Reinforcement of the capacity on Contagious Bovine Pleuropneumonia (CBPP).

2. INSTITUTION VISITED AND PERSONS

The premises and building of the NALEIC of Department of VLD

NALEIC: National Livestock Epidemiology Information Center

The detailed contact addresses of persons met at MACO are provided in the following table.

Stakeholder meeting

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From the original group of attendees at the **AIMS workshop** in Pretoria, 3 were present at our seminar

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We also met Mr. Michael Isimwaa Team leader of the Zambian AIMS group during our training.

Potential users of format LIMS

COMESA (Dr Bruce Mukanda) is interested to adopt LIMS templates to improve its information system FAMIS as COMESA 's system is based on direct posting of information on line, which seems to be problematic in some instances, therefore the need for a full system like the LIMS. Therefore COMESA should officially request the use of similar templates to SADC.

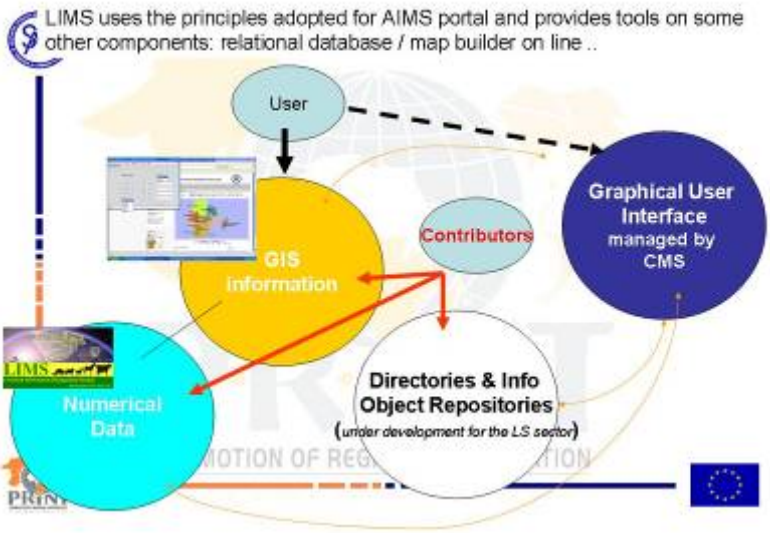
3. ACTIVITIES

3-1. Stakeholder meeting

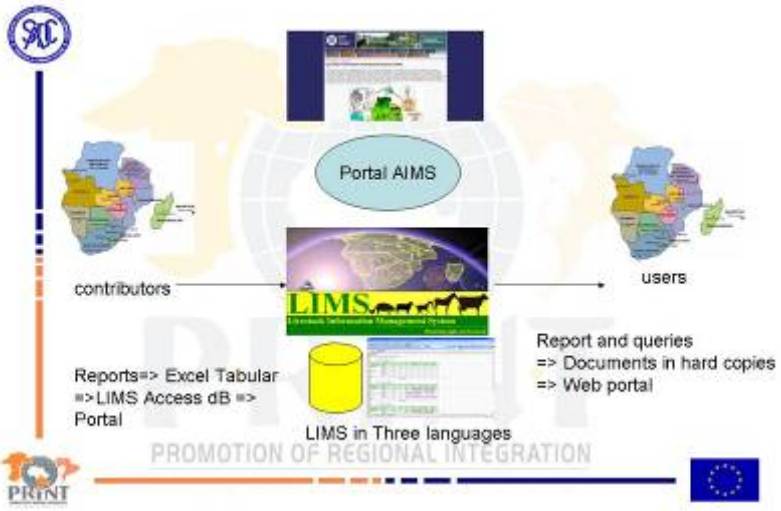
The objective of such stakeholder workshop was to present the entire AIMS initiative in order for participants to "locate" the LIMS system as a component under the AIMS system. It is a follow up of former meetings dedicated to regional agriculture information systems, but this time focussing more on the Livestock sector.
The two AIMS workshops held in 2007 and 2008 have been opportunities to sensitize the MS on the expected achievement of AIMS :

- formation of AIMS networks,
- compilation of numerical data and key information at regional level by sub sector and given stakes – topics,
- improvement of systems interconnectivity so that information is available from browsing in a portal.

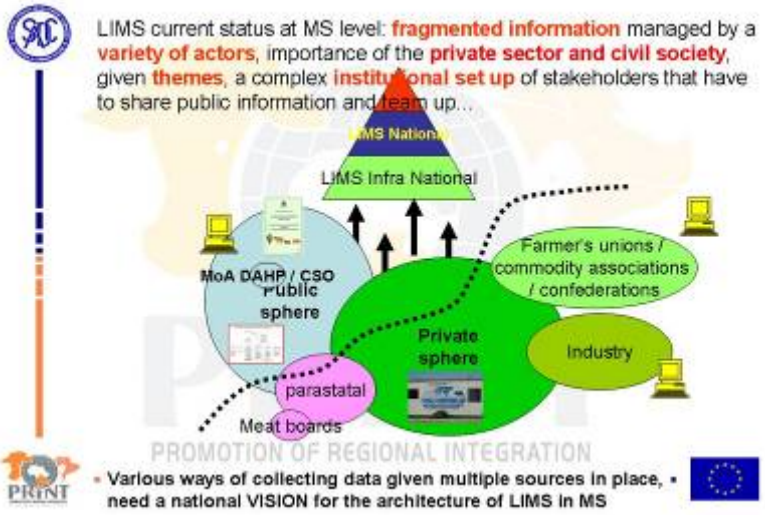
The entire presentation made by PRINT is provided in the annexe.



The expected components of AIMS and the place of LIMS elements (Templates Excel, database and application to facilitate data compilation and exchange, and LIMS web-based mapping portal).



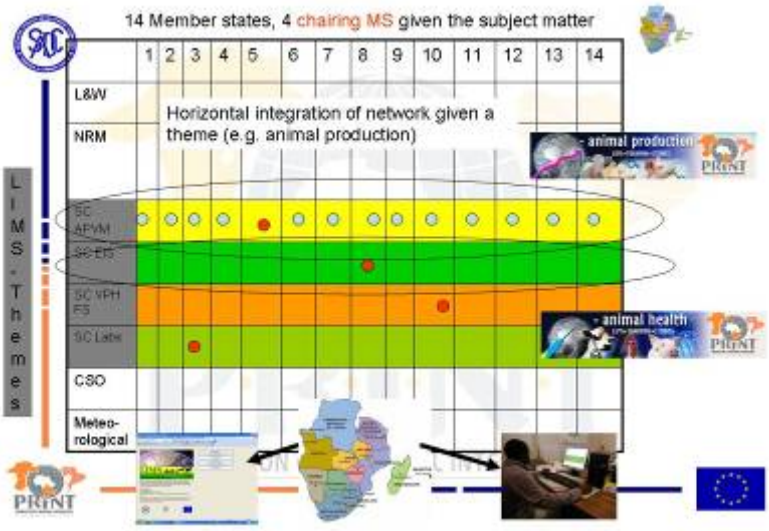
LIMS is a system not only a database: it has contributers and users, and a toolkit made of Templates Excel, database & application and procedures for data compilation and exchange.



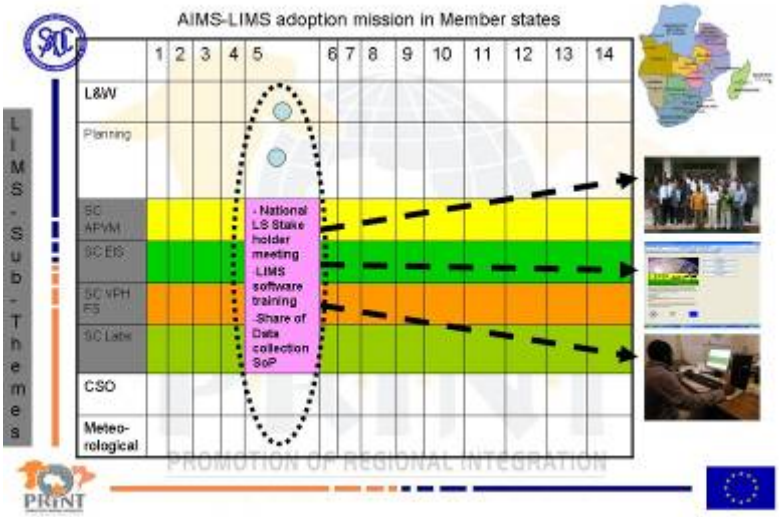
Contributors to LIMS are expected to be multiple and have to work in collaboration but a central coordination and management is required. Therefore, LIMS provides for capturing data from various stakeholders and institutions, given their expertise and interest in the system, at various scales and can therefore be decentralized and it is a therefore a modular system.

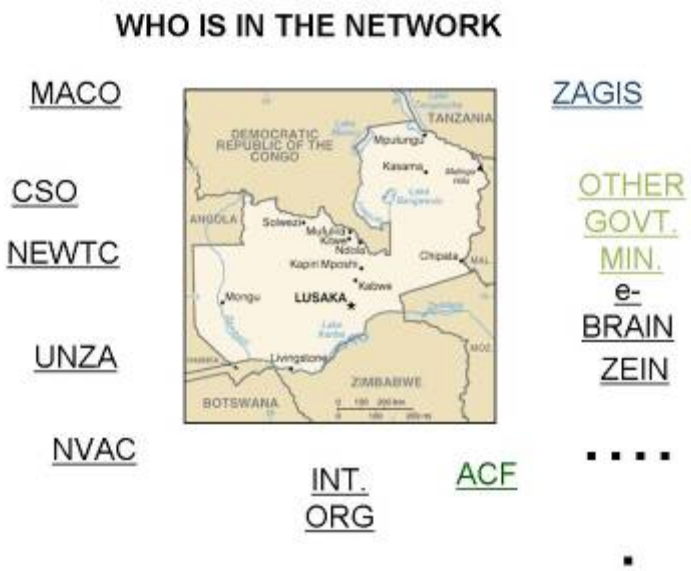
Networking of institutions

PRINT has already worked out the networking aspect of the information system IS by supporting the horizontal integration of actors, thanks to the support of the 4 subject matter sub committees of LTC, composing four task forces aiming at managing part of the LIMS and therefore being its custodian. Horizontal integration means the integration of networks of stakeholders on a subject matter or specific areas of interest for the LS sector



The AIMS initiative and the LIMS launching missions are opportunities to complement the process by boosting the vertical integration "at the periphery" of the Livestock sector, this topic being central at this occasion. Vertical integration means an aggregation and integration of new players, i.e. new professionals to the core group and network of pure Livestock specialists (e.g. specialist of meteorology, of early warning systems).





Stakeholder map established by the Zambian AIMS team in Pretoria: a visual example of vertical integration towards the formation of a AIMS network in a country of SADC

The agenda of the seminar is provided hereafter:

AGENDA of the SEMINAR

SADC PRINT Livestock Project in collaboration with the Ministry of Agriculture and Cooperatives of the Republic of Zambia

AGENDA FOR THE LIVESTOCK INFORMATION MANAGEMENT SYSTEM (LIMS) STAKEHOLDERS MEETING
8th AUGUST 2008

VENUE – TAJ PAMODZI HOTEL, LUSAKA

8:00 – 8:30 **Registration**

8:30 - 09:00 **Opening remarks**
Introductory and welcome remarks by PRINT Chief Technical Advisor
Remarks by the Director of the Department of Veterinary and Livestock Development
Opening speech – by the Permanent Secretary of the Ministry of Agriculture and Cooperatives

09:00 – 09:45 Introducing Agricultural Information and Management System (AIMS) and its components (e.g. LIMS) – Dr. P. Bonnet

09:45 – 10:00 Discussion

10:00 – 10:20 Introducing LIMS - Dr. B. Bedane

10:20 – 10:30 Discussion

10:30 – 11:00 Tea Break

11:00 – 12:30 Demonstration of the LIMS reporting templates

- Livestock Development - Dr. P. Bonnet
- Livestock Marketing and Trade (LMT) – Dr. P. Bonnet
- Animal Production (AP) – Dr. B. Bedane
- Animal Health (AH) – Dr. B. Bedane

12:30 – 13:00 Discussion

13:00 – 14:00 **LUNCH**

14:00 - 15:00 Demonstration of LIMS database – Dr. B. Bedane

15:00 -15:15 Demonstration of LIMS/AIMS Portal - Dr. B. Bedane

15:15 – 15:30 Discussion

15:30 – 16:00 Tea Break

16:00 – 16:15 Introducing data sources and networking with stakeholders – Dr. P.Bonnet

16:15 – 17:00 Participatory livestock stakeholders mapping

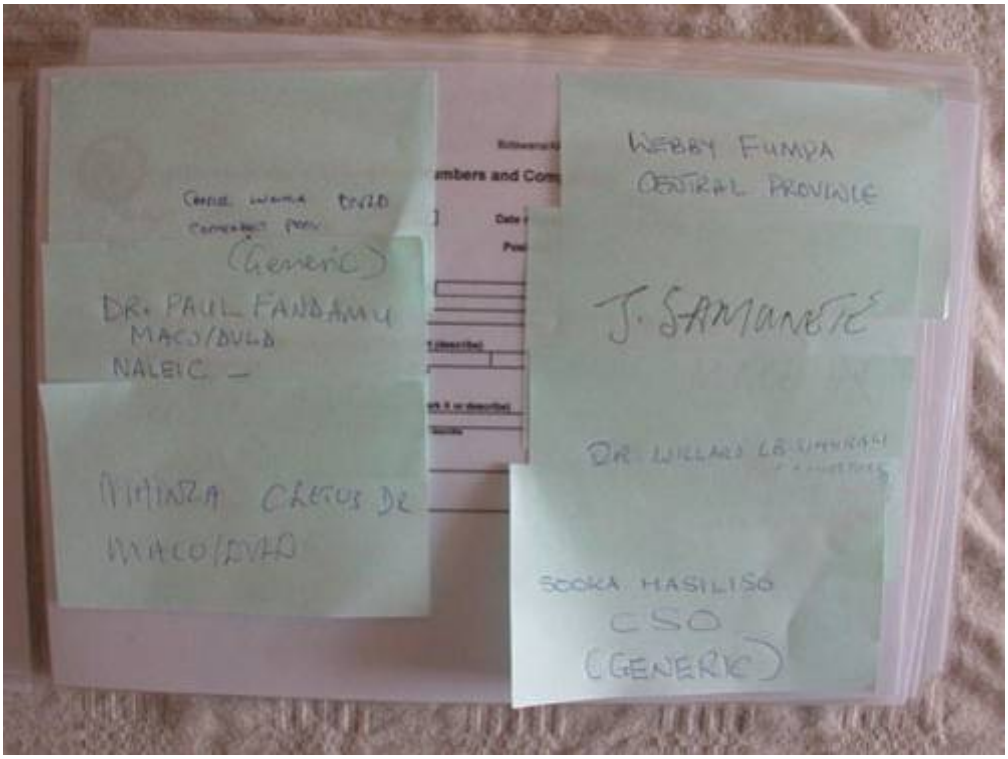
17:00 Closure

The venue at Taj Pamodzi

The exchange of tee-shirts and logos between the director of DVLD MACO and PRINT CTA: “towards LS development” thanks to the LIMS system

The Participants to the LIMS launching seminar (around 50 stakeholders)

First stakeholder mapping on the go as it was carried out the end of the seminar
Participants to the seminar were asked to indicate their preferences in participating to the LIMS by sticking their name and name of their institution on the templates displayed around the table in the seminar venue. It allowed PRINT to identify the various interests and possible contributions to the system, to a point where some appointments were made for the third activity of the adoption mission, i.e. the establishment of a national LIMS network and the drafting of first SoP's. Therefore in doing so the specific interest for a part of the system (some modules or some templates only) or a generic interest for the entire system were highlighted.



Participants were asked to stick their name on the templates of LIMS

3-2. Training on LIMS

Agenda of the LIMS training

SADC PRINT Livestock Project in collaboration with the Ministry of Agriculture and Cooperatives of the Republic of Zambia

AGENDA FOR LIMS TRAINING OF TRAINERS

11 - 13 AUGUST 2008

VENUE – LONGACRES LODGE, LUSAKA

DAY 1 – Monday 11 August 2008

8:00 – 8:15 **Introduction - Training objectives**

8:15 - 9:00 **Installation**

1. First time installation
2. Key files and folders
3. Uninstalling
4. Re-installing

9:00 – 10:30	**Basic concept of LIMS operation** 1. Opening, navigation and closing the application 2. Menu and sub-menu structure
10:30 – 11:00	**TEA BREAK**
11:00 – 11:30	**Basic concept of LIMS operation (Continued)** 3. Standard tool bar and other GUI
11:30 – 12:00	**Administration: Access Control** 1. Creating users 2. Assigning roles and granting rights
12:00 – 13:00	**Data entry, modification and saving** 1. Livestock numbers and composition (Module 1)
13:00 – 14:00	**LUNCH**
14:00 - 15:30	**Data entry, modification and saving (continued)** 2. Livestock Products (Module 3)
15:30 – 16:00	**TEA BREAK**
16:00 – 17:00	**Data entry, modification and saving (continued)** 3. Livestock Trade (Module 5)

DAY 2 – Tuesday 12 August 2008

8:00 – 9:00	**Revision of day 1 - Discussion**
9:00 – 10:30	**Data entry, modification and saving (continued)** 4. Livestock Infrastructure (Module 6)
10:30 – 11:00	**TEA BREAK**
11:00 – 11:30	**Data entry, modification and saving (continued)** 5. Meat Inspection (Module 7)
11:30 – 12:00	**Data entry, modification and saving (continued)** 6. Laws, regulations and acts (Module 9)
12:00 – 13:00	**Data entry, modification and saving (continued)** 7. Disease Report (Module 10)

13:00 – 14:00	**LUNCH**
14:00 - 15:30	**Building queries, generating reports and exporting query results** 1. Livestock numbers and composition (Module 1) 2. Livestock Products (Module 3)
15:30 – 16:00	**TEA BREAK**
16:00 – 17:00	**Building queries, generating reports and exporting query results (continued)** 3. Livestock Trade (Module 5)

DAY 3 – Wednesday 13 August 2008

8:00 – 9:00	**Revision of day 2 - Discussion**
9:00 – 10:30	**Building queries, generating reports and exporting query results (continued)** 4. Meat Inspection (Module 7) 5. Disease Report (Module 10)
10:30 – 11:00	**TEA BREAK**
11:00 – 11:30	**Building queries, generating reports and exporting query results (continued)** 5. Disease Report (Module 10) Cont.
11:30 – 13:00	**Administration** 1. Data Management: sending and receiving files (electronic reports) 2. Data Management: backup and restore
13:00 – 14:00	**LUNCH**
14:00 - 15:30	**General Discussion**
15:30 – 16:00	**TEA BREAK**
16:00 – 17:00	**Installation and configuration of clean copy of the database**
17:00	**End of training course**

The training aims at sensitizing the future trainers to the rationale of LIMS and as well to train them on the application functionalities and the templates rationale, so that they become familiar with the entire concepts and system. Besides, it is expected that they will produce ***specific training material*** derived from the ***generic training material*** provided by PRINT, i.e. training manuals for trainers and for data clerks (still to be finalized and translated), with specific examples and illustrations selected from the Zambian context.

The system is based on the principle: "***if you master one template, you master them all",*** as most screens and templates share a similar tabular presentation.

Eight (8) staff were trained as future trainers for Zambia.

The training group at Long Acres Lodge

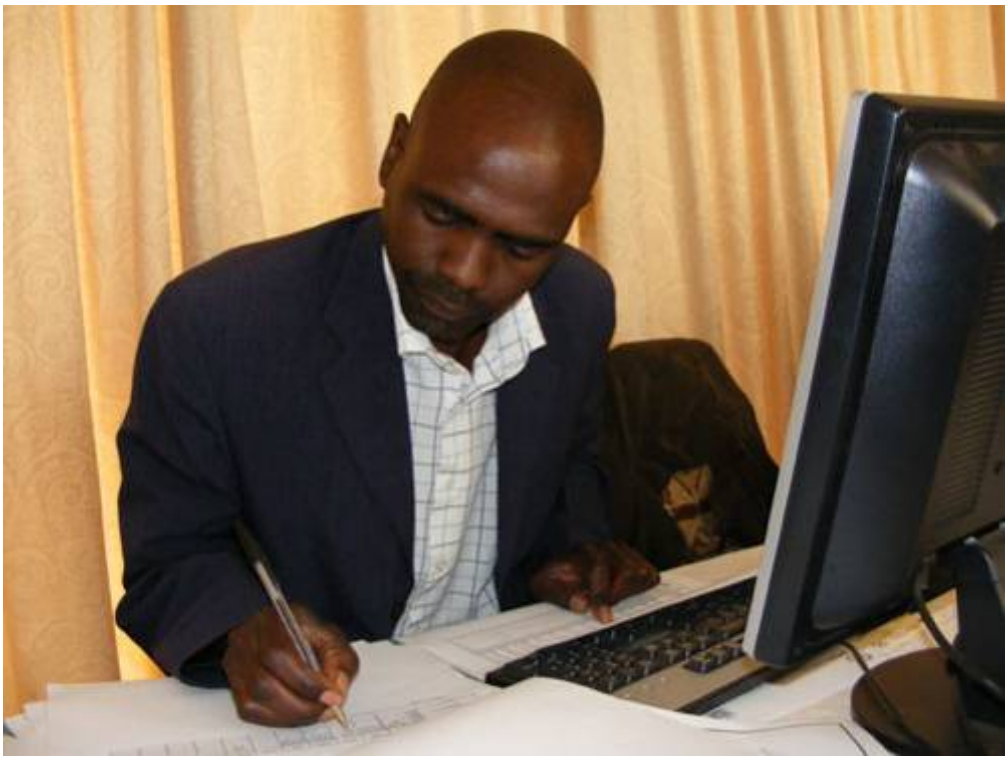
The training room accommodated for 10 staffs. Local computers from Naleic were used, some were on XP OS and Access 2003 or Access 2007, some were with Vista OS and Access 2007.

Mr. Milner Mukumbwali GIS expert, Tse tse centre

CVRI Stanley Nyirenda / Principal Laboratory Technologist

Clement Mwafulirwa MACO SLIP

Dr Yona Sinkala



Dr Mataa LiYwalii, DVLD CVRI

Dr. Fusya Yvonne Goma

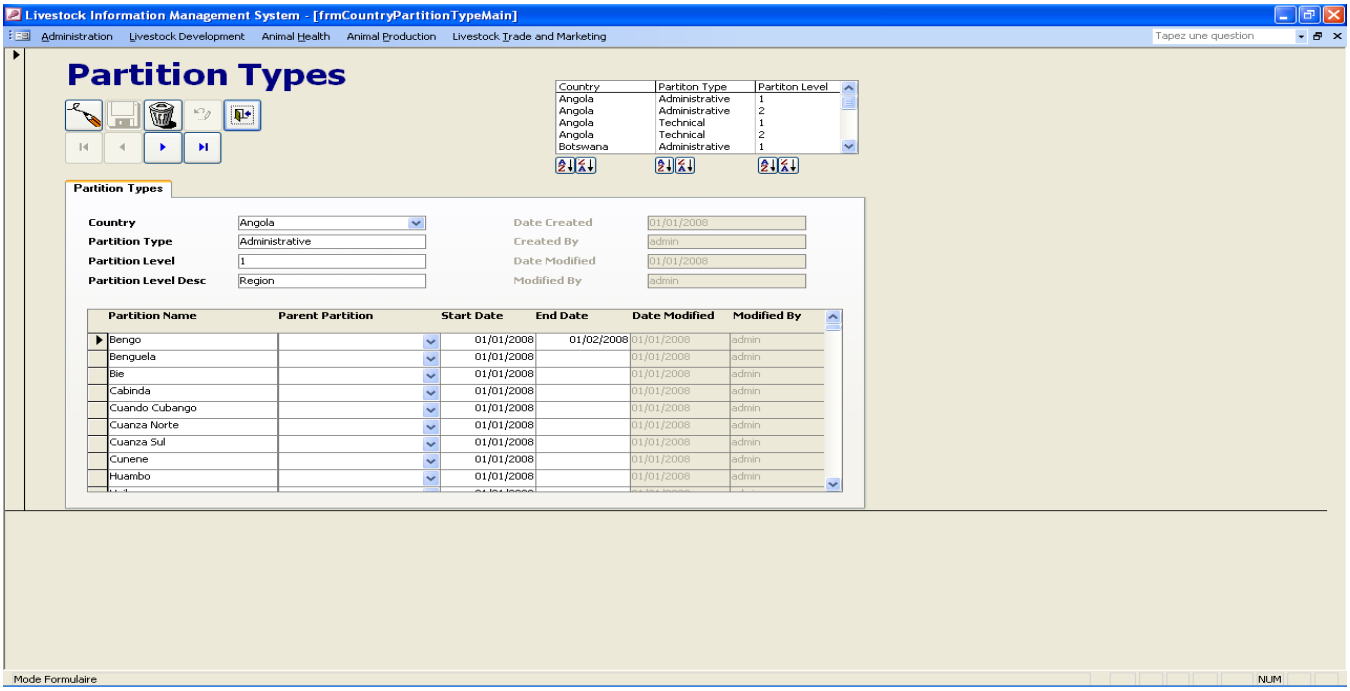
Dr. Paul Fandamu DVLD / SLIP IFAD

Happyday Ziba Nzila

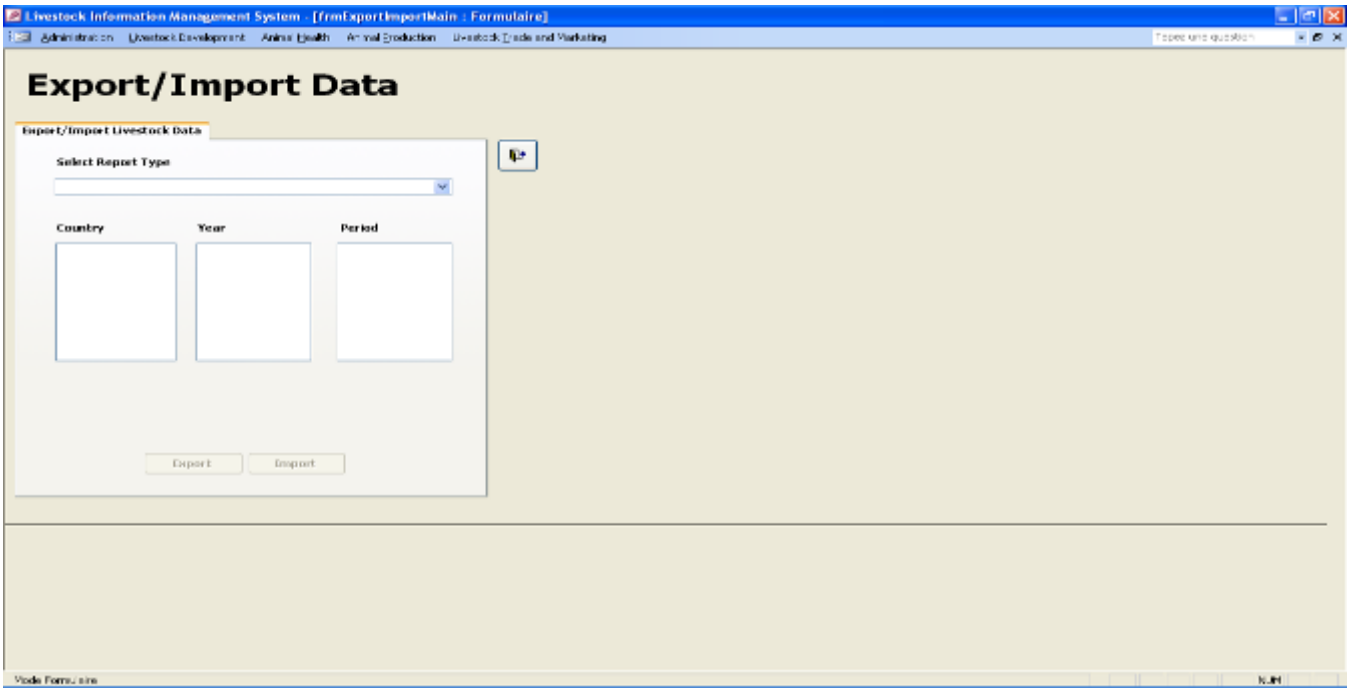
Validation of Partitions

The concept of partitions of a country is generally well understood (or Administrative divisions and Cadastral Boundaries on one hand and any Technical division used for the purpose of managing Livestock issues). Nevertheless, the use of technical partitions versus administrative partition must be discussed in depth during a LIMS adoption mission, as these are key features into LIMS.

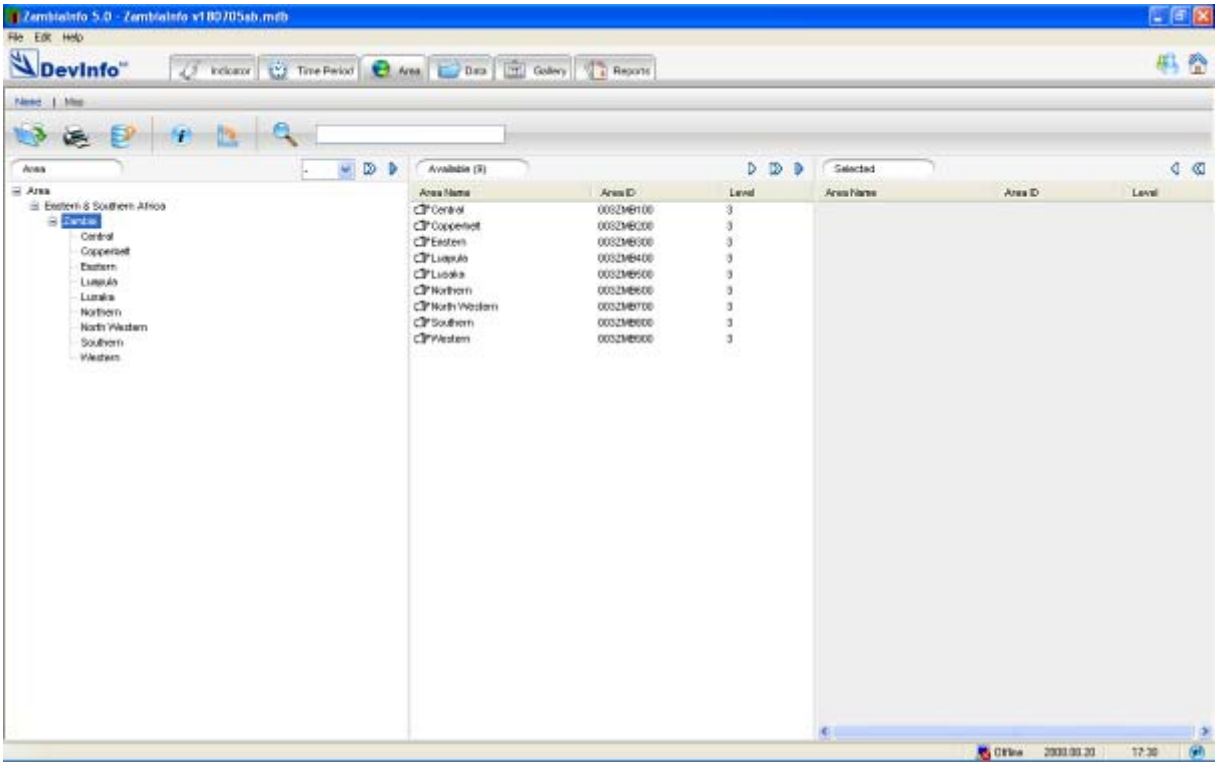
This aspect of the LIMS allows capturing data from various sources by respecting the observation units they use. It therefore allows to work with other systems by assuring that one can import/export some information / data in compliance with the relevant observation units required (i.e. with logical and geographical compliance and GIS interconnectivity). For the purpose of the demonstration, one will take the example of DEVinfo, an information system developed under the auspice of UNICEF to monitor the accomplishment of the MDG, and generally implemented in collaboration with national CSO's. As an example, if data shall be imported into LIMS by Livelihood zones, this set of partitions must be populated into LIMS, thanks to the technical partition facility predefined in such a way. Or if animal census data shall be exported by dip tank or crush pens zones, or by vaccination zones, LIMS can export such information to be inputted in any other system.



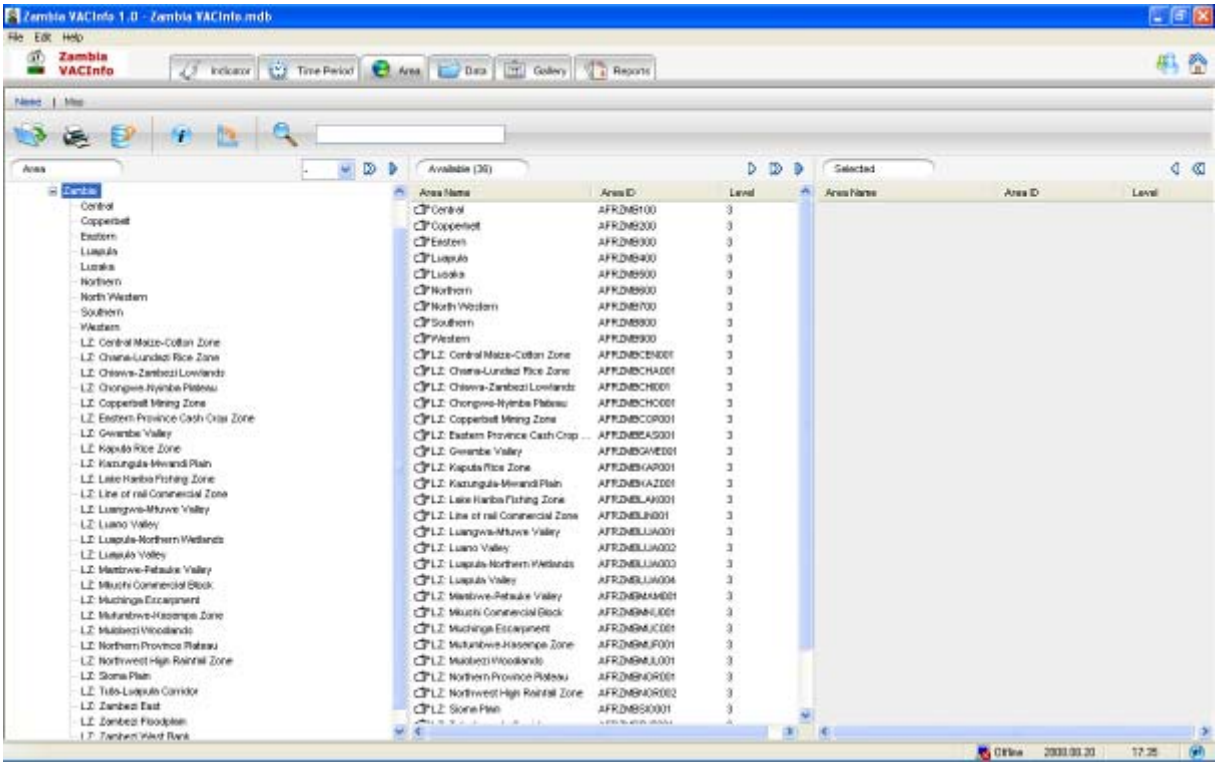
The LIMS screen that allows to pre-populate and define administrative and technical partitions of a country. For SADC purpose, it needs to be populated with at least the ADMIN2 level of a country (generally named a district), so that all data are aggregated at such a level and sent to SADC accordingly. Nevertheless for the national utilisation of LIMS one can think to implement a rather more detailed set of zones (ADMIN3, or Dip Tank catchments areas etc..).



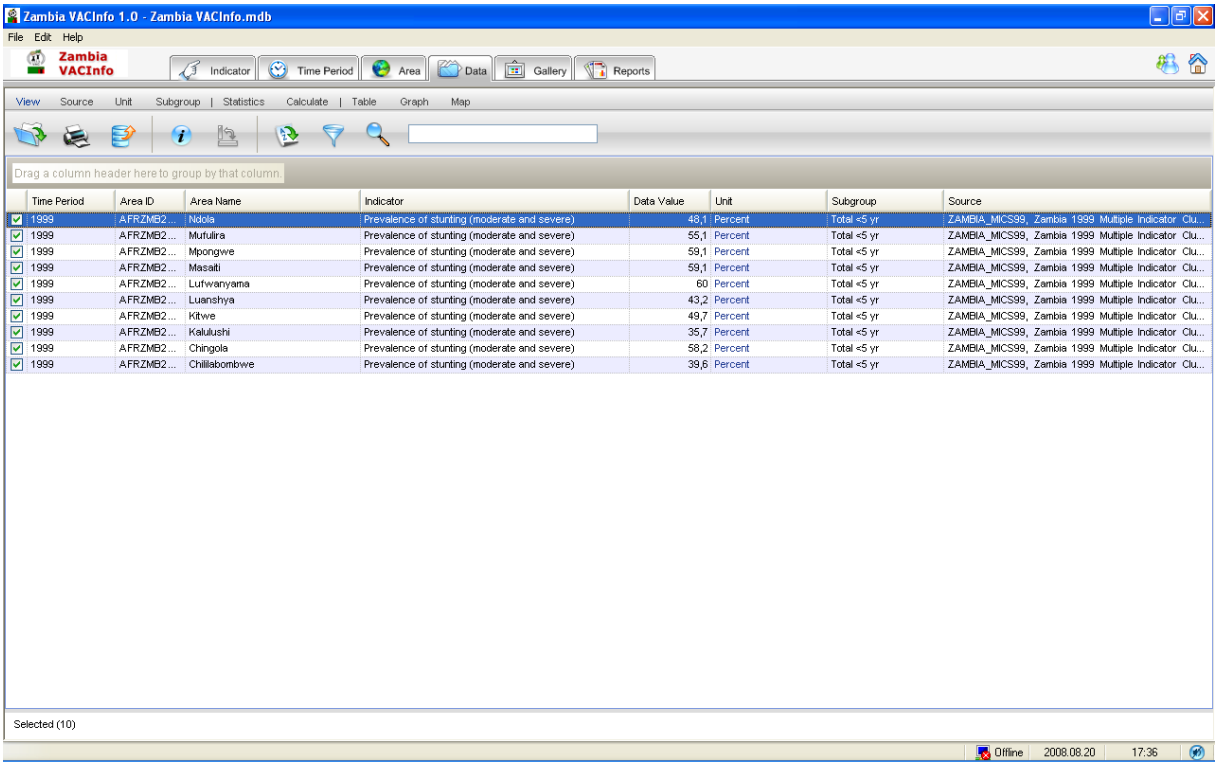
The facility that allows to export data or import shall soon allow to select the partition of preference for data exchange.



Some examples of country partitions implemented into DEVinfo and VACinfo in Zambia (Admin and livelihood zones). Here we see the regions. Before exporting data from DEVinfo one should select the proper zoning scheme that one needs. Some data may have been captured under administrative zoning principle, whereas some other could be under a technical partition. Finally all can be overlaid in a GIS.



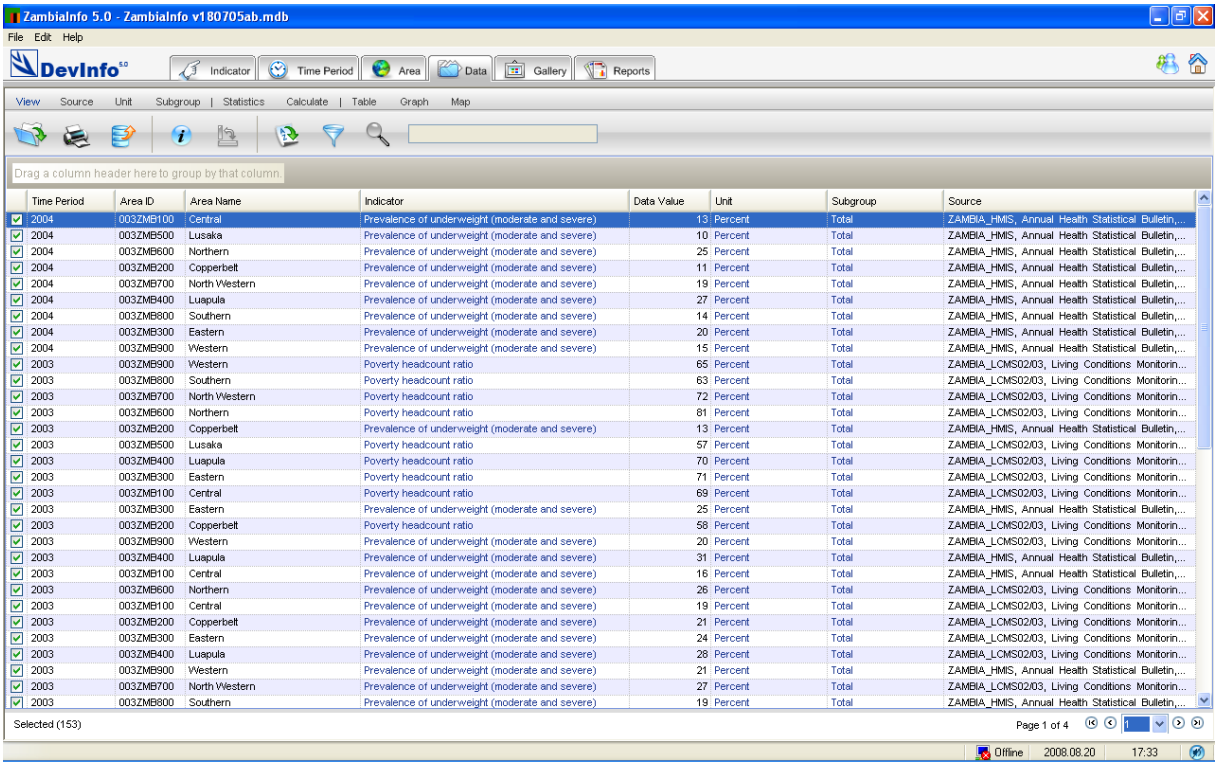
Here we see the selection offered both administrative zones and Livelihood zones used in Zambia.



Time Period	Area ID	Area Name	Indicator	Data Value	Unit	Subgroup	Source
1999	AFRZMB2...	Ndola	Prevalence of stunting (moderate and severe)	48,1	Percent	Total <5 yr	ZAMBIA_MICS99, Zambia 1999 Multiple Indicator Clu...
1999	AFRZMB2...	Mufulira	Prevalence of stunting (moderate and severe)	55,1	Percent	Total <5 yr	ZAMBIA_MICS99, Zambia 1999 Multiple Indicator Clu...
1999	AFRZMB2...	Mpongwe	Prevalence of stunting (moderate and severe)	59,1	Percent	Total <5 yr	ZAMBIA_MICS99, Zambia 1999 Multiple Indicator Clu...
1999	AFRZMB2...	Masaiti	Prevalence of stunting (moderate and severe)	59,1	Percent	Total <5 yr	ZAMBIA_MICS99, Zambia 1999 Multiple Indicator Clu...
1999	AFRZMB2...	Lufwanyama	Prevalence of stunting (moderate and severe)	60	Percent	Total <5 yr	ZAMBIA_MICS99, Zambia 1999 Multiple Indicator Clu...
1999	AFRZMB2...	Luanshya	Prevalence of stunting (moderate and severe)	43,2	Percent	Total <5 yr	ZAMBIA_MICS99, Zambia 1999 Multiple Indicator Clu...
1999	AFRZMB2...	Kitwe	Prevalence of stunting (moderate and severe)	49,7	Percent	Total <5 yr	ZAMBIA_MICS99, Zambia 1999 Multiple Indicator Clu...
1999	AFRZMB2...	Kalulushi	Prevalence of stunting (moderate and severe)	35,7	Percent	Total <5 yr	ZAMBIA_MICS99, Zambia 1999 Multiple Indicator Clu...
1999	AFRZMB2...	Chingola	Prevalence of stunting (moderate and severe)	58,2	Percent	Total <5 yr	ZAMBIA_MICS99, Zambia 1999 Multiple Indicator Clu...
1999	AFRZMB2...	Chililabombwe	Prevalence of stunting (moderate and severe)	39,6	Percent	Total <5 yr	ZAMBIA_MICS99, Zambia 1999 Multiple Indicator Clu...

Here we see the selection made for area names (admin in such case = districts).

Bridging data from LIMS to DEVinfo and vice versa will allow for some exploratory analysis like analysing geographical correlation (also called ecological correlations) between some MDG indicators and LIMS indicators, e.g. prevalence of underweight in districts (source DEVinfo) or prevalence of stunting (VACinfo) against % of HH rearing LS (source LIMS), or production of a given protein (animal product) in districts.



Time Period	Area ID	Area Name	Indicator	Data Value	Unit	Subgroup	Source
2004	003ZMB100	Central	Prevalence of underweight (moderate and severe)	13	Percent	Total	ZAMBIA_HMIS, Annual Health Statistical Bulletin,...
2004	003ZMB500	Lusaka	Prevalence of underweight (moderate and severe)	10	Percent	Total	ZAMBIA_HMIS, Annual Health Statistical Bulletin,...
2004	003ZMB600	Northern	Prevalence of underweight (moderate and severe)	25	Percent	Total	ZAMBIA_HMIS, Annual Health Statistical Bulletin,...
2004	003ZMB200	Copperbelt	Prevalence of underweight (moderate and severe)	11	Percent	Total	ZAMBIA_HMIS, Annual Health Statistical Bulletin,...
2004	003ZMB700	North Western	Prevalence of underweight (moderate and severe)	19	Percent	Total	ZAMBIA_HMIS, Annual Health Statistical Bulletin,...
2004	003ZMB400	Luapula	Prevalence of underweight (moderate and severe)	27	Percent	Total	ZAMBIA_HMIS, Annual Health Statistical Bulletin,...
2004	003ZMB800	Southern	Prevalence of underweight (moderate and severe)	14	Percent	Total	ZAMBIA_HMIS, Annual Health Statistical Bulletin,...
2004	003ZMB300	Eastern	Prevalence of underweight (moderate and severe)	20	Percent	Total	ZAMBIA_HMIS, Annual Health Statistical Bulletin,...
2004	003ZMB900	Western	Prevalence of underweight (moderate and severe)	15	Percent	Total	ZAMBIA_HMIS, Annual Health Statistical Bulletin,...
2003	003ZMB900	Western	Poverty headcount ratio	65	Percent	Total	ZAMBIA_LCMS02/03, Living Conditions Monitorin...
2003	003ZMB800	Southern	Poverty headcount ratio	63	Percent	Total	ZAMBIA_LCMS02/03, Living Conditions Monitorin...
2003	003ZMB700	North Western	Poverty headcount ratio	72	Percent	Total	ZAMBIA_LCMS02/03, Living Conditions Monitorin...
2003	003ZMB600	Northern	Poverty headcount ratio	81	Percent	Total	ZAMBIA_LCMS02/03, Living Conditions Monitorin...
2003	003ZMB200	Copperbelt	Prevalence of underweight (moderate and severe)	13	Percent	Total	ZAMBIA_HMIS, Annual Health Statistical Bulletin,...
2003	003ZMB500	Lusaka	Poverty headcount ratio	57	Percent	Total	ZAMBIA_LCMS02/03, Living Conditions Monitorin...
2003	003ZMB400	Luapula	Poverty headcount ratio	70	Percent	Total	ZAMBIA_LCMS02/03, Living Conditions Monitorin...
2003	003ZMB300	Eastern	Poverty headcount ratio	71	Percent	Total	ZAMBIA_LCMS02/03, Living Conditions Monitorin...
2003	003ZMB100	Central	Poverty headcount ratio	69	Percent	Total	ZAMBIA_LCMS02/03, Living Conditions Monitorin...
2003	003ZMB300	Eastern	Prevalence of underweight (moderate and severe)	25	Percent	Total	ZAMBIA_HMIS, Annual Health Statistical Bulletin,...
2003	003ZMB200	Copperbelt	Poverty headcount ratio	58	Percent	Total	ZAMBIA_LCMS02/03, Living Conditions Monitorin...
2003	003ZMB900	Western	Prevalence of underweight (moderate and severe)	20	Percent	Total	ZAMBIA_LCMS02/03, Living Conditions Monitorin...
2003	003ZMB400	Luapula	Prevalence of underweight (moderate and severe)	31	Percent	Total	ZAMBIA_HMIS, Annual Health Statistical Bulletin,...
2003	003ZMB100	Central	Prevalence of underweight (moderate and severe)	16	Percent	Total	ZAMBIA_HMIS, Annual Health Statistical Bulletin,...
2003	003ZMB600	Northern	Prevalence of underweight (moderate and severe)	26	Percent	Total	ZAMBIA_LCMS02/03, Living Conditions Monitorin...
2003	003ZMB100	Central	Prevalence of underweight (moderate and severe)	19	Percent	Total	ZAMBIA_LCMS02/03, Living Conditions Monitorin...
2003	003ZMB200	Copperbelt	Prevalence of underweight (moderate and severe)	21	Percent	Total	ZAMBIA_LCMS02/03, Living Conditions Monitorin...
2003	003ZMB300	Eastern	Prevalence of underweight (moderate and severe)	24	Percent	Total	ZAMBIA_LCMS02/03, Living Conditions Monitorin...
2003	003ZMB400	Luapula	Prevalence of underweight (moderate and severe)	28	Percent	Total	ZAMBIA_LCMS02/03, Living Conditions Monitorin...
2003	003ZMB900	Western	Prevalence of underweight (moderate and severe)	21	Percent	Total	ZAMBIA_HMIS, Annual Health Statistical Bulletin,...
2003	003ZMB700	North Western	Prevalence of underweight (moderate and severe)	27	Percent	Total	ZAMBIA_LCMS02/03, Living Conditions Monitorin...
2003	003ZMB800	Southern	Prevalence of underweight (moderate and severe)	19	Percent	Total	ZAMBIA_HMIS, Annual Health Statistical Bulletin,...

The Generic Partitions, 1.Admin, 2.Technical have been validated in Zambia[1] and we provide them into the annexe and some elements in the following paragraphs. **Web-mapping** under the portal cf. http://LIMS.sadc.int requires consistent correspondence between partitions implemented on the portal and on LIMS.

Administrative partitions

Table: The 9 Zambian provinces (level 1) and their map.

ID	PRIMARY
1	NORTHERN
2	LUAPULA
3	EASTERN
4	NORTH WESTERN
5	CENTRAL
6	COPPERBELT
7	WESTERN
8	LUSAKA
9	SOUTHERN

[1] Sources of geographical data were explored during the first situation analysis undertaken in phase one of LIMS cf. the report *Report of a Mission on LIMS situation analysis to the Republic of Zambia, PRINT Report N°: LIMS-ZAM-06-2007, By Dr. Pascal BONNET, Chief Technical Adviser, PRINT, Part 1: LIMS situation analysis, Part 2: Reinforcement of the capacity on Contagious Bovine Pleuropneumonia (CBPP).*

The 72 Zambian districts (level ADMIN2) and their map. A full list is in the annexe VII and has been validated during the training (some spelling edited).

The partitions as implemented into DEVinfo

UT_Area_en								
Area_NId	Area_Parent_NId	Area_ID	Area_Name	Area_GId	Area_Level	Area_Map	Area_Block	Area_Global
1	-1	003	Eastern & Southern Africa	141ACA5D-E919-4661-B951-B30F49D4645F	1	esaro_region.shp		Non
2	1	003ZMB	Zambia	03AB3F28-A250-4FC5-8B09-BC50D34A76F2	2	zmb03_country.shp		Non
3	2	003ZMB800	Southern	EEE55501-969C-4AD6-AB2A-84FD9A66F33F	3	zmb03_southern_province.shp		Non

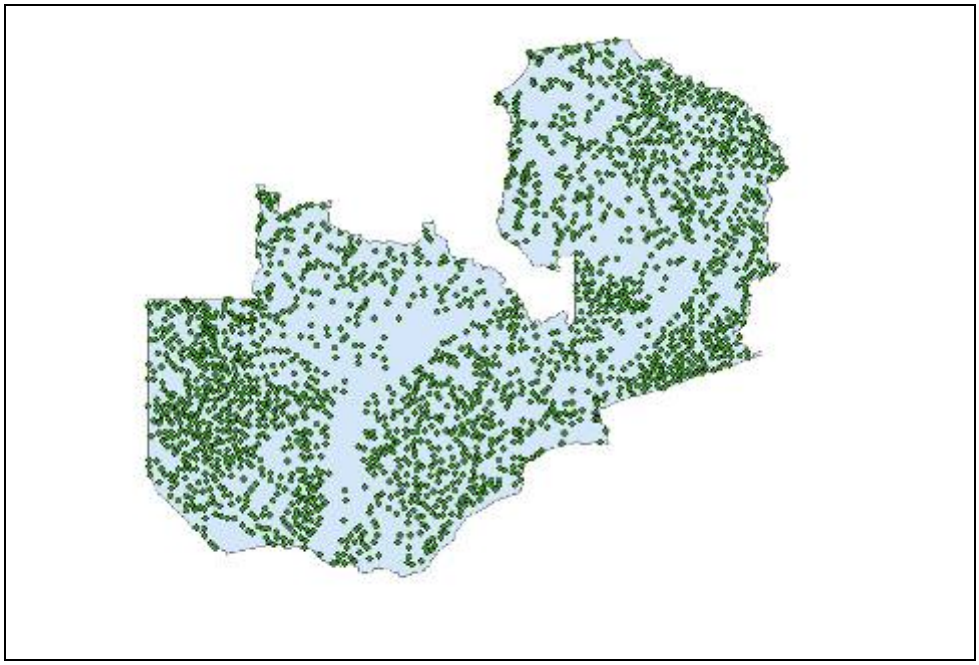
Technical partitions

Detailed spatial units: Villages and Vet camps

Vet camps are the observation units for many LS statistics collected by the DVLD. Their listing is available from NALEIC (though need some editing). It is envisaged to

implement the entire list of **vet camps** in the technical partition facility of LIMS[2] for the national database so that the authorities are able to capture at such a level of detail data on animals health (Module 10 and 11) and on census (Module 2). It should be decided whether it is preferable to have Vet camps defined as technical zones (so far the preferred option), or as third level of ADMIN, as it seems that they are fully embedded within the demarcation of districts. Nevertheless they are not administrative boundaries, therefore should not in theory been considered as admin types. When examining the dataset the NALEIC team said they are valid data.

We therefore provide the list of vet camps in the annexe VIII



The representation of Vet camps data (as dots) in a GIS shows their Long Lat location (to be associated with their zonal catchment areas)

One can implement a list of Villages city towns with their names into LIMS, since some screens use such details (e.g. Module 10 or modules on infrastructures M6). An official village's gazeeter can therefore be implemented as a set of parameters of LIMS. A list of Village's names are available with a detailed list and their geo-reference from SAHIMS –FEWS source, though we cannot confirm its relevance (cf annexe VIIIb).

One of the problem of implementing a full Gazetteer into LIMS is that the implementation of a long list into LIMS is not always necessary and will render LIMS a bit "heavy" and may be slow, when it come to accessing such a listing (by a scroll down feature in the software). Actually only a few items (a few names from the list) will be finally used (e.g. use of only towns where Livestock infrastructures do exist). This remark is important to consider before we implement such a listing into LIMS.

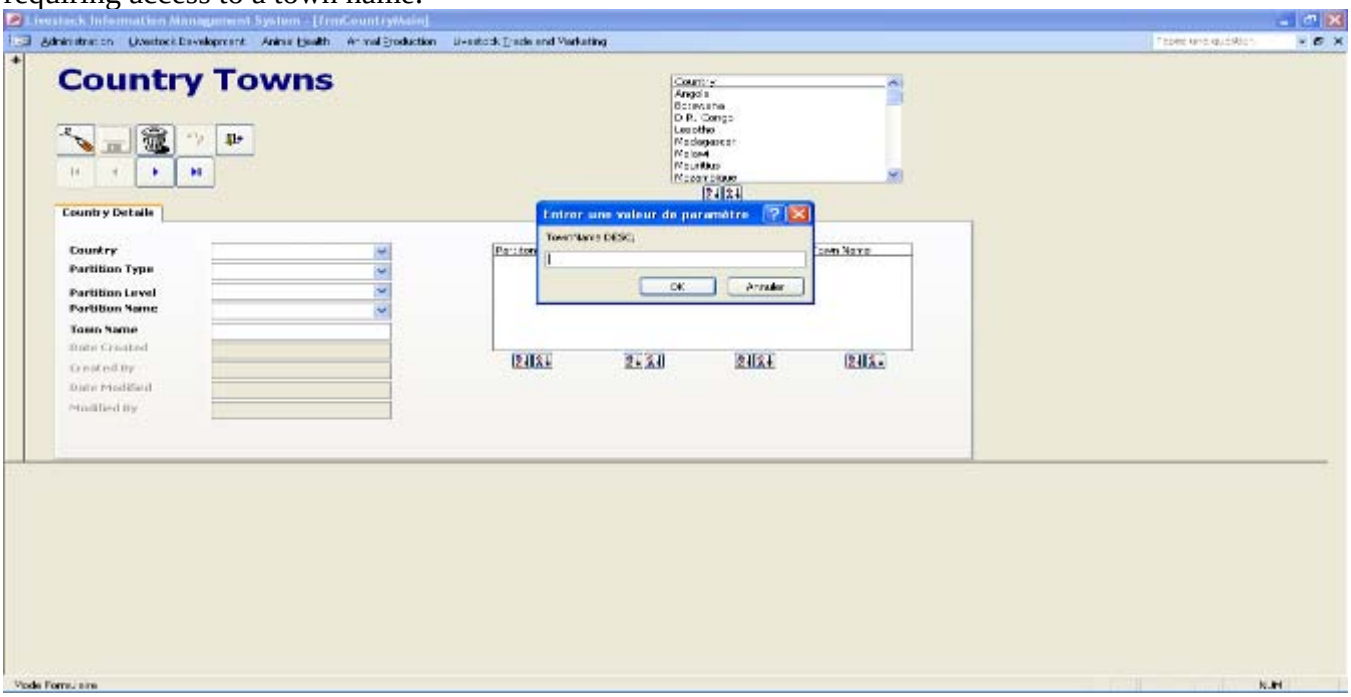
[2] Agricultural camps could be also added if there is a need.

The current gazetteer has 2137 items (towns or cities or village names). PRINT recommends to explore the list, validate it and only use it as a “reference list of village” (in LIMS manual and guidelines for Zambia) so that any data capture for a new city or village will be made in compliance with such an official listing and will follow a nomenclature.

Table: an excerpt of the Excel file provided in the annexes (source SAHIMS), to serve as a first baseline dataset for a gazetteer in Zambia.

NAME	ADMIN1	CLASS	LONGITUDE	LATITUDE	ID
Kalala	Caprivi Oos	6	24.866667000000000	-17.533332999999900	320566
Luhopi	Caprivi Oos	6	24.500000000000000	-17.483332999999900	320625
Abelo	Central Province	6	30.449999999999900	-12.716666999999900	321483
Adamson Chibuye	Central Province	6	30.733332999999900	-12.783333000000000	321485
Adamson Kulubale	Central Province	6	30.449999999999900	-12.583333000000000	321486
Akim Kosoma	Central Province	6	30.333333000000000	-12.800000000000000	321501
Alec Chimponda	Central Province	6	30.583333000000000	-12.916667000000000	321503
Amos Kalunga	Central Province	6	30.266667000000000	-12.883333000000000	321512
Amos Mwelwa	Central Province	6	30.399999999999900	-12.933332999999900	321513
Andersoni	Central Province	6	30.866667000000000	-13.216666999999900	321523
Anock Chikwaba	Central Province	6	27.199999999999900	-14.400000000000000	321531
Balumika	Central Province	6	29.416667000000000	-14.466666999999900	321543
Baskolo	Central Province	6	30.600000000000000	-13.233333000000000	321548
Bayeka	Central Province	6	26.183333000000000	-14.883333000000000	321554
Belama	Central Province	6	26.399999999999900	-14.633333000000000	321555
Ben Kashiya	Central Province	6	29.533332999999900	-15.100000000000000	321561

Any city or town’ list can be implemented into LIMS thanks to the following screen, before becoming available in any screen (by a scroll down menu item) when requiring access to a town name.



Our GIS expert is also in charge of many GIS services for other ministries (e.g. ZAWA i.e. wildlife services). Therefore we recommend him to be the person updating (or giving the recommendations) on any partitioning system in LIMS for the country.

If data from ZAWA is to be used (e.g. for game ranching data or disease of wildlife into parks), it may be wise having wildlife management zones being implemented as technical zones as well.

Components, Modules and Templates looked at during the training

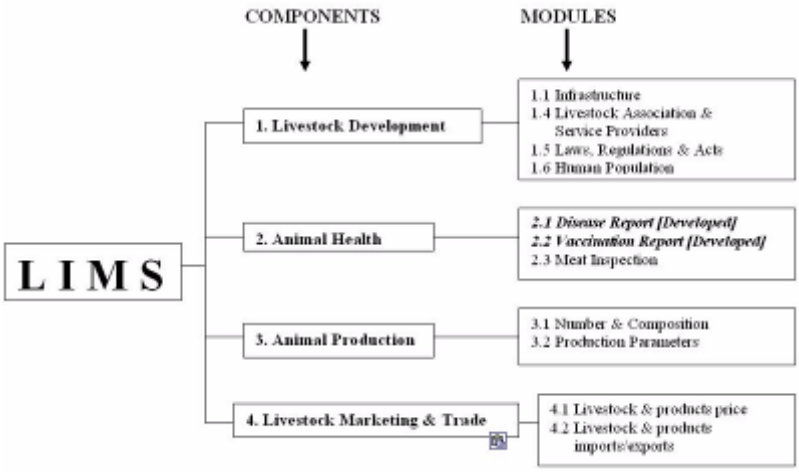


Diagram: the four components of LIMS on which future Zambian trainers have been trained (in addition to the administrative module and other functionalities of LIMS). Components have reporting templates (in Excel all reproduced into the application in MS Access©) which pertain to modules. Hence there are three levels for categorizing the contents.

All templates (part of the modules) shall be associated with a SoP (see next section). We recommend at least the drafting of one SoP per Module (or ideally one SoP per template as part of a given module).
Every time a template is filled (equivalent of a data screen in the application) then a header must be filled with the given template to indicate e.g. the methodology used to get the data, the source of the data and the person responsible for the module. There are 11 modules, some have quantitative attributes (9/11) and two are non-quantitative (listing).

We do not display in this report the entire set of templates and related screens but we only highlight some where comments were made during the presentation and the training on both the templates and the application (screens). More comments will flow to PRINT thanks to the participants who shall use the comment sheet provided during the training.
The templates are available in the electronic annexe (CD).

All modules have a header, which is almost similar in all templates, indicating the frequency of reporting and of submission to SADC, the person responsible and some indication on methodology and source for data submitted to the secretariat.

- Headers for all (cf. SoP's and definition of responsibilities in the LIMS system)

Module 1 Numbers & Composition of Herds

- 1. Nr by species
- 2. Nr by economics
- 3. Nr by breeds
- 4. Nr by herd structure

2. Livestock numbers - by economic function

Partion Type*	Partition 1, e.g. Region/Province	Partition 2, e.g. District	Cattle					Sheep			Goats		
			Dairy	Beef	Dual purpose	Draft or work	Others**	Mutton	Wool	Karakul	Meat	Milk	Mohair
.....	Reg/prov 1.....	Dist 1.....											
		Dist 2.....											
		Dist 3.....											
.....	Reg/prov 2.....	Dist 1.....											
		Dist 2.....											
		Dist 3.....											
	etc												

* Specify Administrative or Technical bounderies (admin or techn)

** Specify type

Partion Type*	Partition 1, e.g. Region/Province	Partition 2, e.g. District	Pigs				Chicken				
			Porkers	Baconers	Breeders	Village	Layers	Broilers	Dual Purpose	Parent stock	Vilage
.....	Reg/prov 1.....	Dist 1.....									
		Dist 2.....									
		Dist 3.....									
.....	Reg/prov 2.....	Dist 1.....									
		Dist 2.....									
		Dist 3.....									
	etc										

3. Livestock numbers - by breed

Partition Type*	Partition 1, e.g. Region/Province	Partition 2, e.g. District	Cattle			Sheep			Goat		
			Indigenous	Exotic	Crossbreed	Indigenous	Exotic	Crossbreed	Indigenous	Exotic	Crossbreed
.....	Reg/prov 1.....	Dist 1.....									
		Dist 2.....									
		Dist 3.....									
.....	Reg/prov 2.....	Dist 1.....									
		Dist 2.....									
		Dist 3.....									
	etc										

* Specify Administrative or Technical bounderies (admin or techn)

Partition Type*	Partition 1, e.g. Region/Province	Partition 2, e.g. District	Pigs			Chicken			Other**.....		
			Indigenous	Exotic	Crossbreed	Indigenous	Exotic	Crossbreed	Indigenous	Exotic	Crossbreed
.....	Reg/prov 1.....	Dist 1.....									
		Dist 2.....									
		Dist 3.....									
.....	Reg/prov 2.....	Dist 1.....									
		Dist 2.....									
		Dist 3.....									
	etc										

** Specify breed

4.1. Cattle herd structure

Partition Type*	Partition 1, e.g. Region/Province	Partition 2, e.g. District	Oxen	Cows	Bulls	Tollies (steers)	Heifers	Male calves	Female calves
……	Reg/prov 1…….	Dist 1…..							
		Dist 2…..							
		Dist 3…..							
……	Reg/prov 2…….	Dist 1…..							
		Dist 2…..							
		Dist 3…..							
	etc								

* Specify Administrative or Technical bounderies (admin or techn)

4.2. Sheep and goat flock structure

Partition Type*	Partition 1, e.g. Region/Province	Partition 2, e.g. District	Sheep			Goats		
			Rams	Ewes	Young animals (weaners & lambs)	Bucks	Does	Young animals (weaners & kids)
……	Reg/prov 1…….	Dist 1…..						
		Dist 2…..						
		Dist 3…..						
……	Reg/prov 2…….	Dist 1…..						
		Dist 2…..						
		Dist 3…..						
	etc							

The word "*does*" must be explained in the specific manual. In the context of Zambia, it is used for rabbits, the use of "she goats" is preferred to does, Billy goats preferred to Bucks, therefore an equivalence for the terminology will be given in the final manuals.

4.3. Pig herd structure

Partition Type*	Partition 1, e.g. Region/Province	Partition 2, e.g. District	Boars	Sows	Barrows	Gilts	Young animals (weaners & piglets
……	Reg/prov 1…….	Dist 1…..					
		Dist 2…..					
		Dist 3…..					
	Reg/prov 2…….	Dist 1…..					
		Dist 2…..					
		Dist 3…..					
	etc						

These templates are all reflected into the LIMS application with a similar tabular visual approach.

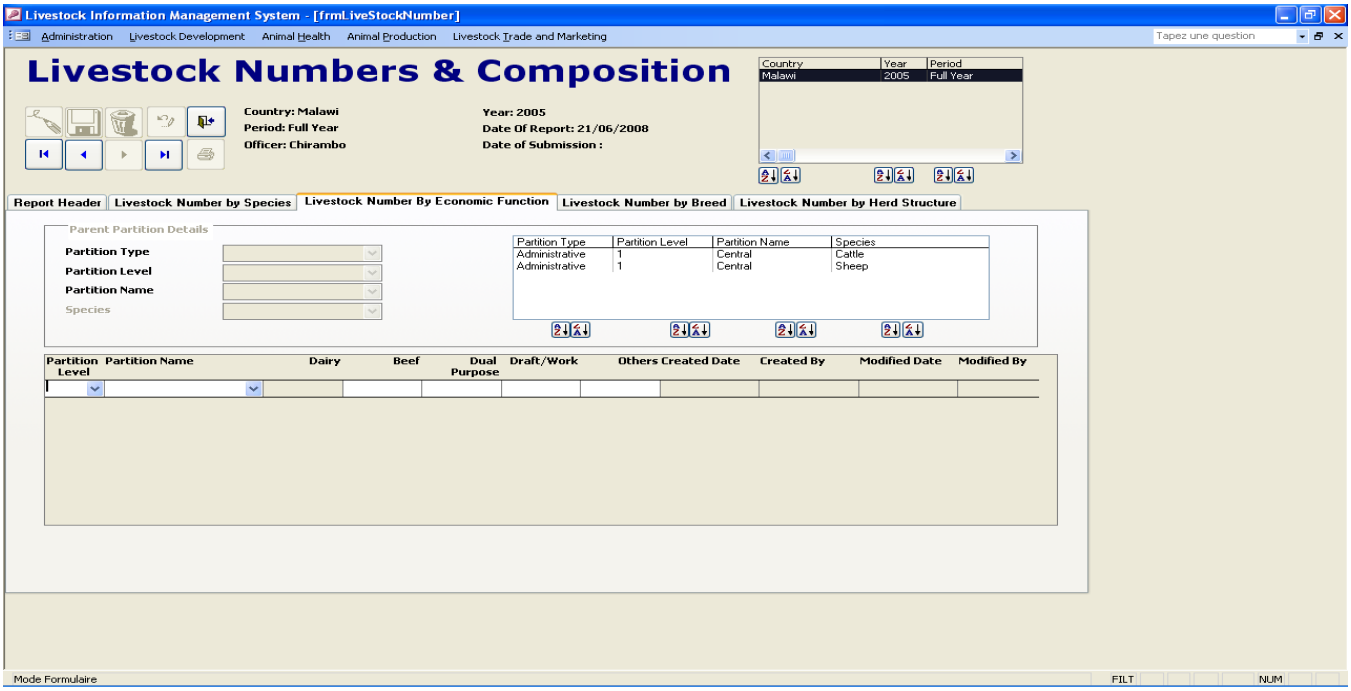


Figure: screen corresponding to the census template by economic function (also attached to the header template in the first screen tab).

The computation of TLU so far uses the classic internationally recognized TLU = 250 kg metabolic weight (e.g. cattle 0.7 TLU) for converting figures in equivalent numbers given species. TLU is therefore a starting point. There are various ways of computing animal equivalent in tropical units, but the one selected can be changed later according to the needs of MS, though there is no harmonized way for computing this in the region. It can be improved if we use AU (animal units) like in RSA given breeds, or according to modus operandi used in Botswana with Livestock unit LSU = 450 kg live weight i.e. equivalent to one cow plus one calf 6 month or less, or equivalent to 6 goats / sheeps), all applicable in extensive ranching conditions. LSU , AU or TLU are generally used to derive a carrying capacity.

In Zambia a stock register do already exist at vet camp level (cf. form). Therefore, this is the primary & regular source of information that can be provided by DVLD on a monthly basis.

We nevertheless recommend that the other sources of information regarding census are also captured (e.g. CSO yearly agricultural surveys, decade based censuses) so that we can make comparisons of methods and figures.
When there is several sources of data for census, hence representing several data sets that can be compared (for instance one from vaccination reports, another one from agricultural surveys, an another one from general census), one should fill each time a header before inputting the templates with numerical data.

The only constraint implemented into the software is that for one source mentioned, the breakdown of figures into the selected templates (if some or all are filled) should tally (e.g. a breakdown by specie and a break down by age & sex should tally if originating from the same source and methodology).

Definition of the categories when countries differ in their modus operandi: although we try to impose a nomenclature with well defined categories, for the template on economic functions, there is some flexibility accepted some countries will fill it encompassing young animals whereas some will exclude them. Such information should be indicated in the manual and as a comment in the LIMS (memo box in the application). Another alternative shall be to impose only one single definition of the economic categories for instance excluding young animals.

STOCK REGISTER

DISTRICT:_____ CAMP:_____ CRUSHPEN:_____

FARMER/KRAAL:_____ FARMING SYSTEM:_____ SHEET:_____

LIVESTOCK DYNAMICS

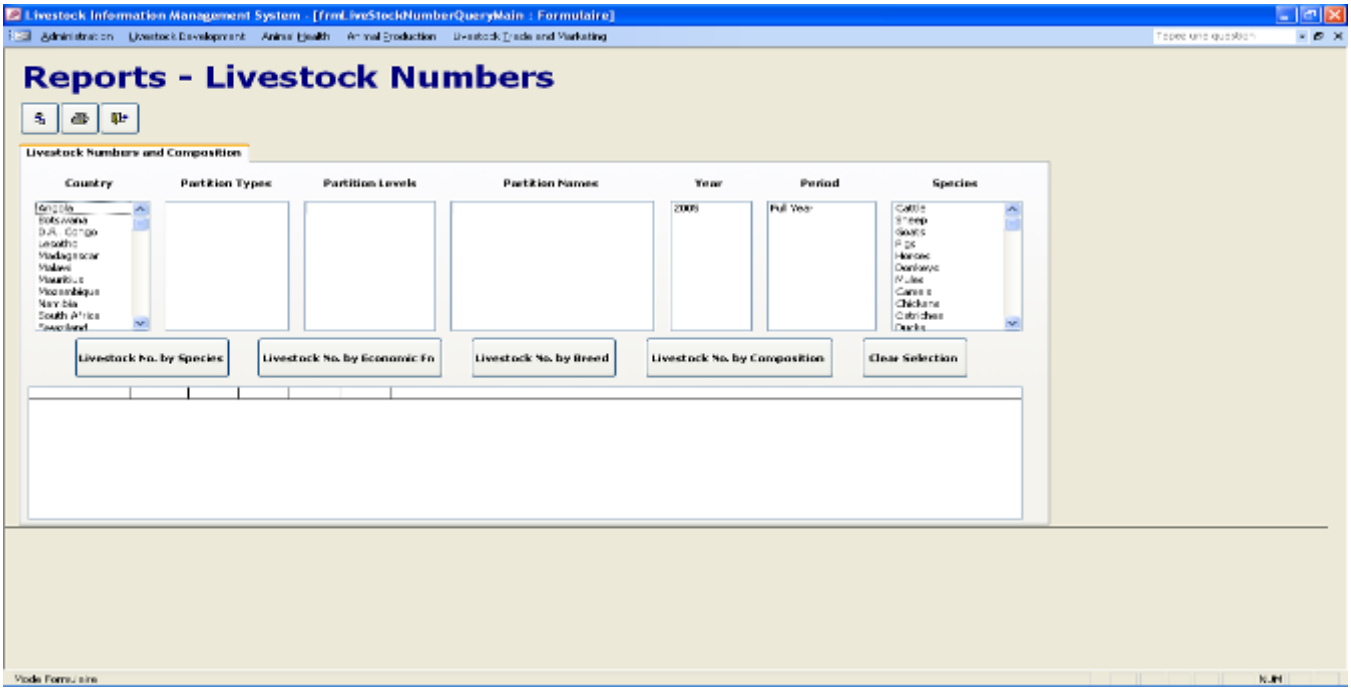
					ADDITIONS				SUBTRACTIONS						
						Transferred in				Transferred out					
Date	Species	Breed	Category	Count at last visit	Category Change	Bought	others	Born	Category Change	Sold	Others	Death	Current count	Cumulative Total	Comment

NALEIC has already census figures to provide on an annual basis and by districts. We have collected some elements in Excel.

EASTERN PROVINCE COMPARATIVE LIVESTOCK CENSUS FIGURES FOR THE YEARS 2006 AND 2002

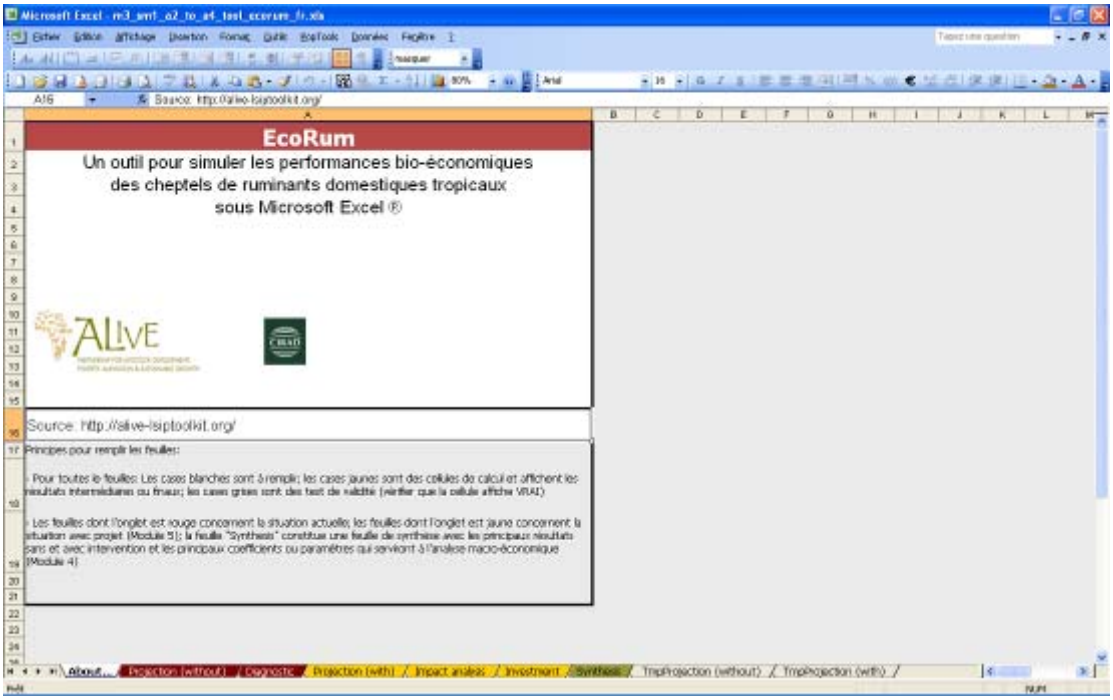
Year	No.	NAME OF DISTRICT	CATTLE HERD STRUCTURE & SALES											
			Bulls	Cows	Oxen	Steers	Heifers	Bull calves	Heifer calves	TOTAL CATTLE	ECF Immunised	Dipped (Trypo)	Sales Cattle
2006		CHIPATA	2,957	26,211	16,459	5,953	9,825	7,352	7,504	77261	18,429	9,170	2,876
		PETAUKE	2,617	18,578	16,242	5,867	6,711	5,127	4,480	59622	6,845	1,836	2,410
		KATETE	2,175	18,236	16,931	6,562	7,553	5,310	4,859	62046	8,134	5,316	2,071
		LUNDAZI	2,009	10,229	11,298	3,511	8,865	2,893	3,634	48438	2,002	1,954	973
		CHADIZA	1,042	8,190	6,011	2,029	2,459	1,752	1,589	23072	480	186	479
		NYIMBA	1,730	10,288	7,377	2,488	3,398	3,006	3,288	31574	351	4,505	2,541
		CHAMA	112	349	67	88	157	82	96	951	103	584	43
		MAMBWE	337	982	1,227	437	437	245	39	3704	87	3,406	67
		PROVINCE	12,979	99,062	75,612	28,355	39,405	25,766	25,489	306,668	36,431	28,957	11,260
2002		CHIPATA	2,271	20,216	14,000		8,400	6,434	6,155	57476			
		PETAUKE	2,057	20,094	18,202		9,000	6,350	6,047	62650			
		KATETE	1,097	15,334	17,330		5,623	4,541	4,884	49089			
		LUNDAZI	1,600	9,549	10,528		4,589	2,495	2,953	31714			
		CHADIZA	740	7,288	5,531		2,480	2,010	2,142	20191			
		NYIMBA	360	2,657	2,389		1,361	820	862	8449			
		CHAMA								0			
		MAMBWE	111	523	896		227	214	177	2148			
		PROVINCE	8,236	75,661	68,876	0	31,660	23,164	23,220	231,717			

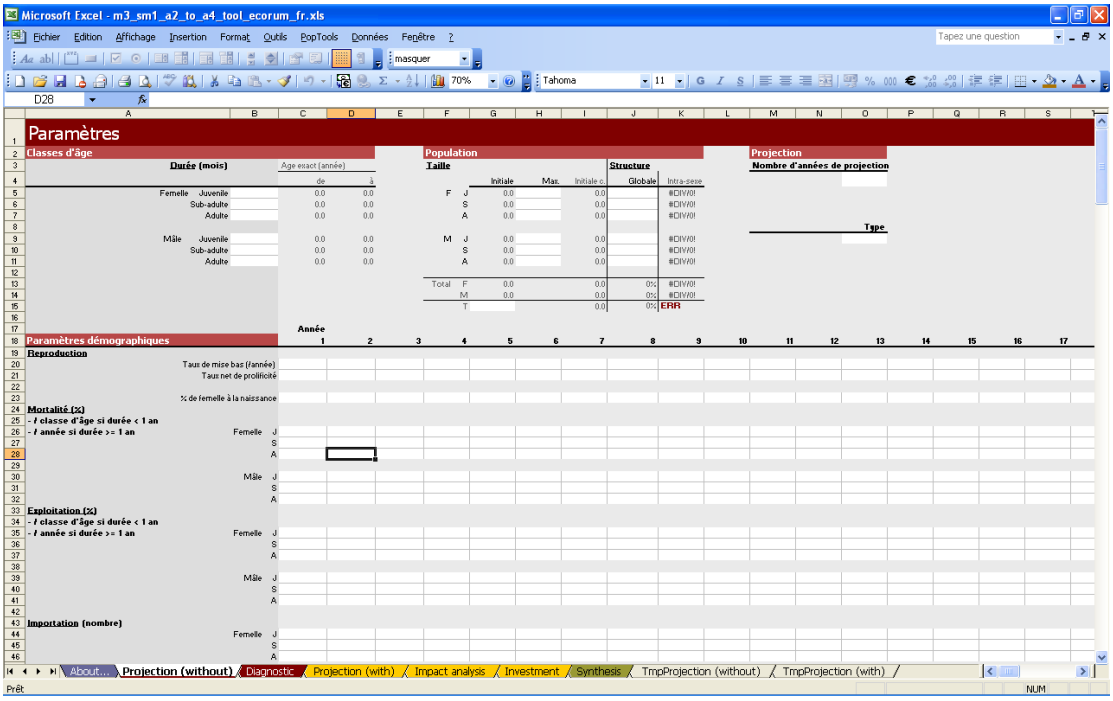
The query from the national IS as currently used in Zambia by DVLD can provided similar figures in to the regional LIMS.



The query functionality on this module will allow selection of original variables when attempting to make a report based on raw data already captured. The selection of source (and methods) will soon be added to the query facility to allow better production of Metadata in the reports (when several sources are queried).

The census template number 4 (by age and sex) allows for some demographic modelling and some indication on how to use it will be provided in 2009, thanks to a PRINT consultancy c/o CIRAD. A tool like DynMOD, as part of the ECORUM toolkit developed by CIRAD for the World Bank Alive initiative, can be inputted with such data and provide the basis for economic and demographic modelling. So far, the tool exists in French and is tested in Mali, but can be translated easily in English and Portuguese. The use of other similar tools was attempted in the past by FAO (LDPS)





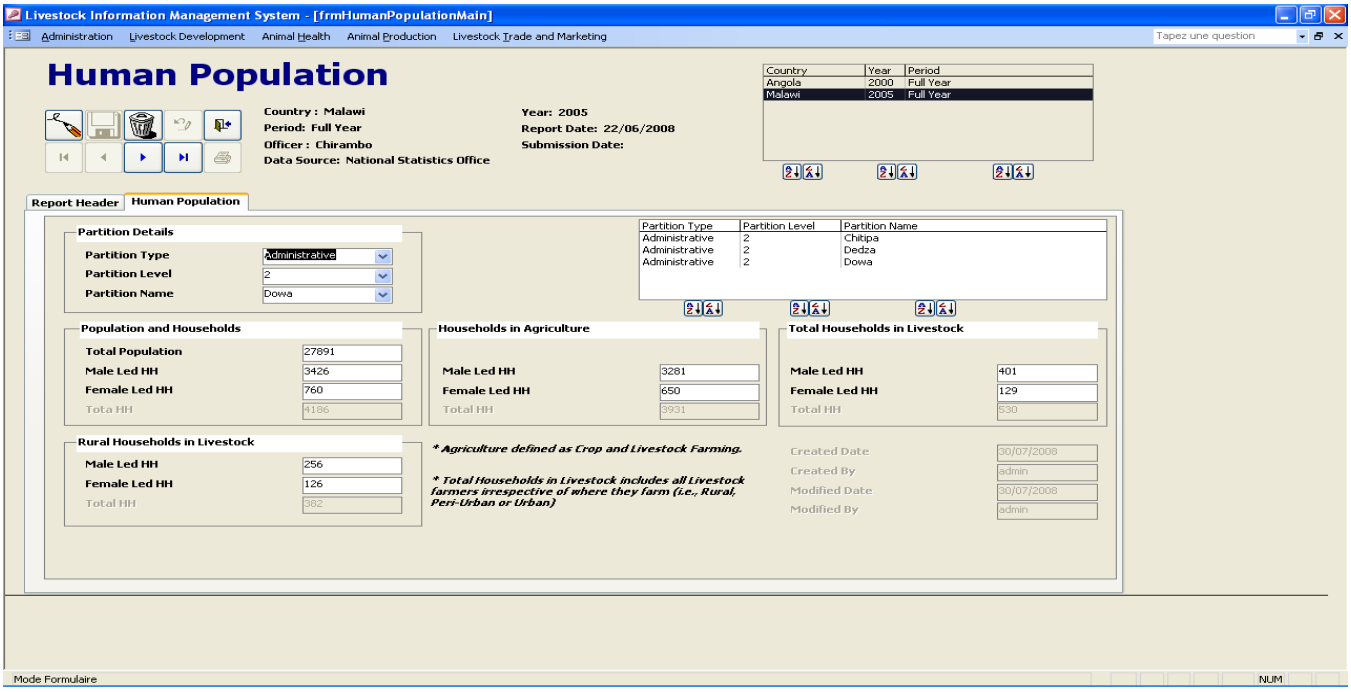
- Module 2 Human Households & Population in Livestock farming
  - 1. Human Population

One can find this type of data in the agricultural survey of CSO and agric. statistics department of MACO. The LIMS definition of a household raising livestock is “flexible” and should encompass all the HH having LS, whatever their role in the farming system. Therefore, one should account for not exclusively the HH specialized in LS and having no cropping activities but all HH breeding LS. Only the HH having a few chicken are subject to controversy for accounting them or not. This should be discussed in the next Sub committees for APVM and EIS.

1. Human Population Farming Livestock

Portion Type*	Partition 1, e.g. Region/Province	Partition 2, e.g. District	For the selected partition level				In Agriculture**			Total in Livestock***			Rural HH in Livestock		
			Total Population	Male led HH	Female led HH	Total HH	Male led HH	Female led HH	Total HH	Male led HH	Female led HH	Total HH	Male led HH	Female led HH	Total HH
.....	Reg/prov 1.....	Dist 1.....													
		Dist 2.....													
		Dist 3.....													
.....	Reg/prov 2.....	Dist 1.....													
		Dist 2.....													
		Dist 3.....													
	etc														

* Specify Administrative or Technical boundaries (admin or techn)
** Agriculture defined as crop and livestock farming
*** This figure includes all livestock farmers irrespectively of where they farm (i.e. rural, peri-urban or urban)



- Module 3 Production Parameters
  - 1.Slaughter
  - 2.Milk
  - 3.Dairy products
  - 4.Eggs
  - 5.Hides, skins

The Sources of data are multiple here: e.g. MPAZ Meat Producers Association of Zambia, or official source from MACO. The production of game meat can be accessible from CITES reports or at ZAWA, whereas the dairy production can be evaluated with the support of ZDPA, ZNFU (cf. list of stakeholder attending the seminar early in this report).

- Module 4 Livestock & Products Price
  - 1. Live animals
  - 2. Meat products
  - 3. Milk products
  - 4. Eggs

- 5. Hides & skins
- 6. Fiber & feathers

In these templates, a broad list of product categories has been selected and is implemented in the database. They represent items with a harmonized & shared definition as explained into generic LIMS manuals, therefore this is the core group of product of interest for the LIMS price module. Moreover, one recommends that the manuals include specific comments for the country, as some items must be clearly interpretable in their respective context.

For example, the **grading of meat** (meat carcasses) in SADC is not harmonized, therefore in all country the grading stated as "low weight carcass" (a category implemented into the LIMS in Module 4 on price) must be explained in a specific paragraph of the manual, so that it becomes fully compatible with the national "know how" and modus operandi. This is why once again we recommend that trainers add information in their national training manuals, i.e. in the respective paragraphs. Later SADC will pursue the legal harmonization of grading which is so far not possible, alike it is done in other REC e.g. EU (cf EU classification in next frame).

Regulation (EC) No 1183/2006 [Official Journal L 214, 04.08.2006];
This Regulation concerns the Community classification scale for the carcasses of adult bovine animals.

Regulation (EEC) No 1186/90 [Official Journal L 119, 11.05.1990];
This Regulation extends the scope of the Community scale for the classification of carcases of adult bovine animals.

1. Average Prices of Live Animals per Species, Type of Animal, Type of Market (or Infrastructure) and Type of Price

Partition Type*	Partition 1, e.g. Region/Province	Partition 2, e.g. District	Species (1)	Type of animal	Type of Market (2) (or Infrastructure)	Type of Price (3)	Price per animal in local currency
.....	Reg/prov 1.....	Dist 1.....	Cattle	Premium/Export			
			Cattle	High weight			
			Cattle	Low weight			
			Cattle	Breeding cow			
			Sheep	High weight			
			Sheep	Low weight			
			Sheep	Breeding ewe			
			Goats	High weight			
			Goats	Low weight			
			Goats	Breeding doe			
			Pigs	Baconers			
			Pigs	Porkers			
			Pigs	Breeding sow			
			Chicken	Broiler			
			Chicken	Day old chick			
			Other	specify			
	etc	Dist 2.....	Cattle	Premium/Export			

* Specify Administrative or Technical bounderies (admin or techn)
1) Species: this includes adults and weaners of all sexes and breeds
2) The types of Market (Infrastructure) where data are collected from are listed below:
a. Primary markets
b. Secondary markets
c. Industrial abattoirs
d. Municipal abattoirs & slaughter slabs
e. Agricultural show grounds
f. Auction sales pen
g. Holding grounds

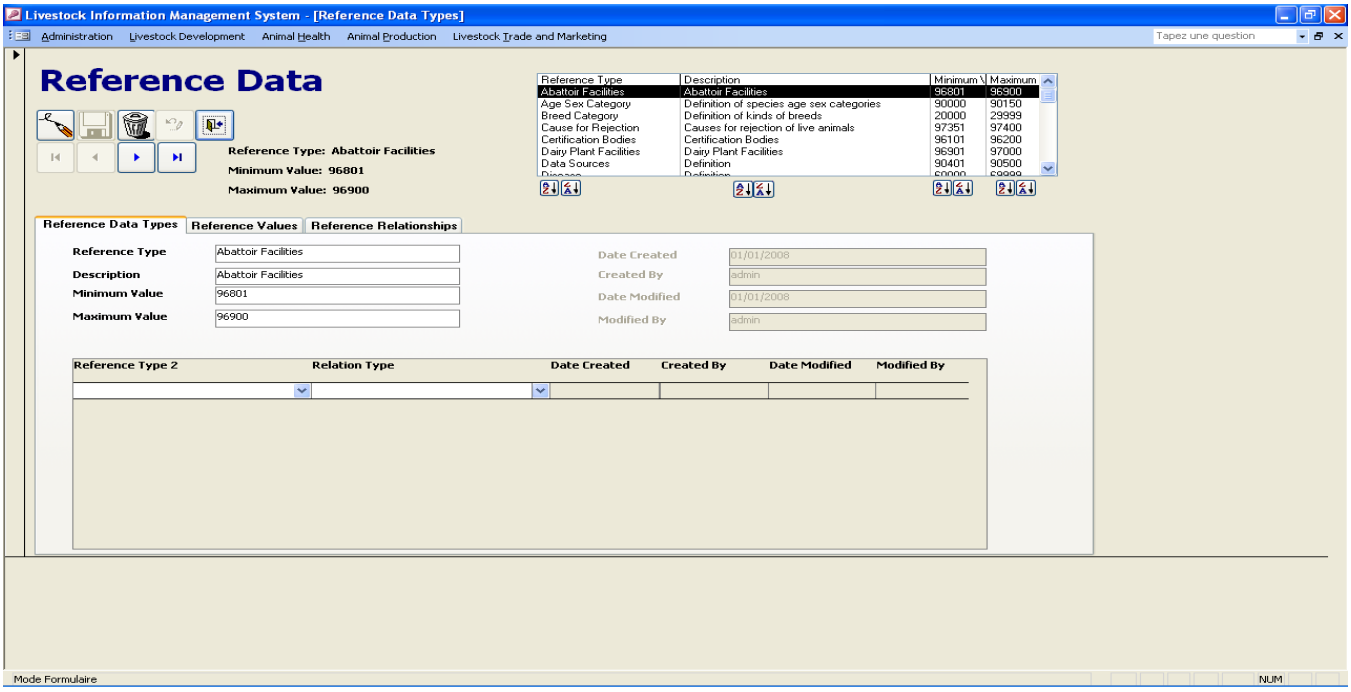
3) Types of Prices include:
a. Open Farmers price (price at which farmers sell their animals mainly at primary markets)
b. Open Auction price (for the purchase of breeders, weaners or slaughter animals)
c. Public Baseline price at abattoir - reserve price (fixed price offered by the buyer to the farmers)
d. Contract price with abattoir (price set by negotiation between buyer and seller other than at primary market which are generally open)
Please enter data by selecting the different combination (species/type of market/type of price) applicable to your case by adding more rows if needed.

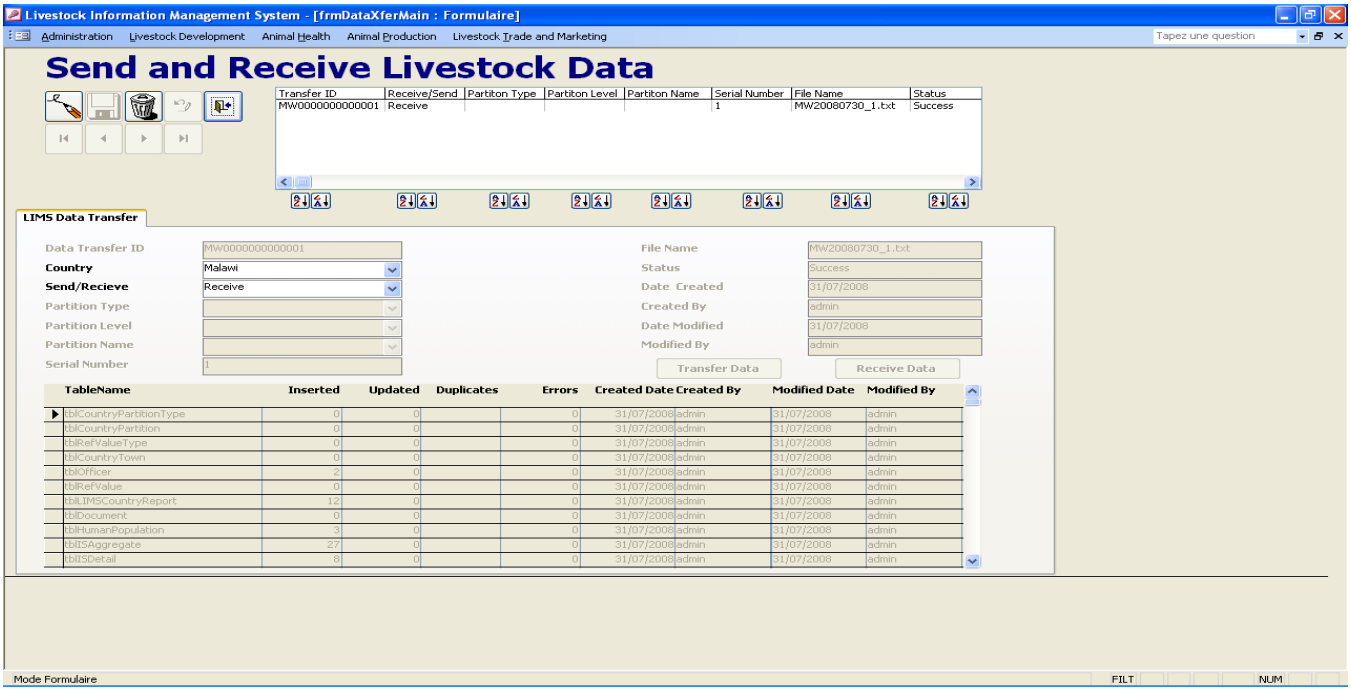
In LIMS there is always an ultimate possibility to modify a label or add some categories but it must be done at SADC level so that the central (regional) database remains compatible with all categories implemented at national level (i.e. with the national LIMS) mainly because of data transfer coding and send-receiving procedures.

A few examples of comment in Zambia:
Zambia requested to add "*Village chicken*", an important item for monitoring LS price and therefore affordability of an additional source of protein in the rural area. If this is the willingness of a majority of MS, then it will be added into LIMS.

Concerning eggs it was requested to add price of egg trays (then we must specify trays of how many; e.g. 6 costing 4150 KW, or e.g. 18, or e.g. 30 eggs costing 19450 KW in visited outlets of Lusaka).

These parameters (categories of items) are managed under the reference data screen and functions, with range of figures when useful.

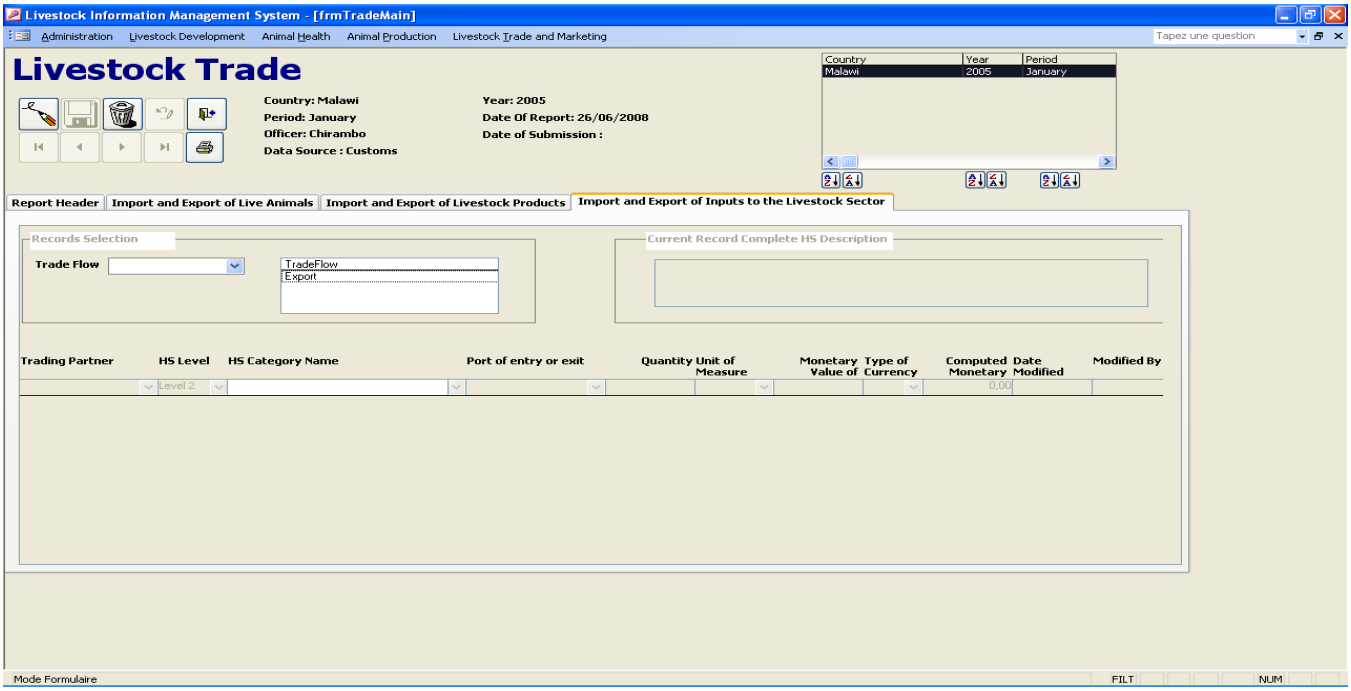




The *send and receive data* functionality needs to be compatible and the same in all countries and at SADC level, so that any report sent to SADC secretariat is fully compliant with the structure of parameters implemented in the regional database (compliance of structure).

- Module 5 Livestock & Products trade: import/export
    - 1. Live Animals
    - 2. L.stock Products
    - 3. L.stock Inputs

The trade component requires use of one particular set of nomenclature i.e. the HS system, an harmonized system used by the customs. Therefore the CD distributed during the training provides for the entire HS coding scheme though only those codes useful and relevant for the LS sector were implemented into LIMS (animal products, live animals and some inputs, cf. training manuals). Sofar LIMS provides only for Import Export data at national level.



2a. Livestock Products Import

				EXPORT				
HS (1) level	HS (2) Code	HS name	Product name	Volume exported	Unit of (4) measure	Value (3) L.currency	Value (3) USD	Partner = Country of Destination

1) HS levels for selection are level 2, or level 4 or level 6
2) The HS Codes for selection are attached to this reporting format.
Please refer to the list to identify the livestock product and the corresponding HS Code
3) Reporting officers are expected to choose either the *Local Currency* or the *U.S. Dollars* for the value of the transaction
Value are expressed preferable as CIF by default (Cost, Insurance & Freight) and before any taxation or subsidy
4) Unit of measure: Unit, Kg, Ltr, MT, M3, etc.

2b. Livestock Products Export

				IMPORT				
HS (1) level	HS (2) Code	HS name	Product name	Volume imported	Unit of (4) measure	Value (3) L.currency	Value (3) USD	Partner = Country of Origin (source)

Trade data are already available from customs and from DVLD (export import permits). A series of 10 years data is being captured into the NALEIC database and shall be available soon for the SADC secretariat.

Glossary and other reference documents to be used in national trainings:
HS code
The HS code is a new feature used into the LIMS, therefore it required specific training for staff not familiar with it. The HS manuals were introduced and are

available in the CD to serve in house training organized by MS. An excerpt of their contents is provided hereafter:

Section I

LIVE ANIMALS; ANIMAL PRODUCTS

Notes.

1.- Any reference in this Section to a particular genus or species of an animal, except where the context otherwise requires, includes a reference to the young of that genus or species.

2.- Except where the context otherwise requires, throughout the Nomenclature any reference to "dried" products also covers products which have been dehydrated, evaporated or freeze-dried.

Chapter 1

Live animals

Note.

1.- This Chapter covers all live animals except :

(a) Fish and crustaceans, molluscs and other aquatic invertebrates, of heading 03.01, 03.06 or 03.07;

(b) Cultures of micro-organisms and other products of heading 30.02; and

(c) Animals of heading 95.08.

Heading	H.S. Code	
01.01		**Live horses, asses, mules and hinnies.**
	0101.10	- Pure-bred breeding animals
	0101.90	- Other
01.02		**Live bovine animals.**
	0102.10	- Pure-bred breeding animals
	0102.90	- Other
01.03		**Live swine.**
	0103.10	- Pure-bred breeding animals
		- Other :
	0103.91	-- Weighing less than 50 kg
	0103.92	-- Weighing 50 kg or more
01.04		**Live sheep and goats.**
	0104.10	- Sheep
	0104.20	- Goats
01.05		**Live poultry, that is to say, fowls of the species** *Gallus domesticus*, **ducks, geese, turkeys and guinea fowls.**
		- Weighing not more than 185 g :
	0105.11	-- Fowls of the species *Gallus domesticus*

Heading	H.S Code	
	0105.12	-- Turkeys
	0105.19	-- Other
		- Other :
	0105.94	-- Fowls of the species *Gallus domesticus*
	0105.99	-- Other
01.06		**Other live animals.**
		- Mammals :
	0106.11	-- Primates
	0106.12	-- Whales, dolphins and porpoises (mammals of the order Cetacea); manatees and dugongs (mammals of the order Sirenia)
	0106.19	-- Other
	0106.20	- Reptiles (including snakes and turtles)
		- Birds :
	0106.31	-- Birds of prey
	0106.32	-- Psittaciformes (including parrots, parakeets, macaws and cockatoos)
	0106.39	-- Other
	0106.90	- Other

- Module 6 LS Infrastructures (IS)

In LIMS, because of the nature of the IS, some will be accounted aggregated by zone, whereas some are described into details as individual IS.
In fine, some more elements describing the attributes of the described infrastructure, like the availability of Internet access in public offices, could be added or mentioned in comments.

Aggregate. Number per zone with some description of attributes

- 3.Dipping
- 4.Pens
- 5.Vet clinics
- 6.Govt Offices
- 7. Mun Abattoirs & slabs
- 8.Milk Collection
- 9. Livestock Markets
- 10.Storage Products

Detailed description of IS

- 1.Vet Diagnostic Labs
- 2.Vet Vaccine Labs

- 3.Industrial Abattoirs
- 4.Dairy Processing Plants
- 5.Secondary Markets, etc
- 6. Port of Entry & Exit

In Zambia Check points for movements of animals are important and could be added if the need is shared with other MS. In Zambia the development of an ID and traceability system (cf. ZAITS) may lead to an evolution on the list of IS that should be inventoried: fences for instance may become important in the region and their detailed description could be incorporated into LIMS.

In Zambia many actors should contribute to such an inventory of premises and fixed infrastructures (mobile ones are not covered), as some IS are run or inspected under various ministries if public or corporate companies if private.

In Zambia MoH (Health and Local government) inspects the Municipal Abattoirs & slaughter slabs. Agribusiness services and large companies which are highly promoted (cf. ZATAC services, Zambeef etc..) can be a good source of information at national level.

- Module 7 Meat Inspection / Food safety
  - 1.Ante-mortem
  - 2.Post-mortem

In Zambia MoH (Health and Local government) inspects the Municipal Abattoirs & slaughter slabs, therefore could be the primary source of data, whereas in large export abattoirs DVLD MACO will provide the data.

- Module 8 Livestock Associations and Service Providers
  - 1.Umbrella org & assoc
  - 2.Private companies
  - 3.Government

This is a non-quantitative module (made of a listing making a directory of addresses etc..). All registered companies can be easily tracked back from information in other ministries (e.g. trade)

- Module 9 LS related Laws, Regulation and Acts, policy docs
  - 1.National Docs
  - 2.International Docs

This is a non-quantitative module (made of a listing making a directory of addresses etc..). There will be amendment in the list of documents (nomenclature) to be described as there are at least two legal systems in place in SADC, one originating from French and Portuguese legislation (code Napoleon) and te other from the British legislation.

- Module 10 Disease Outbreak notification
  - Outbreaks

The CVL(CVRI) can provide some aspects on laboratory confirmation of cases (outbreaks) through DAMASYL their laboratory information system.

The MoH could provide data on zoonosis (if human is added as a species category in LIMS) so that one can compare animal and human indices. MoH uses its own health information system HIS translated into two operational systems HMIS and IDSR that need to be investigated. Two major MOH surveys can be used as source of data for the LIMS, the ZDHS Zambia demographic and health survey, and the living conditions monitoring survey LCMS.

A clarification was provided concerning Population at risk PAR implemented into the SADC format and the location (use of GPS location). The *centroïd* of districts cannot be accepted as the location of reference for any outbreak, unless this a generalized one into the district. We recommended the use of the references of the Vet camp location (Longitude Latitude): i.e. the location of closest vet camp for a first case when a new outbreak, and location of closest vet camp to the last case recorded when it is a follow up, in order to document somehow the spreading patterns. The detailed knowledge of Vet camps into the parameters of the LIMS technical partitions should facilitate this.

- Module 11 Vaccinations (e.g. TAD's)
    - 1.Vaccination

Zambia has no systematic public vaccination campaign. Therefore as a proxy one may accept the number of vaccines sold or produced (at CVRI), thus with comments written. The vaccines imported and exported will be captured into M5 as this represented rather a trade of inputs. Later, sales of vaccines by the veterinarians could be captured and accepted as a proxy for such dataset.

1. Vaccination

Partition Type*	Partition 1, e.g. Region/Province	Partition 2, e.g. District	Location				Disease	Outbreak*** reference	Species	Prophylactic vaccination		Control vaccination		Vaccine Source	Batch Number	Manuf date	Expiry date
			type**	name	Lat	Long				Planned	Conducted	Planned	Conducted				
.....	Reg/prov 1	Dist 1															
		Dist 2															
	etc	Dist 3															

* Partion Type: Aministrative or Technical division (admin or techn)
** Location type:
a) Farm
b) Village
c) Cattle post/camp
d) Dip tank
e) Crush pen

*** See monthly disease report for outbreak reference (if applicable)

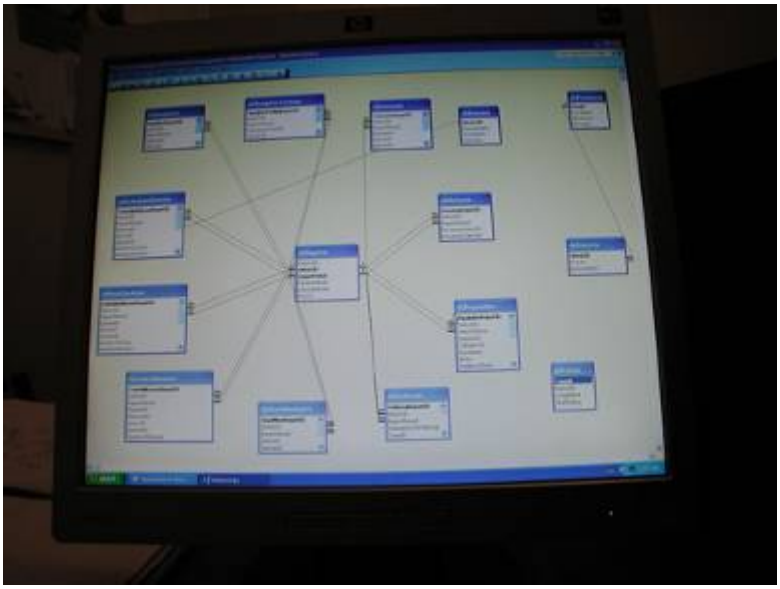
Source of information: Conversion of data from NALEIC

Two elements of the database of NALEIC the component on Import and Export were taken to SADC in order to envisage to build a direct link into LIMS (export import facility between two databases). This may take a bit of time.

Database(s) used for the national LIMS: Animal health: NALEIC

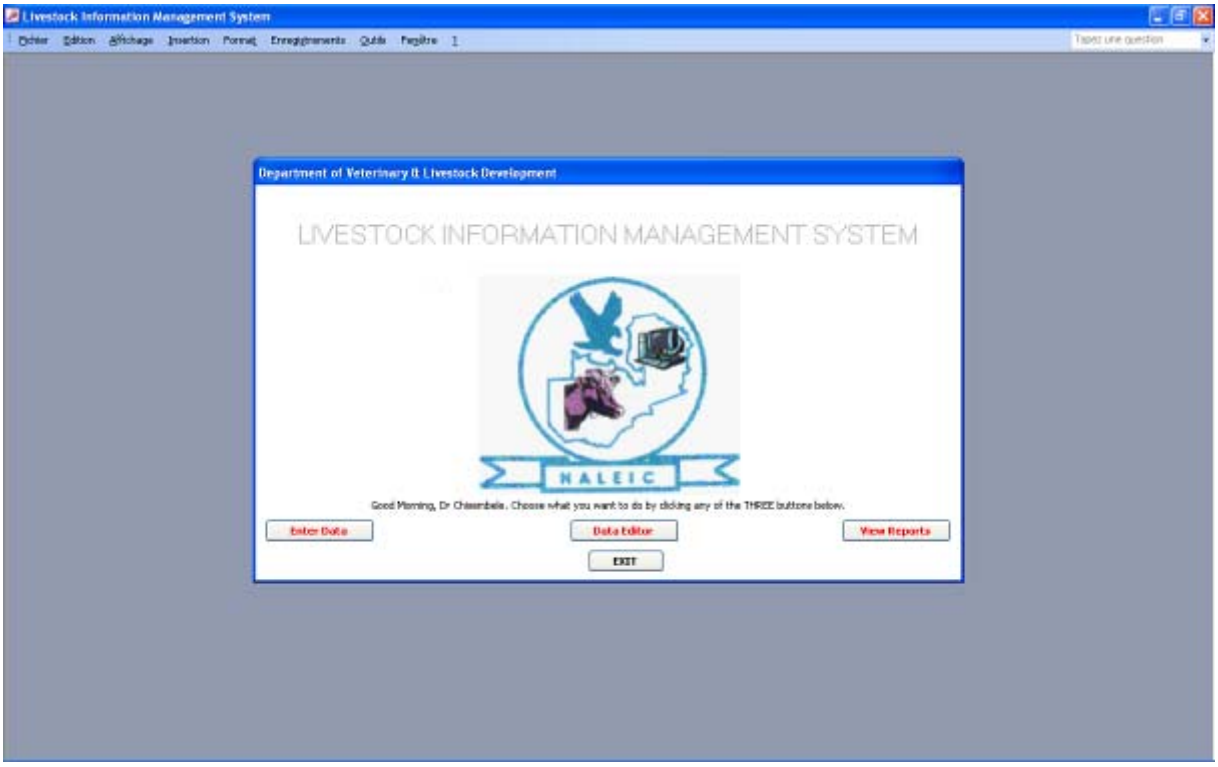
NALEIC has recently developed its own application in Access 2003, through a development by Dr Maata Liywalii from CVRI. A few computers are now being used and work in a LAN network.

The first LDPMIS developed in Zambia.

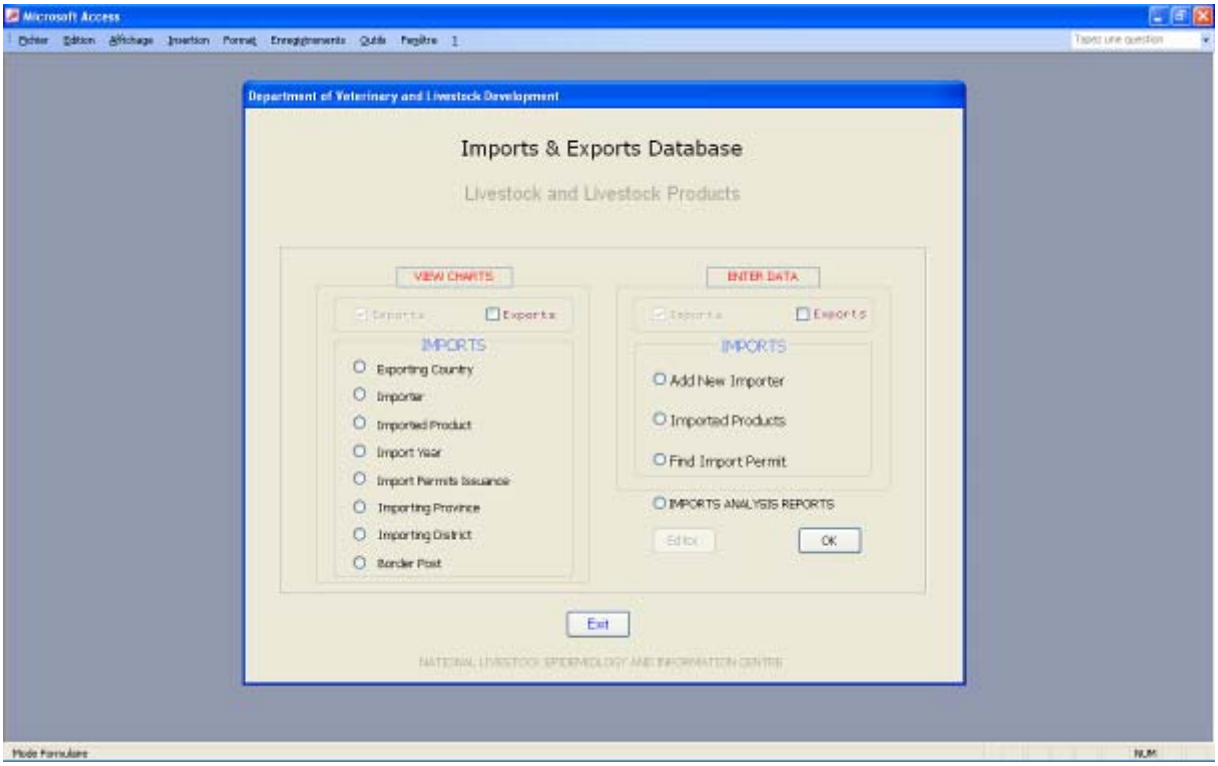


The Relational model of the database of NALEIC: all MS-Access tables are clearly identified named and put in relation.

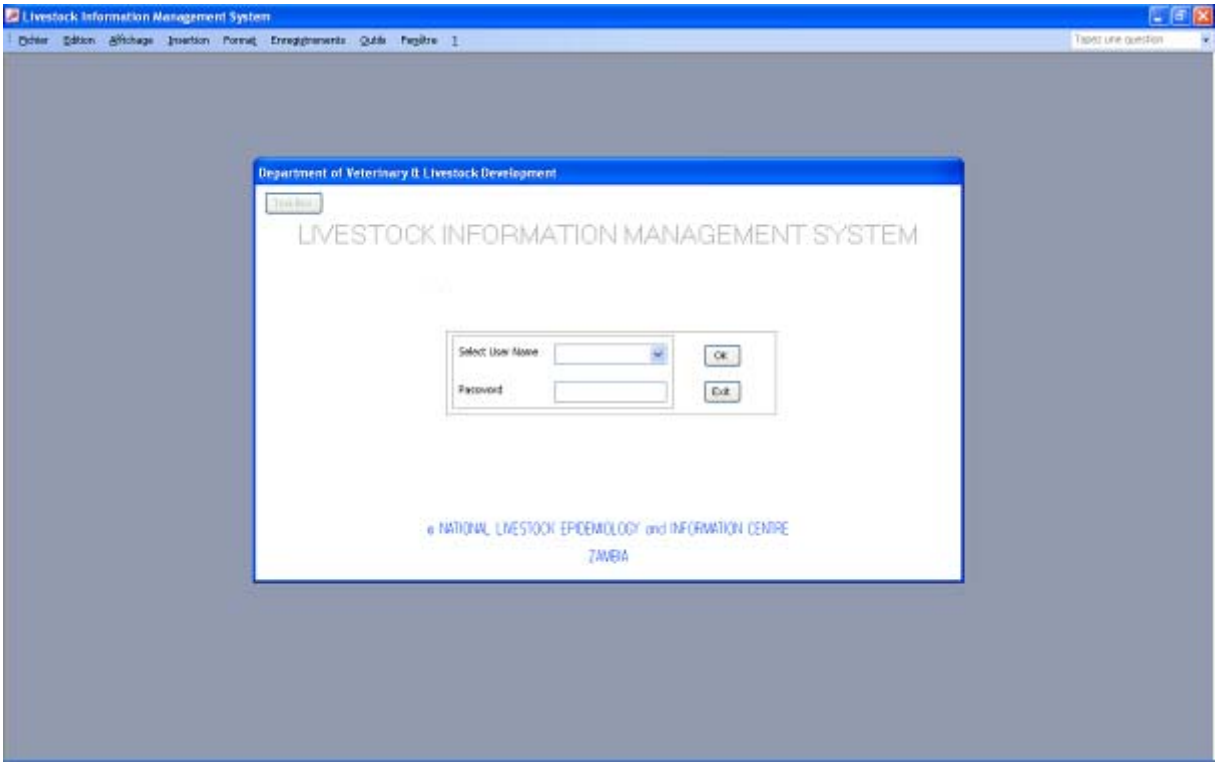
The new Data base at NALEIC: some screen shots.

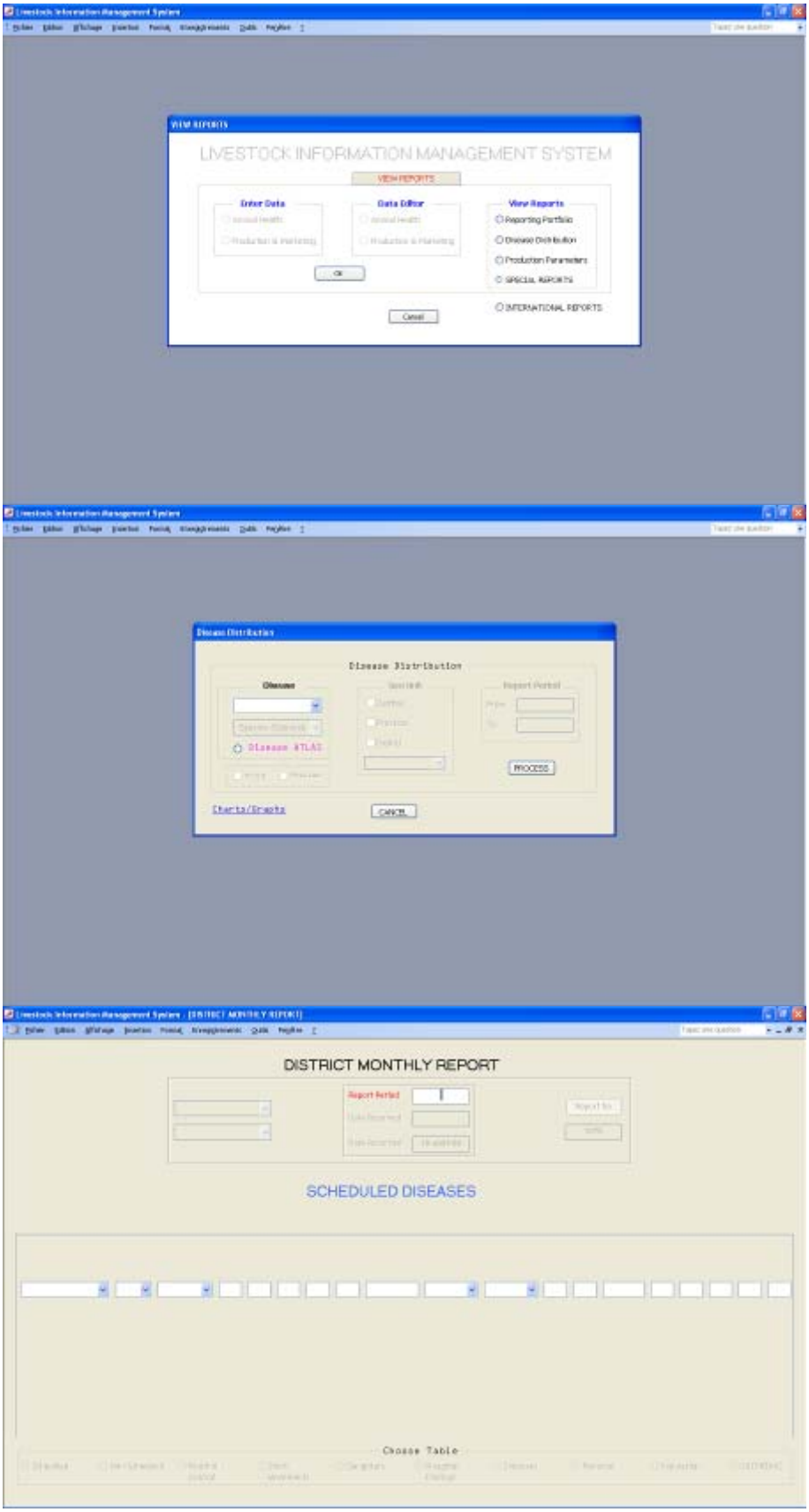

Livestock Information Management System
Fichier Edition Affichage Insertion Format Enregistrements Outils Fenêtre ?
Tapez une question
Department of Veterinary & Livestock Development
LIVESTOCK INFORMATION MANAGEMENT SYSTEM
NALEIC
Good Morning, Dr Chisembele. Choose what you want to do by clicking any of the THREE buttons below.
Enter Data
Data Editor
View Reports
EXIT

Database 1 is source for Module 5 of SADC LIMS



Data base 2 is a source for Module 10 of SADC LIMS





The current NALEIC database has similar functionalities as those selected into the SADC LIMS but it is restricted to Animal health data and import export, whereas the LIMS has 11 modules covering the entire sector.

Related Manuals on templates and the LIMS application

The draft generic manuals prepared by PRINT were not released at this stage, they will be updated with comments made during the training. The same applies for the Users manual (on how to manage the software). They are expected by November 2008 and will be posted on line and sent to MS.

In general we recommend that Specific illustrations and comments for the country be added for any national training, to make them user friendly and more specific for the country. Therefore, it is recommended to add an empty frame in any manual for MS to add their own illustrations and text, in addition to the SADC generic contents provided. The revision of the manuals shall be further part of the mandate of the sub committees of SADC LTC.

Example : an excerpt of a training manual on eggs price as prepared by PRINT and a suggestion for country addition (here Zambia)

e.g. Egg prices from Manual Module 4

- **Template and Screen 5: Price of Eggs**

The template 5 provides for capturing data / information on: prices of eggs at various stages of the commodity chain; production, collection and retail (outlets), and by price type (farmers and retailer), for a given country (or partition) and a period of reporting (monthly but reported quarterly)

c. Prices of Eggs (per unit one egg or per dozen one plate 12 eggs)

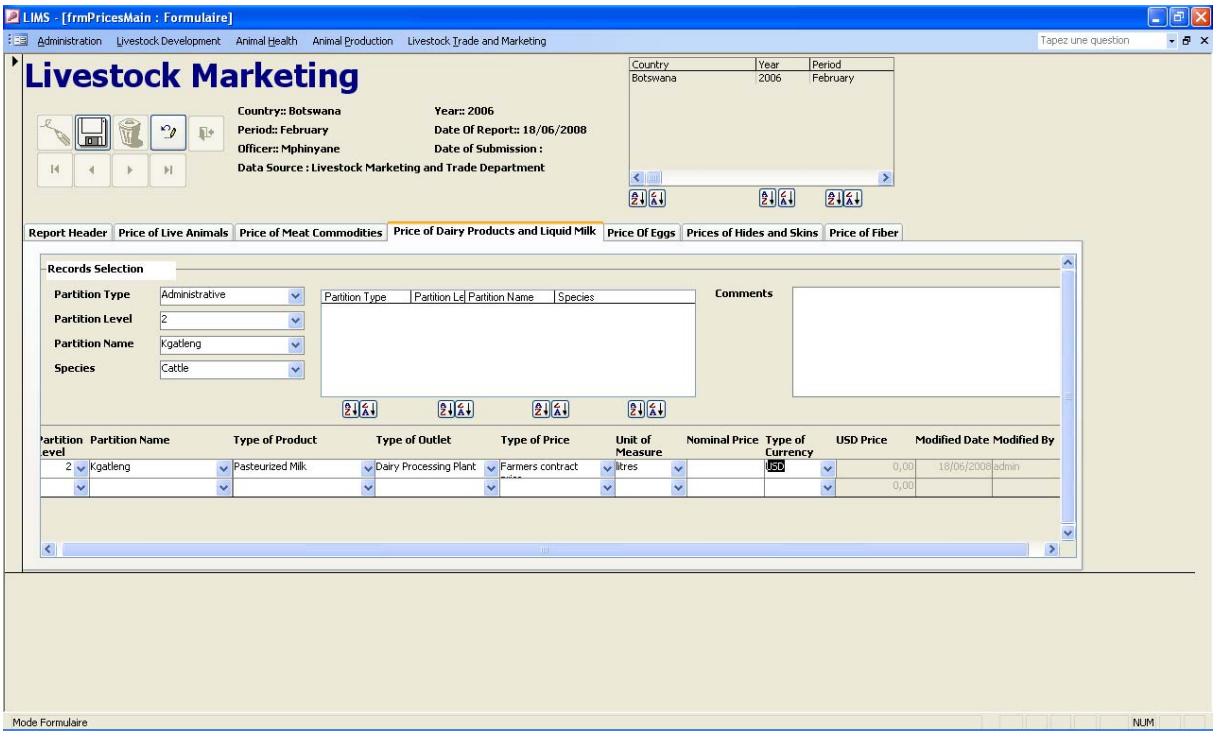
Partition type	Partition level	Partition name	Chicken egg	
			Farmgate Price	Retail Price
				value one piece
				value one dozen

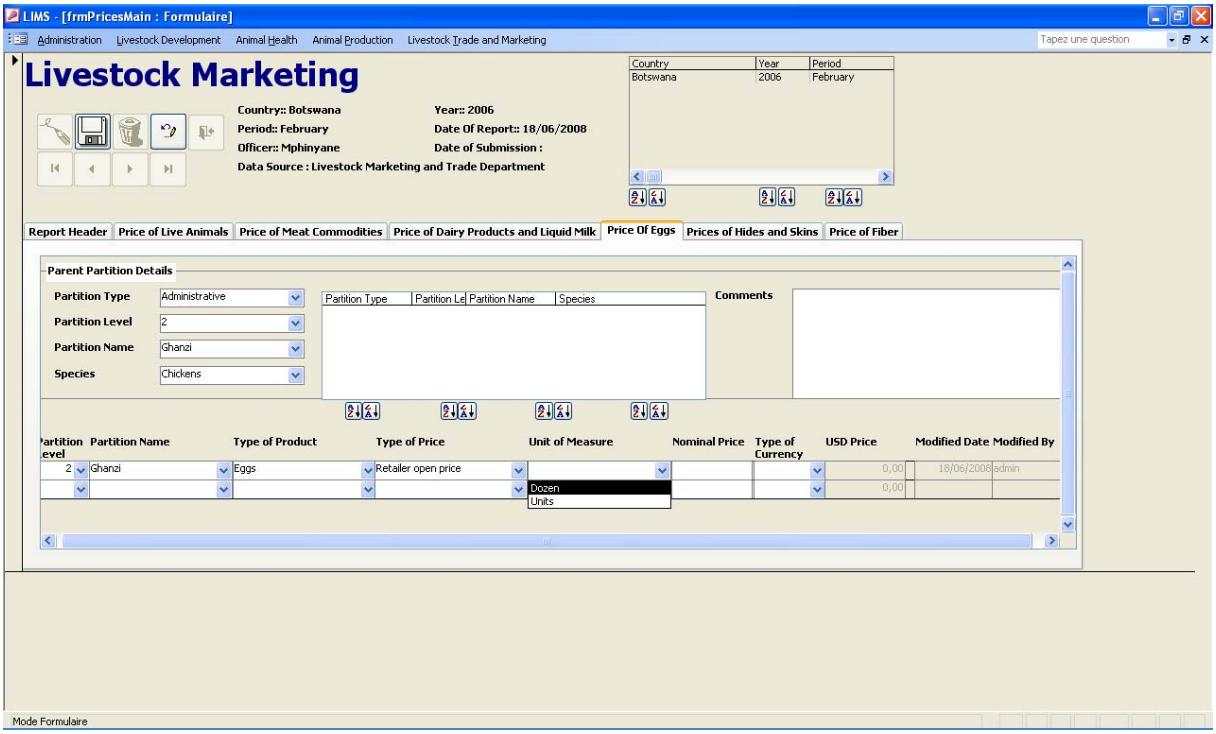
Columns 1 to 3 refer to the country partition alike in the previous template 2.
The Partitions of a country, i.e. partition' type, level & name.
Where are data from? Location of the observation
Please refer to the LIMS common "umbrella" manual on this cross cutting issue.

Columns – 4 and 5: The price of a quantity of egg product (by default egg piece = one unit = an egg with its shell) with the indicated currency and type of price
On what product do we record price?, what price, at what stage of the commodity chain?

There must be an indication of which **type of price** is used for the measure, therefore the two columns. There are only two **types of price**:

- Farm gate Price = as per sold by farmers to collectors
- Retail price as per sold by retailers to consumers





Column – 4: The farm gate price of a quantity of egg (by default one unit = an egg with its shell) with the indicated currency but dozen can be used

Column –5: The retailing price of a quantity of egg (by default one unit = an egg with its shell) with the indicated currency but dozen can be used

Generic Remarks

There is only one generic category to be used, “eggs with shells” (hence, no egg products like liquid ones, though this could be added later on).

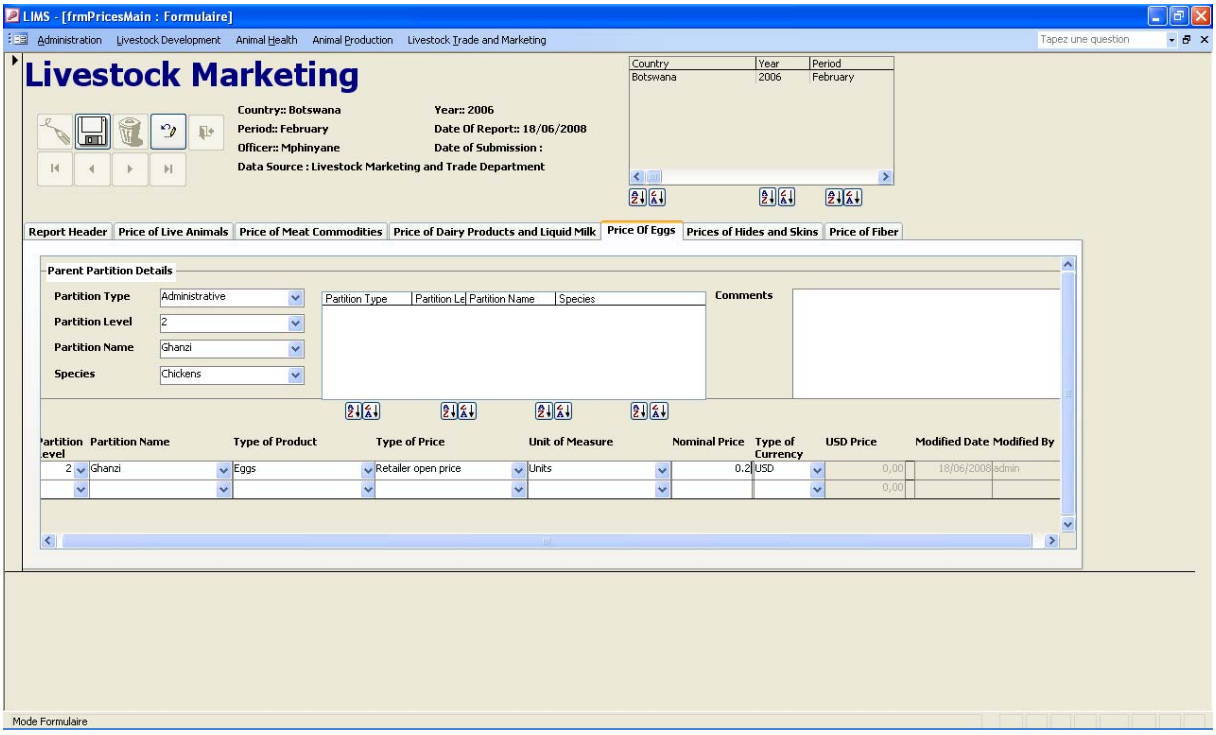
If the information is available, any indication of a grade like “grade 1 large” is useful (comment in a footnote). Moreover, Member States can capture more sub categories if needs arise at national level.

There must be an indication of which **unit** is used for the **measurement of quantity** for the egg. By default, we ask MS to record price for **one egg piece**. Other ways of accounting for the products can be used to facilitate data entry (e.g. instead of Egg unit (piece), use of dozen (plate of 12), or plate of six (6)), but all must be clearly described by the administrator.

There must be an indication of which **unit** is used for the **monetary value** of the price i.e. type of currency used.

Specific Remarks for Zambia (added by the DVLD MACO)

Egg trays are sold in various ways in Zambia: trays of 6, trays of 18, trays of 30. They are named “units”. Therefore, we should not confound pieces (one egg) and units. Therefore, in Zambia, a comment should be added by data clerks when using “Unit”.



Bugs and correction requested based on LIMS training in Zambia (and addition from Lesotho mission)

Comments sheets were distributed during the training and shall be sent to PRINT so that a compilation is made at SADC level. Nevertheless, the following provides for a first set of comments. A procedure for installing LIMS on Vista machine was also drafted in Zambia as almost all computers were Vista machines (cf annexe VI).

Errors and bugs detected in LIMS version 1.0.0 released on 05.08.2008

1) The **Year** for capturing data in LIMS is fixed to start from 1930 in some modules and 1980 in others. That was to avoid the possibility of data entry from 0000 to 9999. However, in some countries it is noticed that data is available for earlier years than what is fixed in LIMS. The typical example is the Laws, Regulations and Acts of 1890 in Lesotho. Please set **Year** to start from **1850** for all modules.

2) For Unit of measure (Livestock Products) a **Unit** is not appropriate for Eggs and Hide and Skins. Use **Pieces** instead of **Unit**

3) In Disease Report, General Information tab page Disease Details, the field label New Follow up, should be edited either as **New/Fellow up** or **New or Follow up**

4) Similar type of correction is required

5) The port of **Entry/Exit** drop down menu is empty and there is no provision to capture data. Create a facility like Reporting officer or Town of infrastructure with **Add/Edit** so that it can be captured and selected later.

6) From the livestock products query, the livestock products per type button does not have1) **list of products** to build query by selecting one or more types of products and 2) the result displayed is the total number of hides/skins/eggs, etc. (as one figure) without specifying what products these are.

7) The category for Company tab page for Livestock Association and service providers' module follow the same pattern as associations, but that is not the list of categories provided in the Generic sheet. Please refer to the list below;
    1. Live animal transporters
    2. Cold storage operators at national or regional level
    3. Meat producers
    4. Milk Collectors and Dairy Processors
    5. Skins and hides collectors and leather processors
    6. Fibre and feathers collectors and processors
    7. Feed processors operating at national or regional level
    8. Veterinary medicinal products manufacturers & importers
    9. Livestock equipment producers and importers
    10. Genetic materials (i.e. semen and embryo) producers & importers
    11. Live animal marketers/auctioneers
    12. Private quarantine service
    13. Live animal importers and exporters including breeding animals & day-old chicks

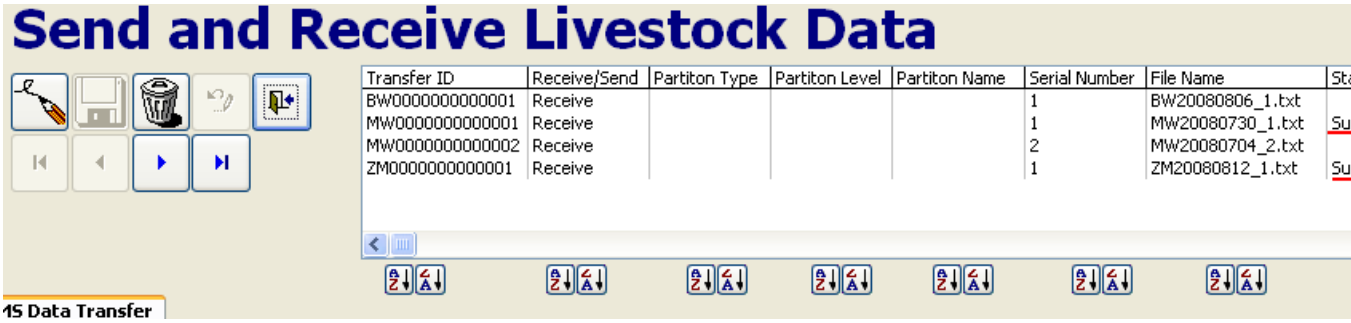
14. Insurance companies
15. Price information providers
16. Consultancy companies in livestock
17 Other

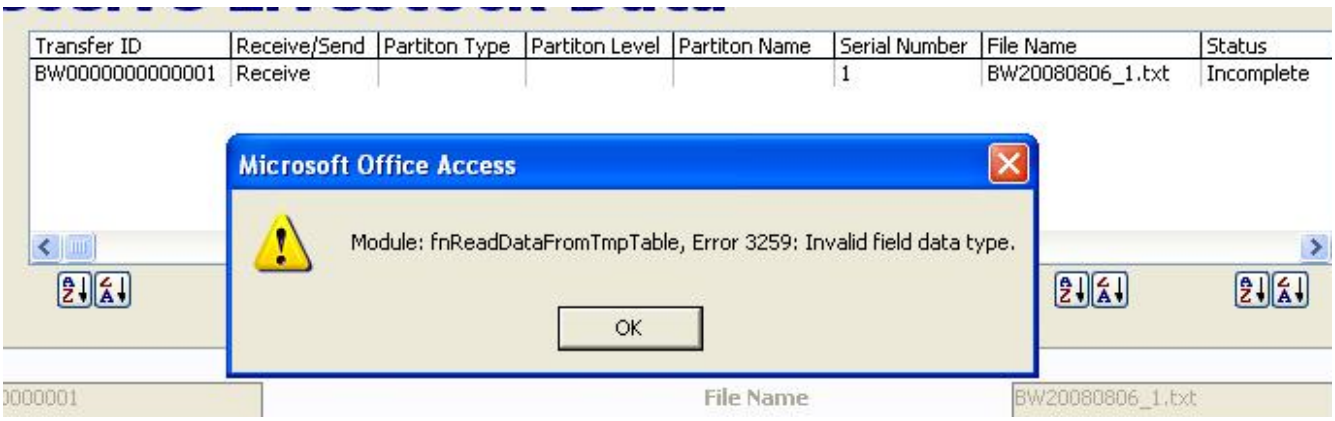
8) The display of 1) warning notes, e.g. enter only numeric values for Municipal abattoirs and slabs in Meat inspection module and 2) error messages are not any different. That may confuse users and need to different frames or ways of popping up.

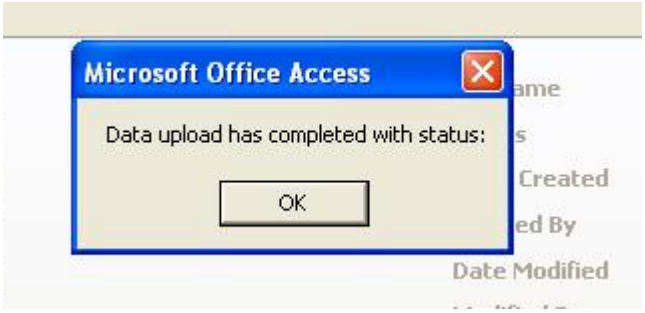
9) It is still possible to delete and modify the **Partition Levels** and the agreement of introducing the **End Date** concept not implemented.

10) The back-up is not working. This might have been fixed in the later version.

11) Similarly, the data transfer, the send part extracts data and prepares file to send (although we failed to see in the FilesToSend folder). However, the major problem is on the receive side, it doesn't receive and populate data in the corresponding tables. The updated version (received today) receives files, but still some error messages pop-up and in half of the cases, the status is incomplete. See in the figures below the status and the different error message observed while receiving data in to today's version of LIMS.







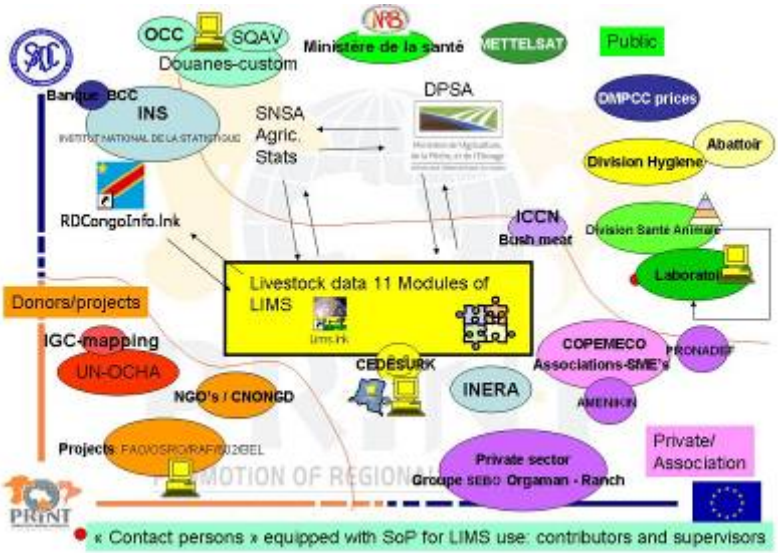
12) Nakonde district is under Northern Province of Zambia and not Luapula as it is now
13) In Zambia partition 2, please edit also Kapiri-Mposhi by removing the hyphen (it is just Kapiri Mposhi)
14) In the disease list edit Botulisim, the correct spelling is Botulism.
15) If certain screen are open and left for some time an error message "the move mouse command was wrong or so" is prompted, and up on accepting it, a cascade of error messages follow.
16) The formula used and the error message displayed for quantitative information of disease report (number of population **At risk**, **Cases** and **Deaths**) is wrong. At Risk is equal or greater than Cases+Deaths) is the wrong formula used. The right formula is as follows. **At Risk** is equal or greater than **Cases**. **Cases** are equal or greater than **Deaths**.
17) The behaviour of LIMS on machines running Access 2007 is different. The pop-ups requesting enter reference value is common. It is annoying for experienced users and confusing for new users.
18) The calendar function doesn't work on Access 2007.
19) The Windows Vista problem was addressed during the mission in Zambia. It will continue to resurface as more and more machines are loaded with WinVista and Access 2007. It is by far better if there is solution at the LIMS Application level instead of configuring each and every machine.
20) The currency conversion behaves differently on LIMS running on Windows Vista from those running on XP machines. Different conversion figures were obtained.
21) TLU values are not entered for some species. This leads to error messages both during data entry and query.
22) The TLU values are not correctly converted for values entered in the 1990ties. The values for 2005 were correct while the one for 1994 had wrong conversions.
23) The Add Record, Save, Delete and other tool bars are not available where the operation in reality needs them to be active. Exiting from that tab page and refreshing it brings them back active and available for the operation. That shouldn't happen.
24) For French and Portuguese, some of the list of values and error messages are still in English. Demonstrating a multi-lingual aspect with half English and half translation always in not comfortable.
25) While running query for livestock composition, the numbers for young (should be renamed as young) is not available.
26) Many reports still have the width of their columns not adjusted to their contents. In many cases part of the word is cut and overflow to the following line while other have too wide columns. In some instances, there is a wide blank space to the right while the overflow mentioned above occurs.

27) All numeric values need a thousand separators. Part of these is already implemented but there are several places where it is difficult to count the many zeros to read.
28) When running queries, the quarter, half year and full year grouping for months is not done. Hence, querying January retrieves data but 1st quarter not.
29) Provide the HS code along side the description. That gives choices for those who are familiar with the numbers while still allowing others who may relay on the description.
30) The data source and methodology are not mandatory, far from being primary keys. At least if the data source becomes mandatory and part of the primary key, then 2 records with similar year and country but different source can be captured.
31) If that is achievable, the data source should be one of the query criteria
32) Include Village Chicken in Price of Live Animals tab page (under chicken) of the Livestock marketing. Only Broilers and day old chick are available now.
33) Add the category "Amendment" for laws, regulations and acts (National Legal documents)
34) Check once more whether the use of apostrophe affect certain operations. The point in case is two districts in Lesotho (Mohale's Hoek, Qacha's Nek) do have apostrophe in their names and apparently caused problems while capturing data or running queries.

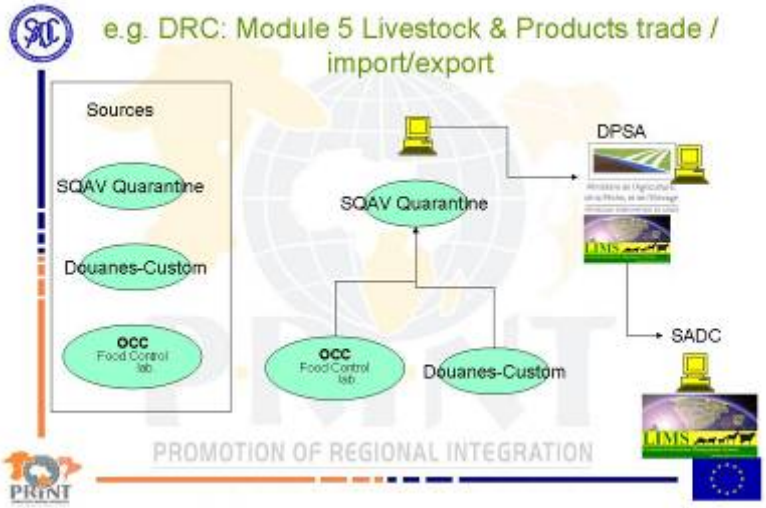
3-3. Drafting of first SoP's for LIMS in Zambia

The general principle of LIMS is to share the effort of collecting the data therefore it requires the contribution of various institutions selected from the existing sources belonging to the national AIMS / LIMS networks. Therefore it is essential that such LIMS networks are formed in all MS.

SoP's are aimed at indicating the roles and functions of some institutions when contributing (and using) the LIMS. After listing the relevant institutions that can could contribute to the LIMS, one should select the most relevant ones, and then convene a meeting with them and then agree on to organize the data flow. Therefore it will support the completion of the entire information chain for the given module or component of LIMS taken care of.



e.g. a comprehensive stakeholder map made in DRC for LIMS information, will now be reduced according to templates and modules and then reorganized in order to produce a set of recognized and accepted diagrams for contribution and use to/of LIMS.



e.g. Example of a diagram to be included into an SoP for the Module 5: in DRC three institutions were identified as potential sources and one was selected to capture the data into LIMS and then transfer dataset to a national database, before it is reported to SADC. An information system using a LAN is highly recommended though the system provides for transferring data in other means (email an attached file, uploading through FTP, physical transfer by flash disk etc..).

The aggregation of individuals diagrams can be attempted to present a global picture, therefore providing for the entire rationale of the LIMS network. It would explain how data flows from primary source to secondary and to the central database, using multiples sources (private and public) and multiple scales, all data being aggregated at a certain stages, therefore respecting the privacy of information provided.

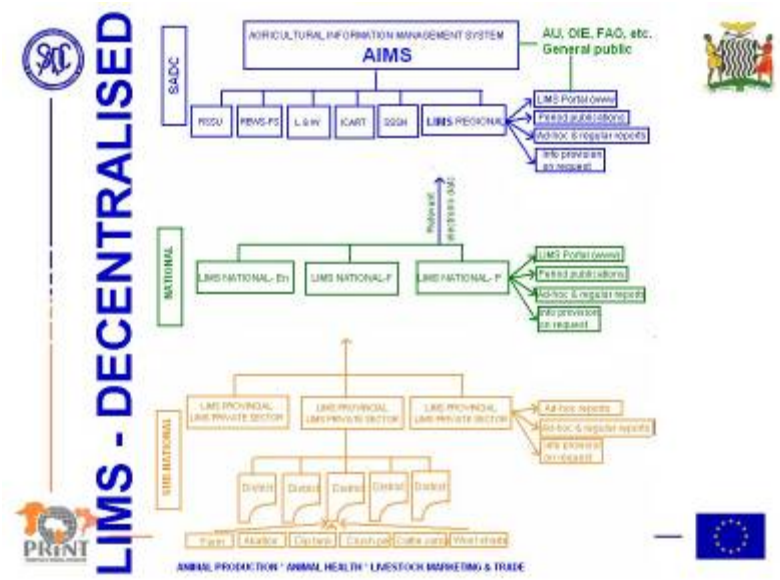
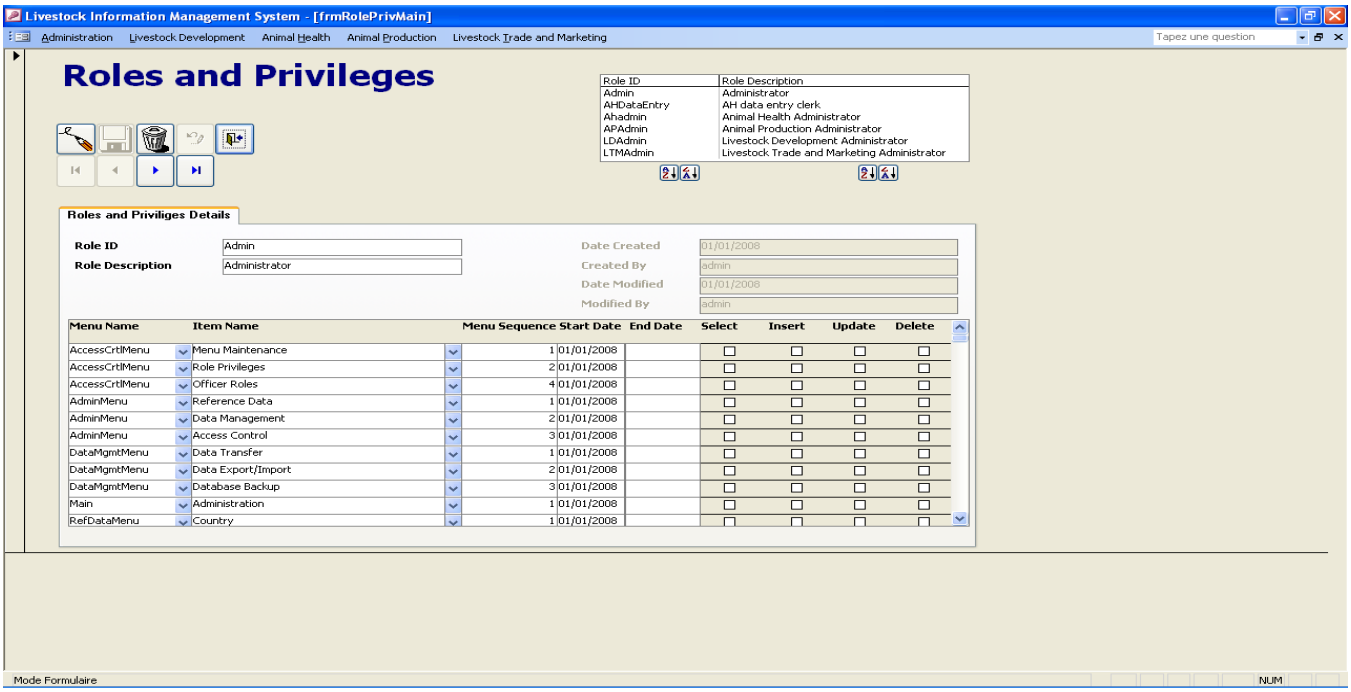
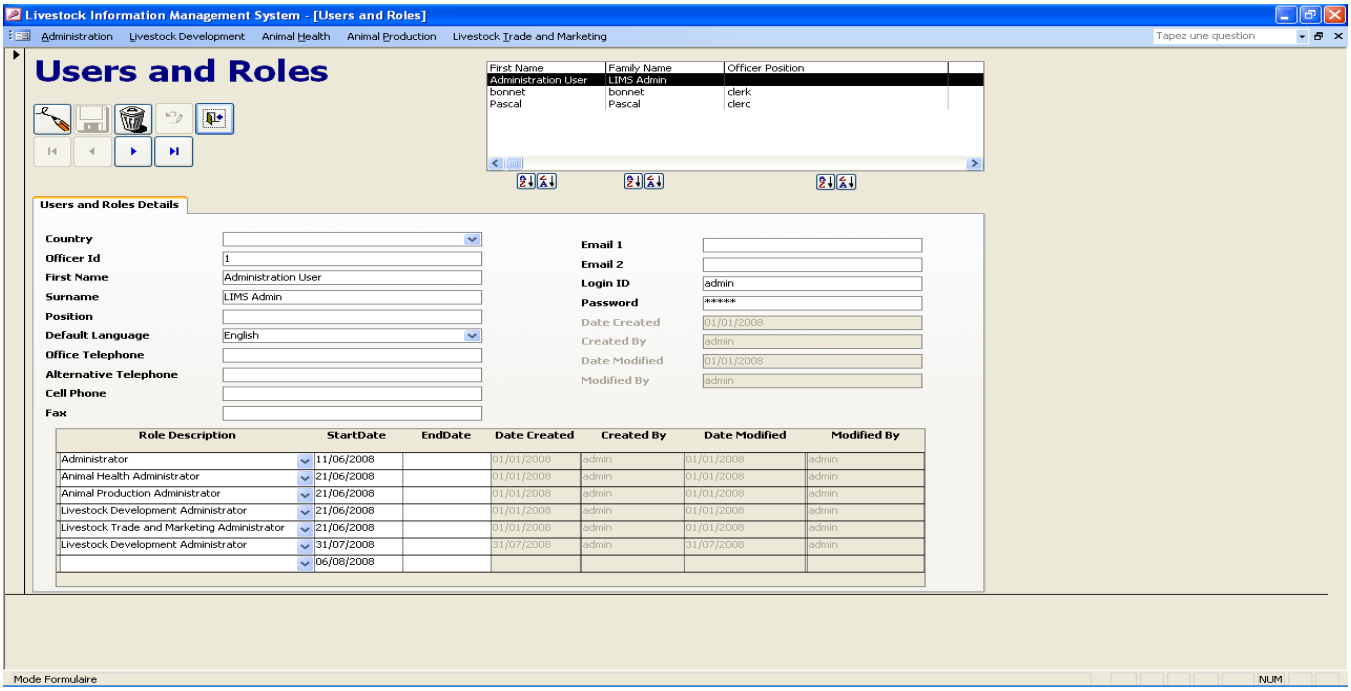


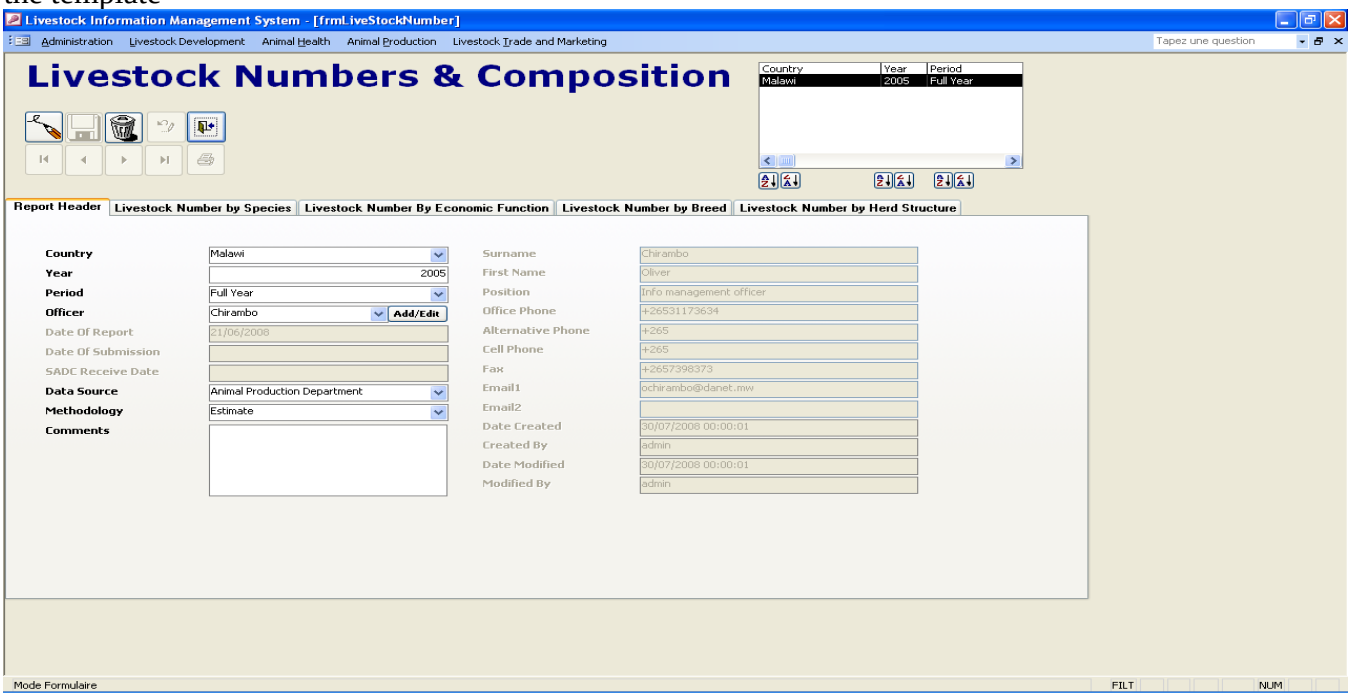
Figure: a simplified and structured Diagram of the potential ways of transferring data within a country and between SADC and countries. All layers cannot be equipped with computers or connectivity so far, therefore the use of excel templates and paper report mimicking the excel templates is also recommended. The use of some cell phone technology should soon facilitate the sending of some information from a stage to another.

It is then essential to derive from such diagrams and SoP's (hardcopies) the roles and functions that will be implemented into the database, therefore giving access to some or all the functionalities and/or modules.



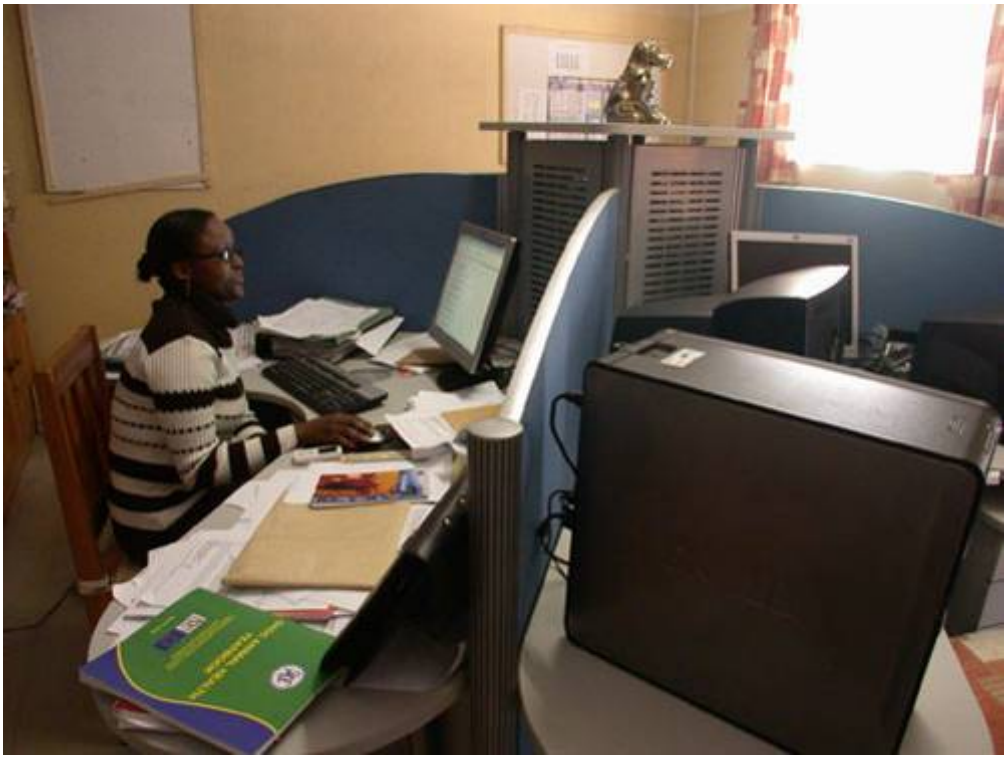


The person who submit the information should always be indicated into the header of the template



Potential Contributors to LIMS

In the context of decentralisation in Zambia, the provincial levels of DVLD have been equipped with new computers and therefore can play a direct role by reporting data in the LIMS system. Rolling out to districts can be cumbersome therefore is not recommended at the beginning, unless we find and test a handheld technology compliant with the LIMS templates and modules.



At MACO the NALEIC of DVLD provides an excellent central place to host the national LIMS as it has connectivity (LAN and wireless Web) and data clerks are routinely busy capturing data.

In general, we recommend that MS gradually implement the LIMS, by upgrading hardware, software and humanware.

Firstly, it is advisable to make an inventory of what data is available without effort (already available in some institutions) therefore only requiring a networking exercise.

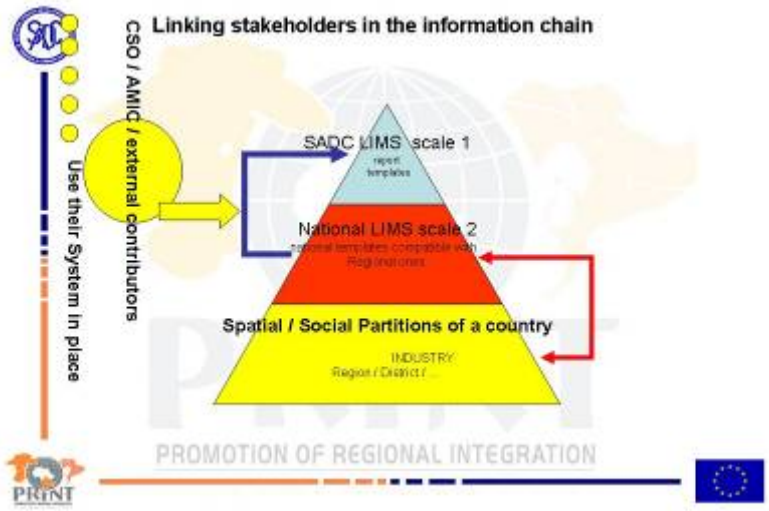
Secondly, the system shall be improved by adding information when it will require little effort.

A third stage will be when the completion of the data collection which will require significant effort. It is advised to benefit from other project funds (like the SLIP), especially when such projects have been tasked to implement an information system or a monitoring tool for part of all the Livestock sector (e.g. SLIP has been tasked to get baseline data and implement an M and E system, which LIMS can be the basis for).

An important aspect to consider is WHERE and HOW the contributors will send their contribution i.e. their dataset (therefore contributing to the LIMS).

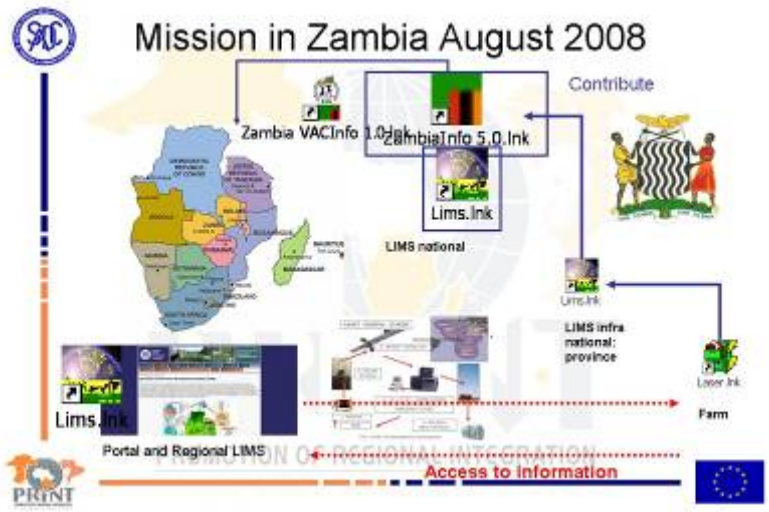
Besides DVLD, in Zambia, the CSO will easily contribute to Module 2 by sending the relevant excel template to DVLD (which should then enter the data into LIMS). It can also directly capture data into LIMS in its own premises (where LIMS application will be installed, with an authorized management to Module 2 only) and then export the data and send it to NALEIC (all options to be tested). CSO will use its own procedures, methodologies and system for collecting data (data issued from sampling and surveys etc.. will form the primary source of information).

The same applies to AMIC for Module 4 on prices of commodities. AMIC will incorporate the relevant LIMS templates into its own procedures, so that the department of marketing can be an active contributor and then become also a recognized user of the entire LIMS dataset.



Contribution and adoption of LIMS procedures, system and tools into other global information chains designed for monitoring the economic development of a country

In some instances, one could insert the LIMS system into a more global system therefore reinforcing it. Here the diagram is highlighting how LIMS can be inserted into the information chain of DEVinfo and VACinfo; all supported by UN, and generally carried out by CSO's in SADC region. These systems are generally weak in capturing indicators and information related to the LS sector. We can actively change this by adopting LIMS as a standard in MS. The same principle applies for chain of information on agricultural statistics that can be sometimes a bit weak on the livestock sector.
The food balance sheet, computed from MACO CSO survey data, can be improved by bringing some elements of LS proteins. So far, it is computed only with maize, paddy rice, wheat, sorghum millet, sweet and Irish potatoes, cassava flour, into Maize Meal equivalent.

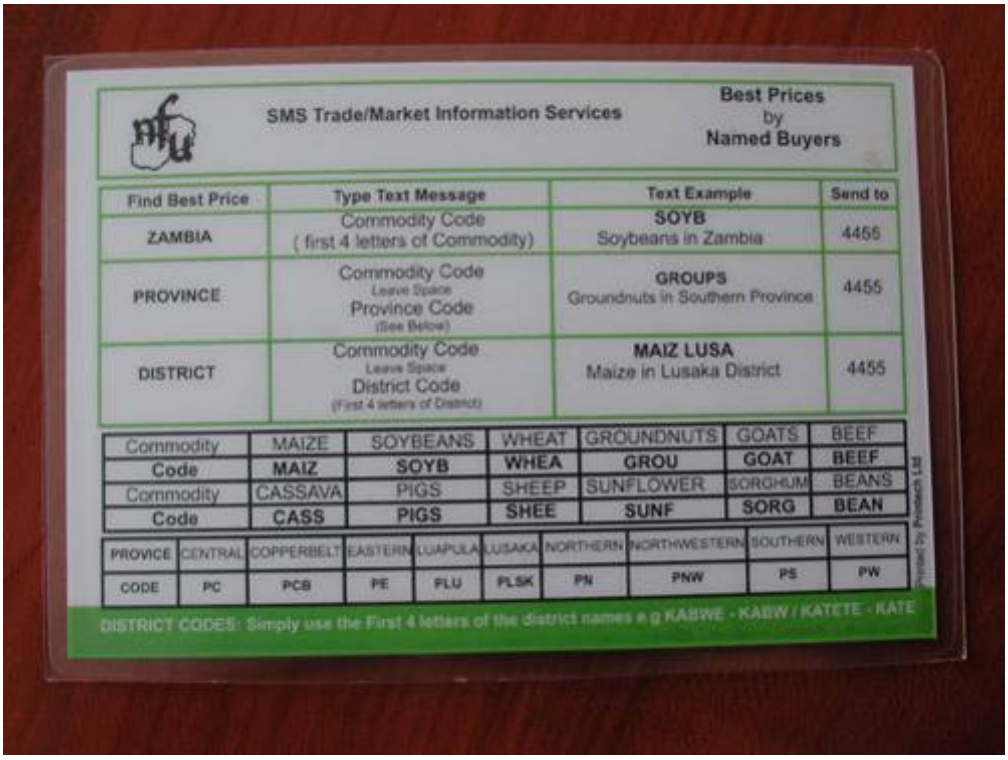


LIMS into a global information chain towards development

Constitution of a LIMS task force
It is recommended that a **LIMS task force** be constituted and that it meets quarterly. It can be constituted by MACO and its relevant departments (DVLD, AMIC..), plus ZARI, CSO with some selected private associations (ZNFU, MPAZ ZNDA) at least.

Modules and templates are to be filled in by DVLD of MACO, and /or by partners from MACO or outside MACO. Some examples of appropriate sources of information are provided hereafter. Any institutions can take a responsibility for one module or more.

Module 4: ZNFU for prices of commodities and products, in association with AMIC from MACO.



SMS Trade/Market Information Services

Best Prices by Named Buyers

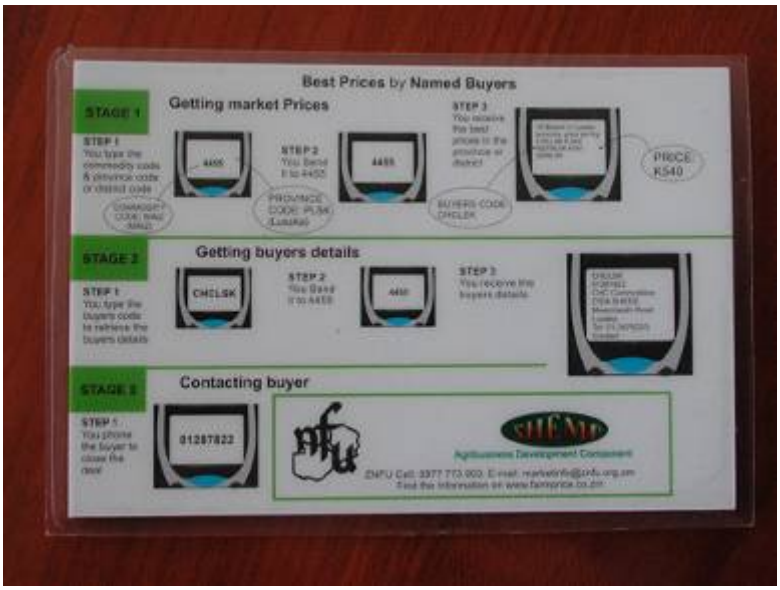
Find Best Price	Type Text Message	Text Example	Send to
ZAMBIA	Commodity Code (first 4 letters of Commodity)	SOYB Soybeans in Zambia	4455
PROVINCE	Commodity Code Leave Space Province Code (See Below)	GROUPS Groundnuts in Southern Province	4455
DISTRICT	Commodity Code Leave Space District Code (First 4 letters of District)	MAIZ LUSA Maize in Lusaka District	4455

Commodity	MAIZE	SOYBEANS	WHEAT	GROUNDNUTS	GOATS	BEEF
Code	MAIZ	SOYB	WHEA	GROU	GOAT	BEEF
Commodity	CASSAVA	PIGS	SHEEP	SUNFLOWER	SORGHUM	BEANS
Code	CASS	PIGS	SHEE	SUNF	SORG	BEAN

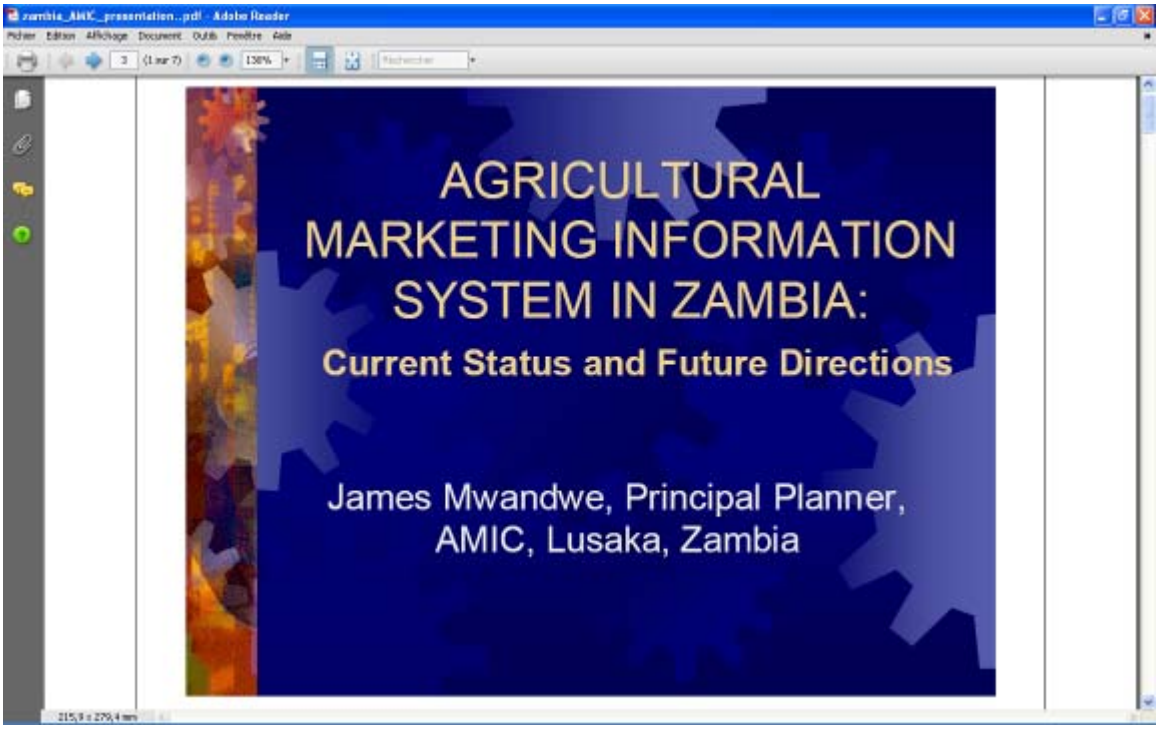
PROVICE	CENTRAL	COPPERBELT	EASTERN	LUAPULA	LUSAKA	NORTHERN	NORTHWESTERN	SOUTHERN	WESTERN
CODE	PC	PCB	PE	PLU	PLSK	PN	PNW	PS	PW

DISTRICT CODES: Simply use the First 4 letters of the district names e.g KABWE - KABW / KATETE - KATE

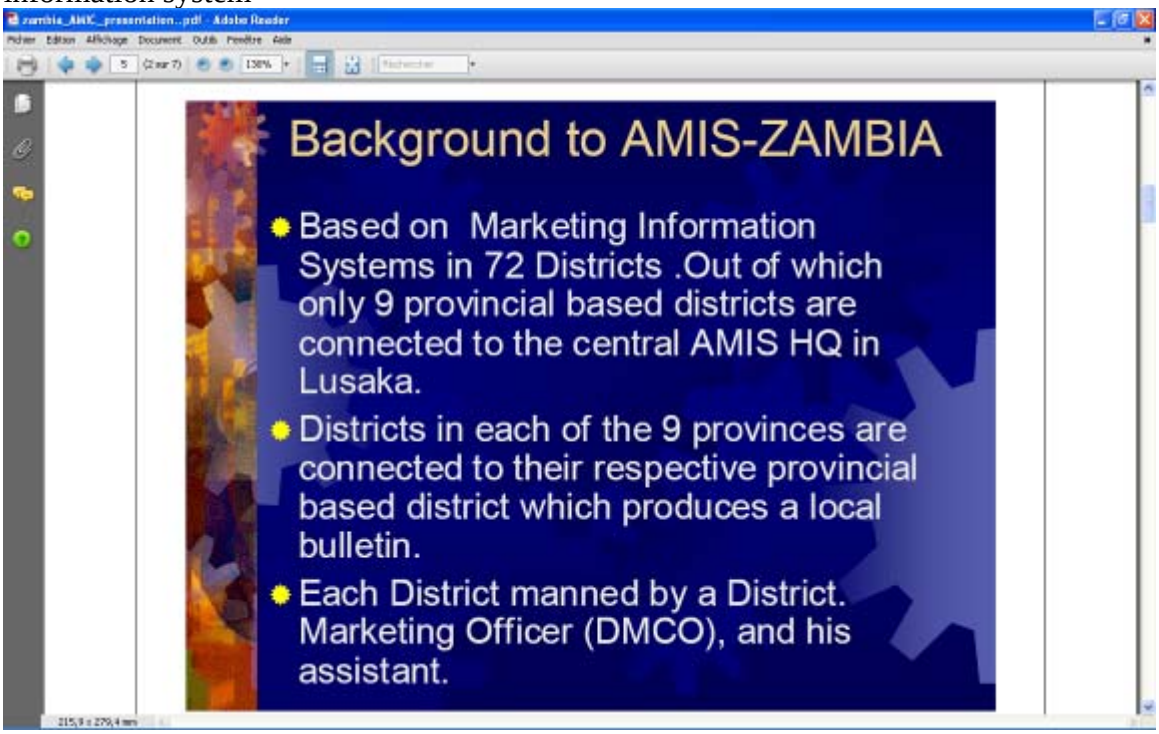
ZNFU already has implemented a system for commodity prices that complement the one of AMIC



AMIC from MACO, AMIC and the EWS (early warning system / sister department): they together with CSO establish the food balance sheet. AMIC stores its data into SPSS, which is not as flexible as Access is for data storage. They also intend to use AGRI-MARKET, a software from FAO. They also recommend working with the agricultural consultative forum in Zambia on Module 4.



A presentation form AMIC which explains all the characteristics of their marketing information system



MACO-AMIC is very experienced in collecting and analysing data on price and releasing them in a very fast way. They wish to add LS data therefore to adopt LIMS templates and categories.

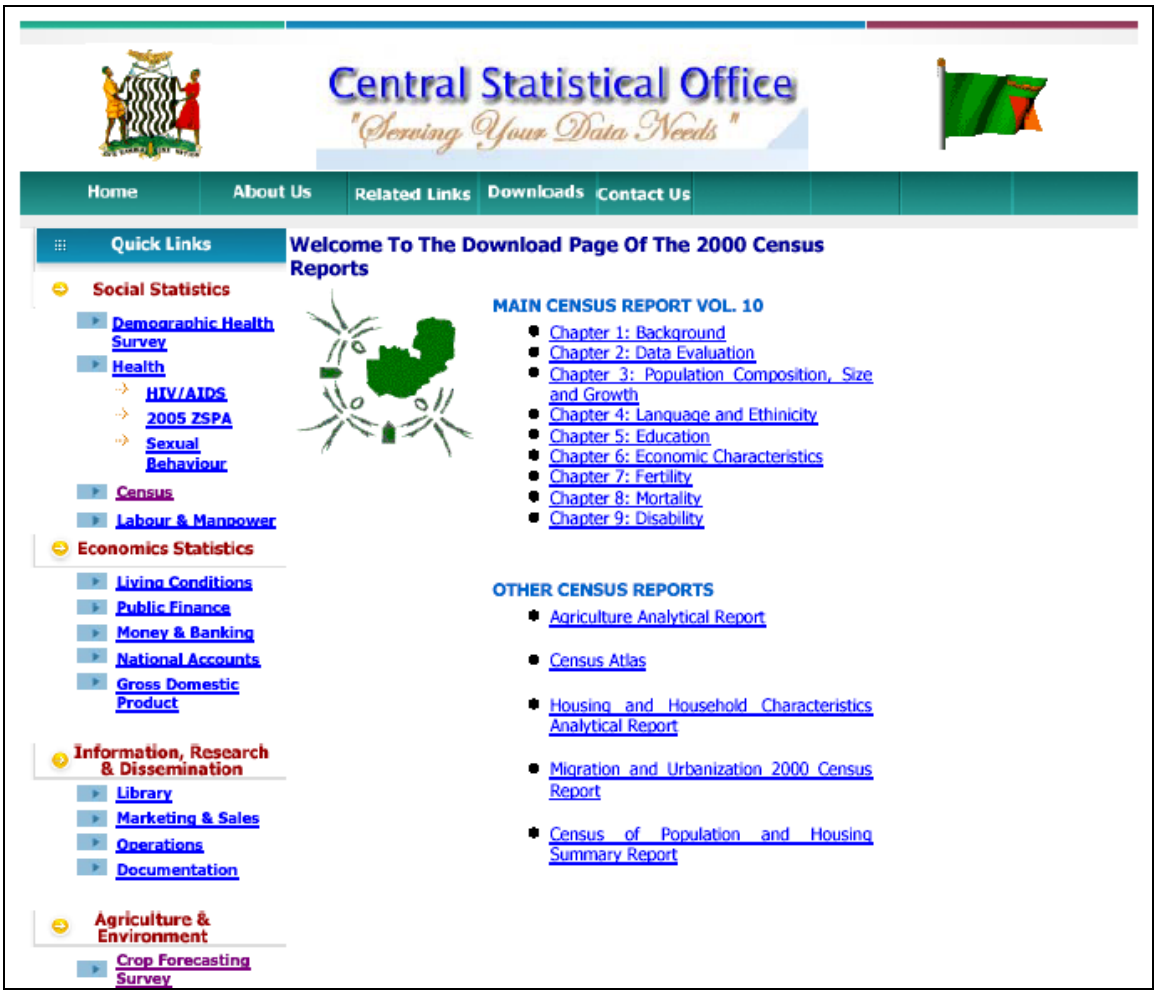
Module 2 and some other modules (M6, M8, M5, M3, M1): CSO for Household number M2.

The CTA gave a visit to the CSO (agric stats section) and he has collected some useful statistical booklets, and a list of Agricultural Statistics Publications available at

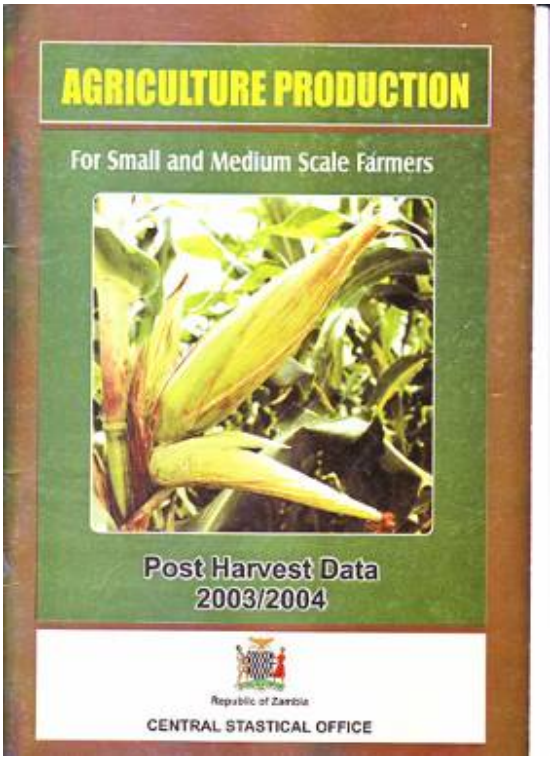
CSO or at info@zamstats.gov.zm, www.zamstats.gov.zm. The outputs of CSO work is the publication of several booklets and abstracts (available in electronic and paper forms). One could also request a specific query of the CSO central database to produce a LIMS like report (in Excel, therefore respecting the same structure) to be inputted into LIMS.

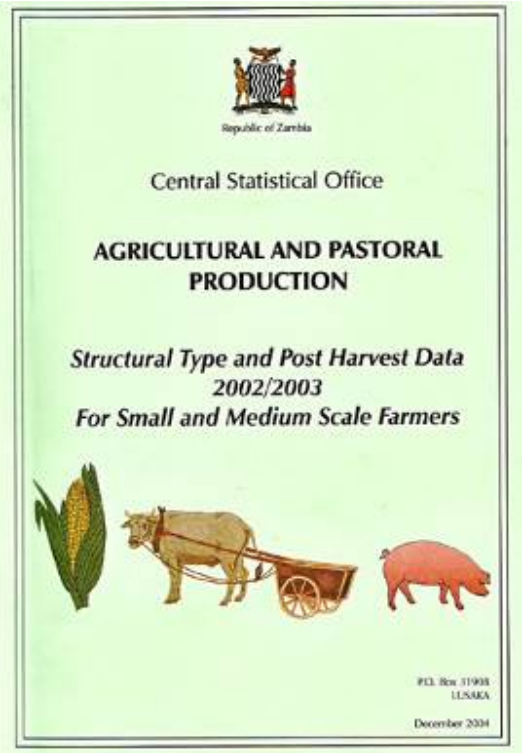
The agricultural statistician also participates to the FAO agric stats network and attends frequent meetings (next in Tanzania).

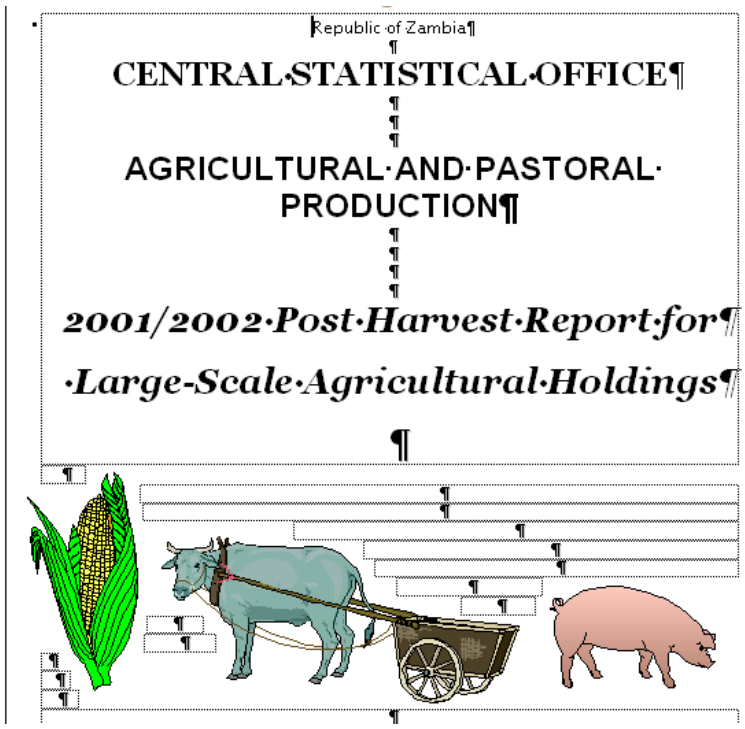
Some Series of statistical bulletins are available. Some are relevant to LIMS. The results are published in the agriculture series of statistics published at CSO and they originate from specific surveys methodology (CFS crop forecasting survey and post harvesting at the beginning of the season, in October, are two surveys done every year). All details on methodology are available in the documents. Another branch of CSO is also dealing with prices and trade (primary data being custom). The registration of societies and establishments could also provide for M6 and M8 respectively.



The web site of CSO is easily accessible and one can download the updated publications when released.


AGRICULTURE PRODUCTION
For Small and Medium Scale Farmers
Post Harvest Data
2003/2004
Republic of Zambia
CENTRAL STASTICAL OFFICE


Republic of Zambia
Central Statistical Office
AGRICULTURAL AND PASTORAL PRODUCTION
Structural Type and Post Harvest Data
2002/2003
For Small and Medium Scale Farmers
P.O. Box 31908
LUSAKA
December 2004



Some of the publication available in hard copies or soft copies from the web site

User of LIMS:
SLIP is tasked to establish a baseline dataset. It can therefore benefit from LIMS methodology and therefore it can promote its use within MACO and outside.

LIMS SoP's Sheet

An SoP sheet has been proposed by PRINT to be used as a guideline (and should be improved by MS during their networking exercise).
This sheet shall be used to respond to the questions: Who will do what regarding LIMS templates and LIMS application? why when and where?
This requires the description of all potential actors: Institution and name of a personnel and its details etc..

The objective is to develop and gradually finalize the **National & specific LIMS SoP's** in the country, i.e. **standard operating procedures** for running the LIMS system, therefore generating a **national network** of **stakeholders** (with their names and positions) which will have **FUNCTIONS** regarding data contribution and use of the system, such as:

- Be part of the **LIMS national Taskforce** which meets quarterly
- Take a responsibility or/and leadership to **provide** data (**contributors** as **primary** source **or secondary** source) and/or **submit dataset** to a "**parent**" **partner** (it

could be NALEIC…) in the information chain. Such function can be broken down like:
    - filling some templates (paper work or possibly into the corresponding excel worksheets)
    - entering data into the screens of LIMS application (where ever it is installed)
- **Coordinate** the data capture, **follow up** the versioning of the LIMS application and update LIMS software in locations where it is installed (update may include changes in the reporting excel templates), and coordinate and **monitor** the submission to SADC
    - **Act as** a national coordinator for the regular **submission to SADC**, but it could be required for any level of submission in the information chain
    - **Download** the new **versions** of the LIMS **application** and **templates** (cf. versioning code) and of the **training material** (manuals) when released and
    - **Revise** the national **SoP's** regularly (yearly)
- Act as a **Trainer** on LIMS, using generic manuals and update manuals by drafting country specific contents to better illustrate the use of LIMS (to **customize manuals** for a national purpose)
- **Use and Interact on the AIMS** / LIMS **portal**: use and contribute to the portal with general information on LS related events and information
- Participate to the **AIMS national network**

Drafting the first SoP's will also ensure:
1/ the proper **starting of the data reporting** to SADC (in excel or with LIMS) after the date of the visit of PRINT to MS (firstly using LIMS templates and preparing the compilation of datasets, secondly and gradually using the LIMS application)

- by using **TEMPLATES in EXCEL** if one cannot use the application for some reasons, or if one wishes to use the excel templates in hard and soft copies in the field (at province and district levels). One should then also follow up updates of new versions of templates (if any) on the LIMS AIMS portal

- by using **LIMS application** facilities, one should then also follow up updates of new versions on the LIMS AIMS portal: http://aims.sadc.int (Livestock part) or http://lims.sadc.int

The drafting of SoP will again need to clearly:

- **Identify and list the various and potential source**(s) of information, the **types of data** that sources could provide and manage, one should acquire and share the knowledge on when and where data are available and published (.i.e. sources like web sites) in institutions where data are managed by experts (CSO etc..).
- **Prioritize** and **Select** a few **sources** which will contribute to the core system of 11 modules and start dispatching the LIMS roles and functions: list functions firstly so that *in fine* one institution will be selected to report to SADC

2/ A second goal during the networking effort with partners (when drafting SoP's) is also to start an in depth collection of the most recent **dataset available in the country for a year of reference (retrospective and detailed data** in hard or electronic copies using the LIMS templates).
It is needed in order to properly analyse some trends in the sector and therefore adequately prepare presentations for various SADC meetings like the LTC. It is also needed to prepare the drafting of the Regional Agricultural Policy during the planned workshops, where such data will be used). Electronic files should be preferred and sent to SADC PRINT.

3/ thirdly to **start process of collecting** elements for a "***5 years data retrospective time series***" in hard or electronic copies as well (in order to properly continue trends analysis) (Particularly ask NSO to provide all relevant documents (possibly purchased for PRINT))

4. Other Topics (than LIMS) discussed during the mission

4-1 TAD's project and use of LIMS and hand held devices in Zambia (DPT)

In view of making advance on the SADC TAD's project, PRINT has been requested by the FANR LSU to provide guidance concerning improvement of information provision regarding TAD's related data. It was decide to improve collection of data in the field for census data, outbreak notification and vaccination (M10, M11, M1, therefore using three modules of LIMS).

Therefore, in one component of the TAD project, FAO who is the implementing agency will be tasked to test the use of DPT (digital pen technologies) or/and other devices (handheld PALM like cell phones) to better collect data. PRINT will complement the funds by using its own budget and by providing some equipment.

We therefore have requested Zambia to provide indications on where they would like to start the test with the DPT (included into the SoP).

SADC-TAD AdB funded project / Handheld / DPT Digital pen technology
Try to indicate in which Partitions you would like implementing a **Handheld / DPT Digital pen technology** connected to **LIMS templates** and system (three templates of LIMS are selected to be the first implemented at grass root level: **Module 1 Census, Module 10 Outbreak and Module 11 Vaccination**).

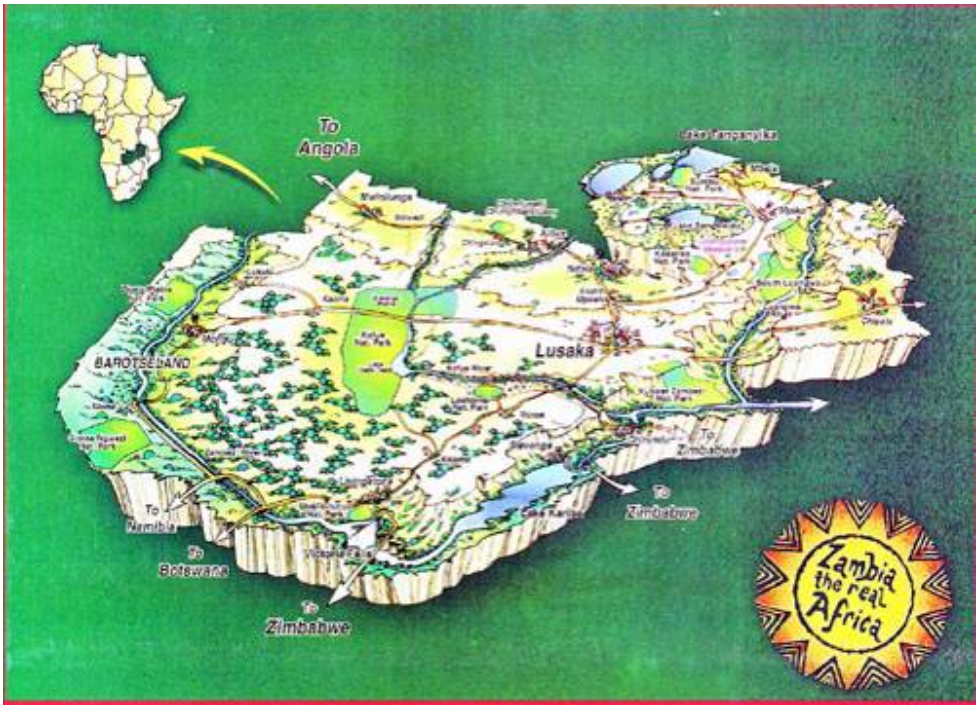
1st administrative level names	2nd administrative level names	Digital Pen Technology AdB Project
Central	Chibombo	
Central	Kabwe	
Central	Kapiri Mposhi	
Central	Mkushi	
Central	Mumbwa	
Central	Serenje	

Copperbelt	Chililabombwe	
Copperbelt	Chingola	
Copperbelt	Kalulushi	
Copperbelt	Kitwe	
Copperbelt	Luanshya	
Copperbelt	Lufwanyama	
Copperbelt	Masaiti	
Copperbelt	Mpongwe	
Copperbelt	Mufulira	
Copperbelt	Ndola	
Eastern	Chadiza	
Eastern	Chama	
Eastern	Chipata	
Eastern	Katete	
Eastern	Lundazi	
Eastern	Mambwe	
Eastern	Nyimba	
Eastern	Petauke	
Luapula	Chienge	
Luapula	Kawambwa	
Luapula	Mansa	
Luapula	Milenge	
Luapula	Mwense	
Luapula	Nchelenge	
Luapula	Samfya	
Lusaka	Chongwe	
Lusaka	Kafue	
Lusaka	Luangwa	
Lusaka	Lusaka	
Northern	Chilubi	
Northern	Chinsali	
Northern	Isoka	
Northern	Kaputa	
Northern	Kasama	
Northern	Luwingu	
Northern	Mbala	
Northern	Mpika	
Northern	Mporokoso	
Northern	Mpulungu	
Northern	Mungwi	
Northern	Nakonde	
North-Western	Chavuma	
North-Western	Kabompo	
North-Western	Kasempa	
North-Western	Mufumbwe	
North-Western	Mwinilunga	

North-Western	Solwezi	
North-Western	Zambezi	
Southern	Choma	
Southern	Gwembe	
Southern	Itezhi Tezhi	
Southern	Kalomo	
Southern	Kazungula	
Southern	Livingstone	
Southern	Mazabuka	
Southern	Monze	
Southern	Namwala	
Southern	Siavonga	
Southern	Sinazongwe	
Western	Kalabo	
Western	Kaoma	
Western	Lukulu	
Western	Mongu	
Western	Senanga	
Western	Sesheke	
Western	**Shangombo**	
9 units	**72 units**	

4-2 ZAITS study case study in Zambia

Finally we briefly informed Zambian authorities of the starting of the ZAITS study . The consultant will shortly consult Zambian authorities on zoning issues.



ZAITS study will explore the possibility of extending zones in the SADC region, using natural or artificial boundaries and based on the LS development strategy of the MS.

5. CONCLUSIONS & Way forwards

All the points debated in this report will be soon presented during further sub committees meetings and at the LTC in 2008. The road map for the way forward shall be decided by MS regarding the development of LIMS in their respective country, by **establishing a 5 years roll out plan for LIMS**. It is expected that almost all MS will be visited by PRINT for the adoption mission before end of 2008 (except RSA and DRC in 2009), missions which are aiming at a first sensitization to the SADC information system. The success of the LIMS relies on the formation and the activity of national LIMS network (human-ware) and on the collaboration between national institutions holding information on the LS sector. Therefore, we recommend MS use the SoP's provided for guiding such exercise and convene frequent meetings of the LIMS network.

PRINT will attempt to continue its support to MS in 2009 through the CIRAD service contract lasting up to October 2009, whereas the program estimate 4 of PRINT ends in March 2009. The 5 years rolling plan for LIMS should be ready by then.

Countries are expected to start drafting their national SoP's firstly for the 9 quantitative modules, particularly for M1, M2, M3, M5, M6, M10, M11 which are considered a priority Modules (in depth priority setting will be discussed during the next Sub committee meetings).

Member states should also **collect and send information** to SADC secretariat (to Livestock unit FANR c/o PRINT LS project), i.e. the last numerical datasets available for these priority Modules. To do so they should use firstly the **templates provided in Excel,** as the use of LIMS software will be heterogeneous and gradually implemented in MS. They should start by providing data on **M1, M3, M5, M11**, which are essential Modules if we want to publish a **production and trade yearbook** plus a **disease control yearbook** by next year 2009. M10 is relatively well advanced because of the historical accumulation of data regarding outbreaks in the region, and a first disease yearbook has already been published.

Thirdly, they should start collecting retrospective data to provide elements for a trends analysis (5 years retrospective data).

Annexures / Annexes

ANNEX I – Terms of reference for the mission

TERMS OF REFERENCE FOR PRINT LIVESTOCK PROJECT MISSION ON LIMS Launching in ZAMBIA

LIMS Adoption Missions: Stakeholder Consultations & Training: July to December 2008

A major expected output of the PRINT Livestock Project is the development of a Livestock Information Management System (LIMS) for the collection of livestock data, processing and reporting of information between Member States and the SADC Secretariat. LIMS is a component of the SADC/FANR/AIMS i.e. Agricultural Information Management System.

The development of LIMS has necessarily, been undertaken in stages as follows:

- Situation Analyses to establish systems of livestock data management in Member States;
- Consultative workshops on the development of reporting templates for data-capture with Sub Committees of the SADC Livestock Technical Committee, namely:- 1) Epidemiology & Informatics, 2) Animal Production, Veld & Marketing, 3) Veterinary Public Health & Food Safety, and 4) Veterinary Laboratories & Diagnostics;
- Approval of the data-capture templates by the Livestock Technical Committee; and
- Sub-contracting of the LIMS database development.

The LIMS application is now in its final stages of development. The stage has been reached where the LIMS application must be rolled out to Member States for installation, training and final testing, whilst providing an opportunity for establishing institutional networks for livestock data collection at the national level.

To this end, so-called LIMS Adoption Missions to Member States are planned from July to December 2008. Attached is a table giving details regarding the month and proposed dates relevant for each Member State.

The LIMS Adoption Missions will comprise the following activities:

- A stakeholders workshop to present the entire SADC/FANR information strategy i.e. the AIMS portal, the LIMS application, the LIMS Web/GIS, associated reporting templates, national standard operating procedures (SOPs), and the institutional network for implementation;

- Training of trainers on the LIMS application for a limited number of key personnel who will conduct further training at national level;
- A final evaluation of sources of information and use of the harmonized data-capture templates;

Therefore member(s) of the PRINT Livestock Project will firstly hold a one-and-half day workshop whose participants should include representatives of livestock departments, public and private institutions who are a source of livestock data and / or information, including all livestock personnel who have participated in previous workshops or training courses organized by the project as well as selected participants to recent AIMS workshops.

The one-day workshop will be followed by a three-day LIMS training course of a maximum 8 identified personnel involved in livestock data management.

Please note that there will be follow-up communication with each Member State close to the date of the mission. The PRINT Livestock Project will meet all costs associated with the above-mentioned activities i.e. per diems, travel and workshop facilities.

We look forward to your usual support in this important regional activity.

Yours Sincerely,

Dr. Welbourne Madzima
Project Coordinator
PRINT Livestock Project

ANNEX II – CD (electronic annexes):

Software's released at per the date of the training (Beta version still under evolution):
LIMS beta version

Arc-Explorer XP (Java required)
CODEC to read movie for the AIMS demo video (in file .avi)

LIMS Templates in Excel (version Beta to date)
Listing of Administrative and technical Partitions in Excel

ANNEX III – Presentation made at the Launching seminar

ANNEX IV – Proposed SoP sheet (excerpt to be improved by MS)

			LIMS / ZAMBIA

Part 1: Header

Date of elaboration of the SoP:

Persons who elaborated the SoP:
(details and email of contact person for the modification requested):

SoP for which Template Number & Screen number: (code : **Component - Module -** and **Template** Number / **Screen number** from left to right when possible to account like this)

Part 2: Images (when needed)

Template
e.g. Module 3, Template 4 / Screen 4 (with header accounted for)

4. Processed Dairy Products (from all species)

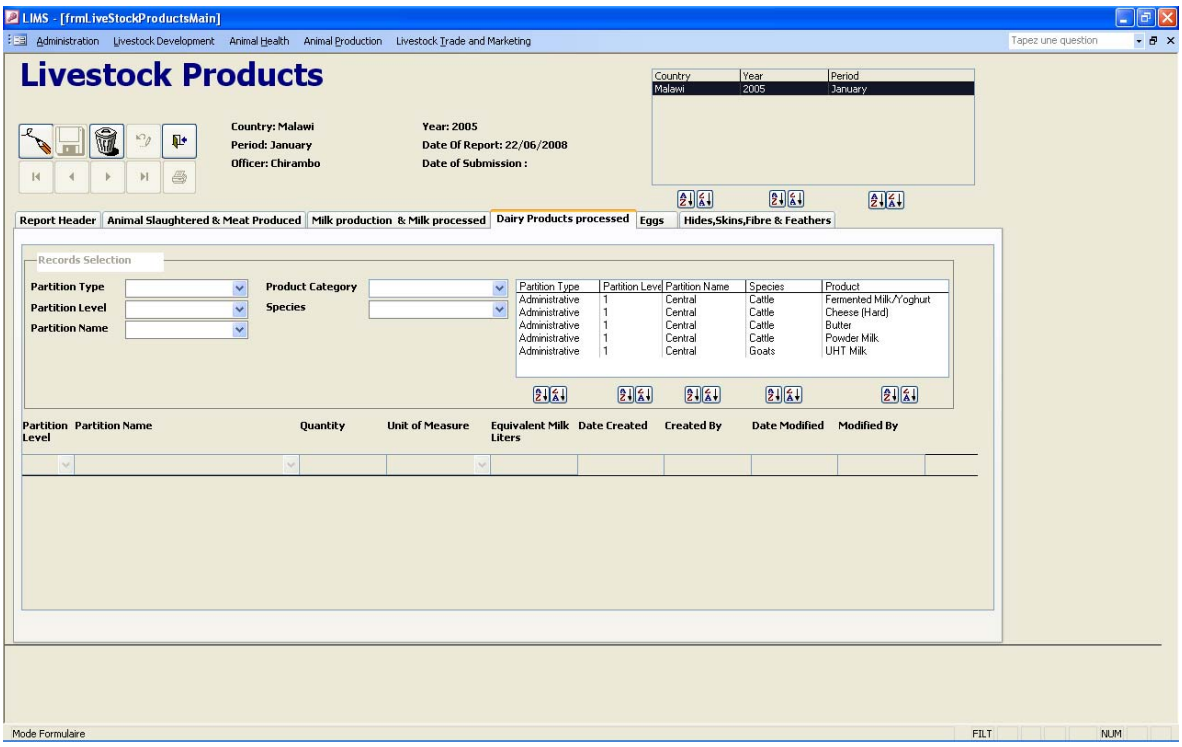
Partition 1, e.g. Region/Province	Partition 2, e.g. District	Pasteurized milk Lt**	UHT milk Lt	Fermented milk Lt	Yoghurt Lt	Cheese Kg**	Butter Kg	Cream Lt	Powder milk Kg	Other* products	Other * products	Other * products
Reg/prov 1…….	Dist 1…..											
	Dist 2…..											
	Dist 3…..											
Reg/prov 2…….	Dist 1…..											
	Dist 2…..											
	Dist 3…..											
etc												

* Specify which product
** Lt= Litres, Kg= Kilograms

LIMS: Milk equivalent not working
LIMS: unit of measure kiloliters??

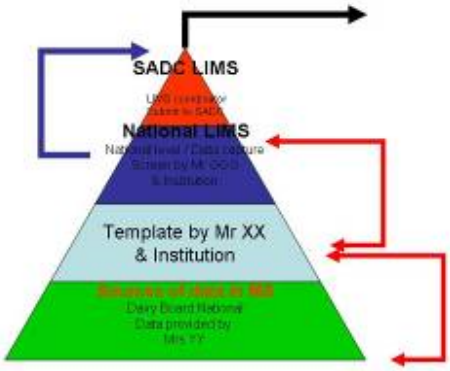
LIMS gives option for cattle and goat = wrong
LIMS: take out option "milk"
Not in LIMS: fermented milk, cream, other products
LIMS: Yoghurt/fermented products together

Corresponding Screen



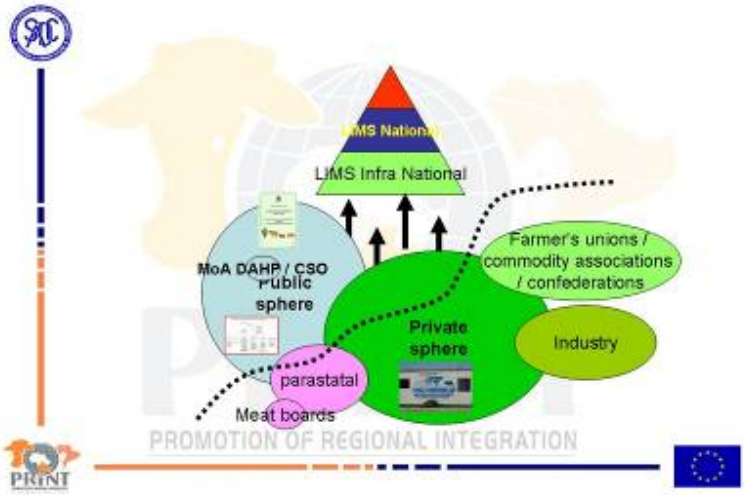
Part 3: Comments on who could / will be responsible for the templates / screens of the module studied
List all potential sources of information for the Module / Template / Screen

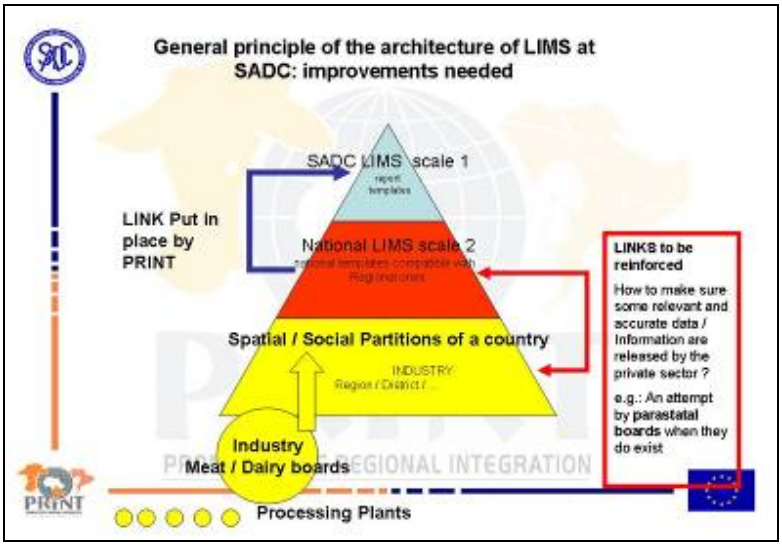
List them: e.g. hierarchical role of DVLD and Partnership / Functional role of other institutions (PPP, CSO, Agric Stats…)
e.g. Hierarchical role: how the information will flow from fields to HQ



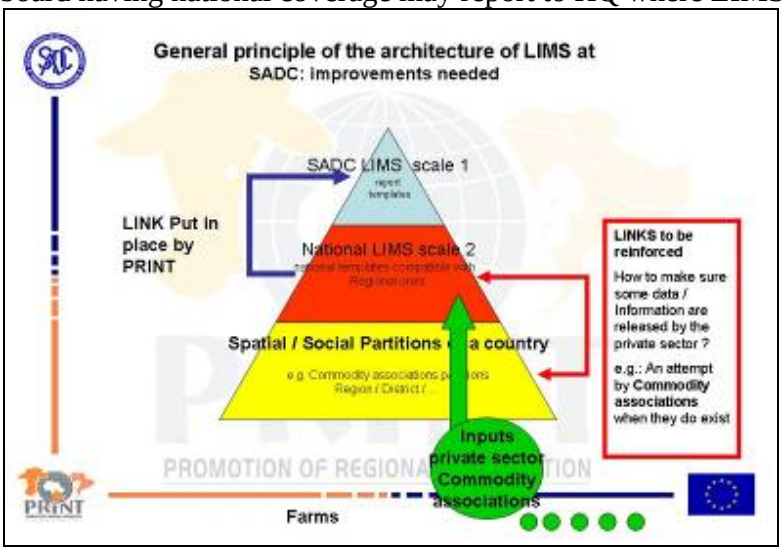
LIMS Module 3 / Template - Screen Dairy ##

e.g. Functional role: Which institution outside DVLD could take a role , have a function regarding this template? Do they cover the entire territory? Therefore, should they report to HQ or to province / district? etc..





e.g. a dairy board having national coverage may report to HQ where LIMS is installed



e.g. a commodity association having provincial coverage may report to HQ or to the province where LIMS is installed

Selection: rank the players

a/ Major Role for the template to be distributed firstly to:

1/

2/

3/

b/ **Describe role** and responsibility

1/

2/
3/

Part 4: Diagram for SoP / Flow Diagram
i.e. take an image of what you have drafted on a flip chart flow of data between partners, type of transfer, who does what?

Functions to be achieved: Stage 1: e.g. collection and capture of data

- Collection into paper report from field stakeholders? (can be private sector)
- Collation into Excel templates (compile report in hard copy when needed)
- Data capture into LIMS screens

Who is responsible for filling the paper report / template / **capturing** data into LIMS application' screens

- **Name of stakeholder**(s) and **Institution(s) of reference** at **national** level
- (email of contact person)
- **Name of Institution**(s) of reference at **regional/provincial** level
- **Name of Institution**(s) of reference at **district** level

---

Functions to be achieved: Stage 2: e.g. Supervision and submission
Data quality **control** by supervisor / Data **submission** control to upper scale / level (which one HQ province etc..?) and to SADC (or any person and level e.g. HQ in the MS)

Who is responsible for coordinating this module? = Who is responsible for **coordinating the completion** on time, **submitting to SADC** this set / component / module?

- Name of stakeholder(s) and **Institution(s) of reference** at **national** level
- (email of contact person)
- **Name of Institution**(s) of reference at **regional/provincial** level
- Name of Institution(s) of reference at **district** level

How to formulate responsibility in the SoP

e.g. LIST of players

ORGANIZE FLOW of DATA between players

Diagram of REPORT USING TEMPLATES or ELECTRONIC FILE + DIRECT input into LIMS Screen

Part 5: Rank the difficulty of this module / screen / template

- Easy to fill with little effort: □ Y/N □
- Relatively Easy to fill with significant effort: □ Y/N □

- To gradually o fill with strong effort: □ Y/N □

Part 6: Can this Module/ Template be integrated in another Information system IS (from CSO , AMIC etc..):
e.g. DEVinfo, VACinfo, SLIP M and E System etc..

Part 7: In conclusion Decision Table (to be consolidated for all modules)
5 W : What to do / when where who why

After having elaborated the diagram, try to fill in the following summary table

What action	Who	When	Where	Why	How
Module Number Screen / template number					
e.g. provide data for module M10 / screen S2 / template T2 be specific or e.g. submit to SADC or transfer data from	Institution and name of a person and his expected functions, possibly an alternate when on leave or on mission	Frequency of action	From NALEIC National level HQ	This is the best source	Use of LIMS application Or using TEMPLATES in EXCEL

CSO to NALEIC					

Note:
If needed List the various sources by order but indicate which one is the one used

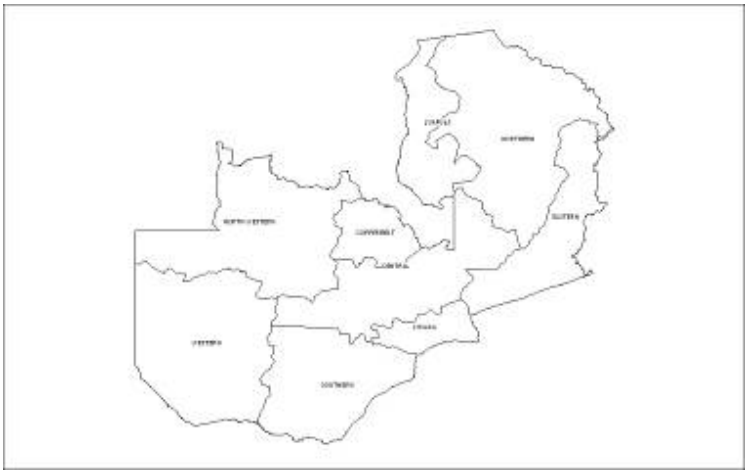
- Primary source: Institution & Person in charge for the template in Module
- Secondary source: Institution & Person in charge for the template in Module

Example of function (what to do): Institution that will enter data into LIMS, Institution who will submit data into LIMS: Frequency of submission

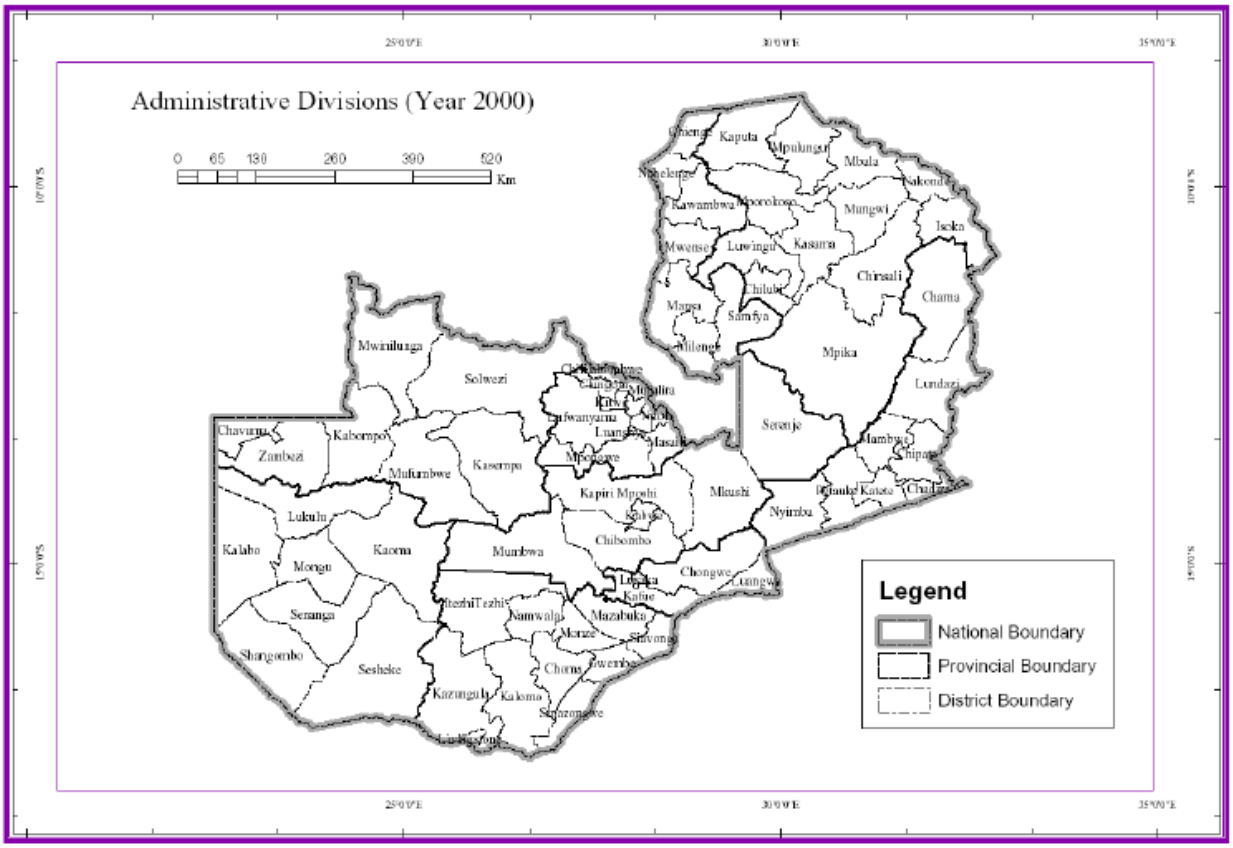
---

Part 8: How to gradually implement the LIMS in the entire territory with its hierarchy, Comments on Hierarchical partition of Zambia

Hierarchical partition
Provinces:



Districts



Try to indicate in which Partitions you should start implementing **LIMS system** with:
a/ **LIMS application** installed on computers or/and
b/ **Paper Report + Excel sheet (template)**
c/ Network of partners well aware and **SoP's developed**

1st administrative level names	2nd administrative level names	Priority and first mode of implementation a or b?
Central	Chibombo	
Central	Kabwe	
Central	Kapiri Mposhi	
Central	Mkushi	
Central	Mumbwa	
Central	Serenje	
Copperbelt	Chililabombwe	
Copperbelt	Chingola	
Copperbelt	Kalulushi	
Copperbelt	Kitwe	
Copperbelt	Luanshya	
Copperbelt	Lufwanyama	

Copperbelt	Masaiti	
Copperbelt	Mpongwe	
Copperbelt	Mufulira	
Copperbelt	Ndola	
Eastern	Chadiza	
Eastern	Chama	
Eastern	Chipata	
Eastern	Katete	
Eastern	Lundazi	
Eastern	Mambwe	
Eastern	Nyimba	
Eastern	Petauke	
Luapula	Chienge	
Luapula	Kawambwa	
Luapula	Mansa	
Luapula	Milenge	
Luapula	Mwense	
Luapula	Nchelenge	
Luapula	Samfya	
Lusaka	Chongwe	
Lusaka	Kafue	
Lusaka	Luangwa	
Lusaka	Lusaka	
Northern	Chilubi	
Northern	Chinsali	
Northern	Isoka	
Northern	Kaputa	
Northern	Kasama	
Northern	Luwingu	
Northern	Mbala	
Northern	Mpika	
Northern	Mporokoso	
Northern	Mpulungu	
Northern	Mungwi	
Northern	Nakonde	
North-Western	Chavuma	
North-Western	Kabompo	
North-Western	Kasempa	
North-Western	Mufumbwe	
North-Western	Mwinilunga	
North-Western	Solwezi	
North-Western	Zambezi	
Southern	Choma	
Southern	Gwembe	
Southern	Itezhi Tezhi	
Southern	Kalomo	

Southern	Kazungula	
Southern	Livingstone	
Southern	Mazabuka	
Southern	Monze	
Southern	Namwala	
Southern	Siavonga	
Southern	Sinazongwe	
Western	Kalabo	
Western	Kaoma	
Western	Lukulu	
Western	Mongu	
Western	Senanga	
Western	Sesheke	
Western	**Shangombo**	
9 units	**72 units**	

Signatures of partners

LIMS PRINT officer at SADC

Stakeholder responsible for the coordination in MS

ANNEX V – Comment sheet

Bug records table

List of errors detected in LIMS application and suggested corrections

Name of reporter_____ Position_____ Date errors detected_____

Any report should be reported firstly to PRINT: BBedane@sadc.int
CC to Livestock Unit BHulman@sadc.int
CC to the developer: INFORMATIX INDUSTRY SERVICES Pty Ltd / Thulagano Segokgo tsegokgo@gmail.com
CC to the external tester: Xavier Juanes Xavier.Juanes@cirad.fr

No.	Component	Module	Tab page	Error detected	Suggested correction
No.	Component	Module	Tab page	Error detected	Suggested correction

ANNEX VI – Installation and Running Procedures with Vista and Access 2007

LIMS training
Procedures with VISTA

There are two security features into VISTA: UAC User Account Control & W.R.P / Windows Ressource Protection, put in place to protect systeme partition & register base
We will change the UAC: User Account Control: this introduce a first grading system for allowing some rights to administrators, users, guests etc..

Any report should be reported to PRINT: BBedane@sadc.int
CC to Livestock Unit BHulman@sadc.int
CC to the developer: INFORMATIX INDUSTRY SERVICES Pty Ltd / Thulagano Segokgo tsegokgo@gmail.com
CC to the external tester: Xavier Juanes Xavier.Juanes@cirad.fr

- **Stage 1:**

Start with Turning User account control UAC off
Control panel / user account
Turn User account control on or off / off UAC
Then restart your computer to apply the rules
Enter as a user
Example users in Zambia
Users (Terminial2NZILA\users)

When you will exit your LIMS "session" we suggest you turn it on again for security reasons

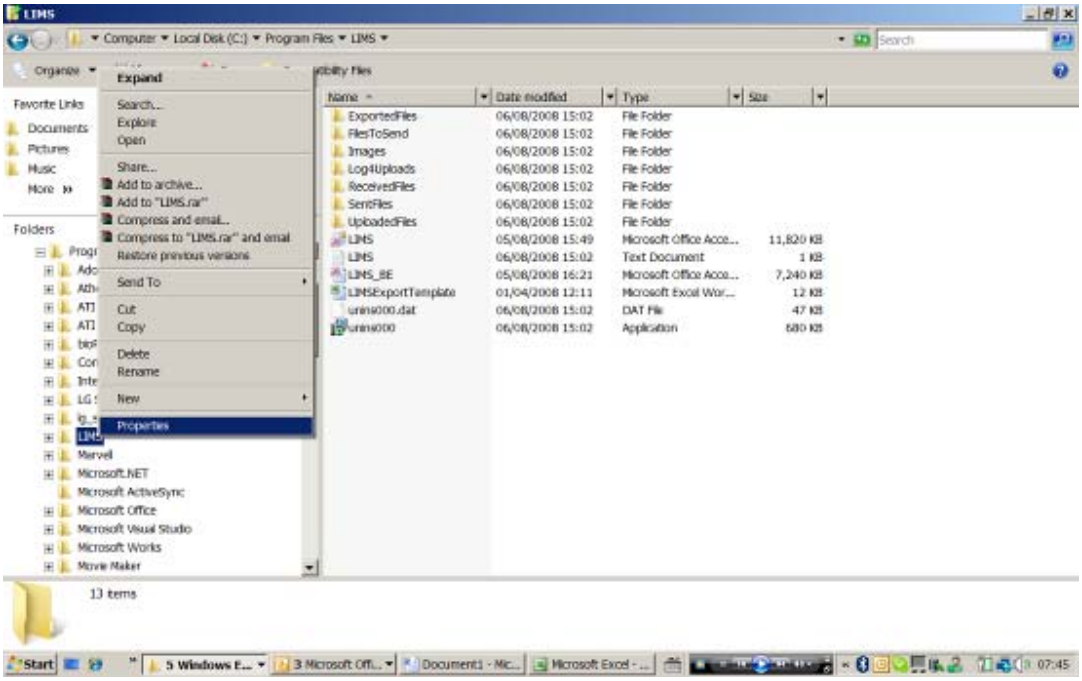
- **Stage 2**

Install LIMS
Go to the folder

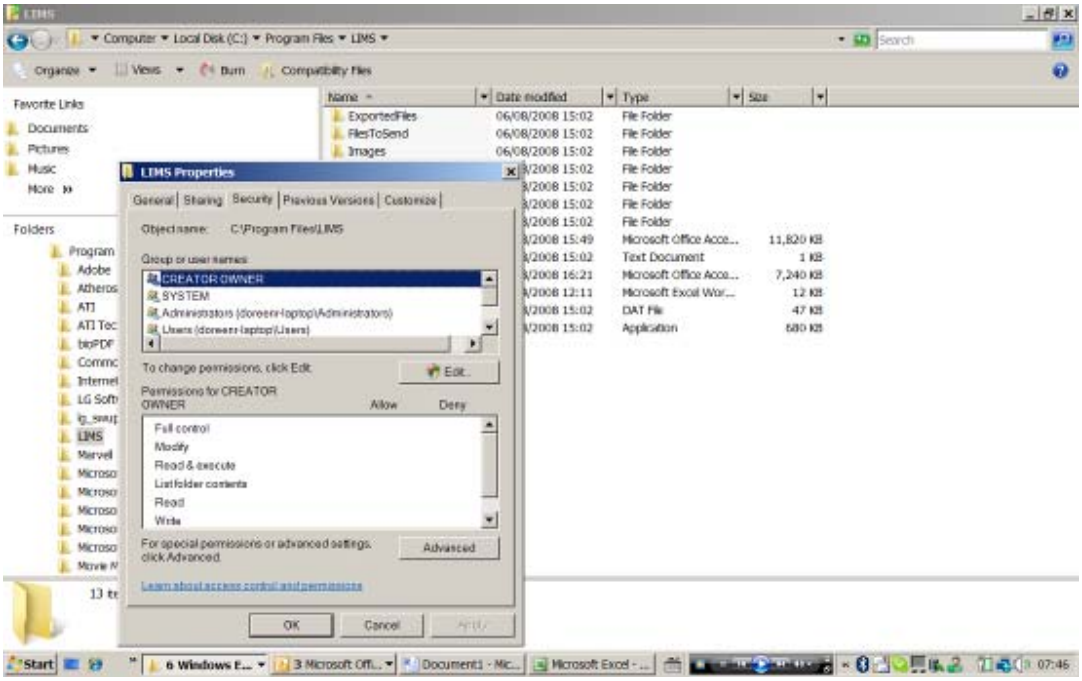
- **Stage 3**

Secondly allow all privileges to users for the LIMS folder properties

Way one to "allow" all privileges to users
Step 1
Go the LIMS folder under Program Files (where generally LIMS is installed)
Right click on the "LIMS" folder and select properties



Step 2

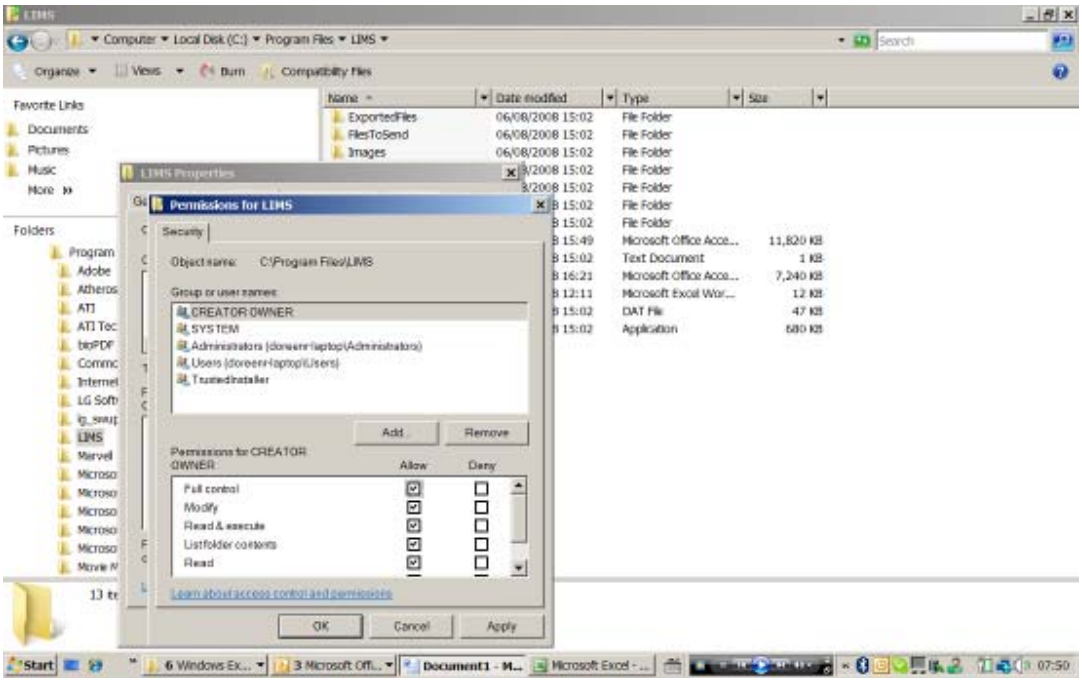


You may have in fact no creator owner but users only, do it on users

Step 3

Click Edit button and Click on continue if prompted
You may have to enter the windows by clicking advanced etc..

Step 4
Click Full control for “CREATOR OWNER” or USERS (better as VISTA generally does not allow changes on creator owner) or select the “Modify”, “Read & Execute”, … permission. The permission settings should rather be modified for “Users”.

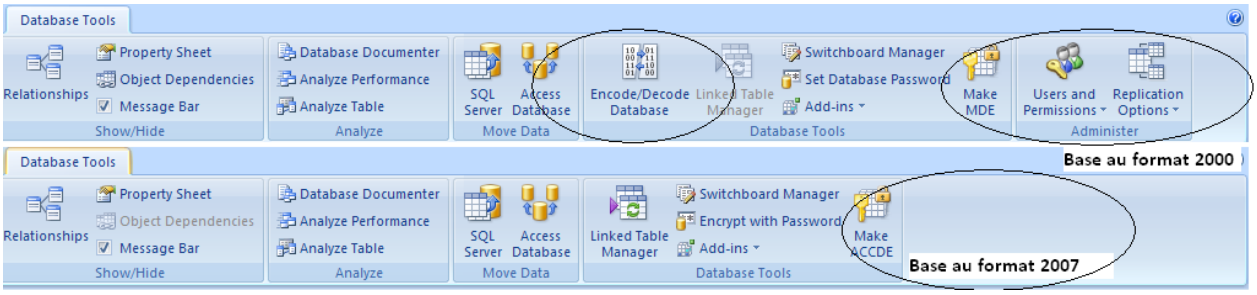


Step 5 – Click Ok

OS (Vista or XP) and versions of Access 2003 2007

Under Access 2007 (what ever the OS Vista or XP)
The header under Access 2007 will change according to the type of database application we are dealing with

LIMS is based on Access 2003 and should appear as the top header in your computer



You may face problems but every time you record and report bugs please do indicate under which platform OS and version of Access you got these bugs

The four possible configurations you will have to mention

	Access 2003	Access 2007
OS XP	1	2
OS Vista	3	4

ANNEX VII – Admin. Partitions to be implemented for Zambia (with edition)

Code country	Level	Type	Name	Name parent
ZM	1	Administrative	North Western	
ZM	1	Administrative	Central	
ZM	1	Administrative	Western	
ZM	1	Administrative	Southern	
ZM	1	Administrative	Northern	
ZM	1	Administrative	Luapula	
ZM	1	Administrative	Copperbelt	
ZM	1	Administrative	Lusaka	
ZM	1	Administrative	Eastern	
ZM	2	Administrative	Mkushi	Central
ZM	2	Administrative	Mumbwa	Central
ZM	2	Administrative	Serenje	Central
ZM	2	Administrative	Kabwe	Central
ZM	2	Administrative	Chibombo	Central
ZM	2	Administrative	Kapiri Mposhi	Central
ZM	2	Administrative	Mufulira	Copperbelt
ZM	2	Administrative	Mpongwe	Copperbelt
ZM	2	Administrative	Masaiti	Copperbelt
ZM	2	Administrative	Ndola	Copperbelt
ZM	2	Administrative	Chililabombwe	Copperbelt
ZM	2	Administrative	Chingola	Copperbelt
ZM	2	Administrative	Lufwanyama	Copperbelt
ZM	2	Administrative	Luanshya	Copperbelt
ZM	2	Administrative	Kalulushi	Copperbelt
ZM	2	Administrative	Kitwe	Copperbelt
ZM	2	Administrative	Mambwe	Eastern
ZM	2	Administrative	Petauke	Eastern
ZM	2	Administrative	Katete	Eastern
ZM	2	Administrative	Nyimba	Eastern
ZM	2	Administrative	Chipata	Eastern
ZM	2	Administrative	Chama	Eastern
ZM	2	Administrative	Chadiza	Eastern
ZM	2	Administrative	Lundazi	Eastern
ZM	2	Administrative	Mansa	Luapula
ZM	2	Administrative	Milenge	Luapula
ZM	2	Administrative	Samfya	Luapula
ZM	2	Administrative	Nchelenge	Luapula
ZM	2	Administrative	Nakonde	Luapula
ZM	2	Administrative	Mwense	Luapula
ZM	2	Administrative	Chienge	Luapula
ZM	2	Administrative	Kawambwa	Luapula
ZM	2	Administrative	Chongwe	Lusaka
ZM	2	Administrative	Lusaka	Lusaka

ZM	2	Administrative	Luangwa	Lusaka
ZM	2	Administrative	Kafue	Lusaka
ZM	2	Administrative	Mufumbwe	North Western
ZM	2	Administrative	Zambezi	North Western
ZM	2	Administrative	Solwezi	North Western
ZM	2	Administrative	Mwinilunga	North Western
ZM	2	Administrative	Kabompo	North Western
ZM	2	Administrative	Chavuma	North Western
ZM	2	Administrative	Kasempa	North Western
ZM	2	Administrative	Mpulungu	Northern
ZM	2	Administrative	Mporokoso	Northern
ZM	2	Administrative	Mpika	Northern
ZM	2	Administrative	Mbala	Northern
ZM	2	Administrative	Luwingu	Northern
ZM	2	Administrative	Mungwi	Northern
ZM	2	Administrative	Chinsali	Northern
ZM	2	Administrative	Chilubi	Northern
ZM	2	Administrative	Isoka	Northern
ZM	2	Administrative	Kasama	Northern
ZM	2	Administrative	Kaputa	Northern
ZM	2	Administrative	Monze	Southern
ZM	2	Administrative	Sinazongwe	Southern
ZM	2	Administrative	Mazabuka	Southern
ZM	2	Administrative	Siavonga	Southern
ZM	2	Administrative	Namwala	Southern
ZM	2	Administrative	Itezhi Tezhi	Southern
ZM	2	Administrative	Gwembe	Southern
ZM	2	Administrative	Choma	Southern
ZM	2	Administrative	Kazungula	Southern
ZM	2	Administrative	Livingstone	Southern
ZM	2	Administrative	Kalomo	Southern
ZM	2	Administrative	Mongu	Western
ZM	2	Administrative	Sesheke	Western
ZM	2	Administrative	Shangombo	Western
ZM	2	Administrative	Senanga	Western
ZM	2	Administrative	Lukulu	Western
ZM	2	Administrative	Kaoma	Western
ZM	2	Administrative	Kalabo	Western

ANNEX VIII – Technical Partitions to be implemented for Zambia (with edition)

a/ Technical partitions vet camps

Province	District	Vet Camp	Long	Lat	Category
Central	Kabwe	Chilambo	28,072727	-14,317636	3
Central	Kabwe	Chitakata	28,3164	-14,3109	1
Central	Kabwe	Kafulamase	28,5138	-14,49043	1
Central	Kabwe	Mpima	28,57678	-14,36671	1
Central	Kabwe	Munyama	28,30654	-14,60123	1
Central	Kabwe	Kabwe Central	28,44152	-14,44156	1
Central	Chibombo	Chibombo	27,954545	-14,572182	3
Central	Chibombo	Chiyuni - Chitanda	28,527273	-13,554	3
Central	Chibombo	Kembe N-S	27,8	-14,826727	3
Central	Chibombo	Kembe Ranch	27,409091	-14,826727	3
Central	Chibombo	Chikumbi	28,154545	-15,135818	3
Central	Chibombo	Chipembi	28,536364	-14,963091	3
Central	Chibombo	Chisamba	28,318182	-14,863091	3
Central	Chibombo	Chunga	28,072727	-15,181273	3
Central	Chibombo	Kalola	27,981818	-14,963091	3
Central	Chibombo	Muswishi	28,554545	-14,544909	3
Central	Kapiri Mposhi	Kapiri central	28,68086	-13,97143	1
Central	Kapiri Mposhi	Mukubwe	27,745455	-13,672182	3
Central	Kapiri Mposhi	Musosolokwe	28,10419	-14,11397	1
Central	Mkushi	Chalata	29,68814	-13,54941	1
Central	Mkushi	Chengelo	29,59342	-13,6317	1
Central	Mkushi	Chibwe	28,654545	-13,681273	3
Central	Mkushi	Fiwila	29,60803	-13,97307	1
Central	Mkushi	Irume	29,43625	-13,6006	1
Central	Mkushi	Masansa	29,38369	-13,94213	1

Central	Mkushi	Musofu	29,009091	-13,544909	3
Central	Mkushi	Nkole	28,736364	-13,781273	3
Central	Mkushi	Old Mkushi	29,36752	-14,36868	1
Central	Mkushi	Mkushi Central	29,39717	-13,62624	1
Central	Mumbwa	Kabile	27,518182	-15,054	3
Central	Mumbwa	Kapela	27,681818	-15,363091	3
Central	Mumbwa	Kapyanga	27,46705	-15,12357	1
Central	Mumbwa	Keeswa	27,354545	-15,299455	3
Central	Mumbwa	Lutale	26,89191	-15,12519	1
Central	Mumbwa	Moono	27,00901	-15,11666	1
Central	Mumbwa	Muchabi	27,172727	-15,344909	3
Central	Mumbwa	Mukulaikwa	27,72967	-15,27495	1
Central	Mumbwa	Myooye	27,236364	-15,126727	3
Central	Mumbwa	Nalubanda	27,018182	-15,299455	1
Central	Mumbwa	Nangoma	27,336364	-15,090364	3
Central	Mumbwa	Shibuyunji	27,809091	-15,454	3
Central	Mumbwa	Mumbwa Central	27,0615	-14,98251	1
Central	Serenje	Chibale	30,14375	-13,59001	1
Central	Serenje	Kanona	30,6286	-13,07236	1
Central	Serenje	Mulembo	29,863636	-13,417636	3
Central	Serenje	Serenje Central	30,21523	-13,22858	1
Copperbelt	Chililabombwe	unknown	unknown	unknown	unknown
Copperbelt	Chingola	Chingola Central	unknown	unknown	unknown
Copperbelt	Kalulushi	unknown	unknown	unknown	unknown
Copperbelt	Kitwe	unknown	unknown	unknown	unknown
Copperbelt	Luanshya	Baluba	unknown	unknown	unknown
Copperbelt	Luanshya	Citwi	unknown	unknown	unknown

Copperbelt	Luanshya	Fisenge	unknown	unknown	unknown
Copperbelt	Luanshya	Luanshya town	unknown	unknown	unknown
Copperbelt	Lufwanyama	Lufwanyama Central	unknown	unknown	unknown
Copperbelt	Masaiti	Kanyenda	unknown	unknown	unknown
Copperbelt	Masaiti	Miengwe	unknown	unknown	unknown
Copperbelt	Masaiti	Mpongwe	unknown	unknown	unknown
Copperbelt	Masaiti	Musofu	unknown	unknown	unknown
Copperbelt	Masaiti	Mutaba	unknown	unknown	unknown
Copperbelt	Masaiti	St Anthony	unknown	unknown	unknown
Copperbelt	Masaiti	Masaiti Boma	unknown	unknown	unknown
Copperbelt	Mufulira	Mufulira Central	unknown	unknown	unknown
Copperbelt	Ndola	Fiwale	unknown	unknown	unknown
Copperbelt	Ndola	Mishikishi	unknown	unknown	unknown
Copperbelt	Ndola	Misundu	unknown	unknown	unknown
Copperbelt	Ndola	Ndola central	unknown	unknown	unknown
Eastern	Chadiza	Chamandala	32,390909	-14,199455	3
Eastern	Chadiza	Chanida	32,390909	-14,290364	3
Eastern	Chadiza	Chuunga	unknown	unknown	unknown
Eastern	Chadiza	Kalemba	32,609091	-14,090364	3
Eastern	Chadiza	Kamlaza	32,381818	-13,872182	3
Eastern	Chadiza	Kumadzi	32,490909	-14,017636	3
Eastern	Chadiza	Mangwe	32,336364	-14,081273	3
Eastern	Chadiza	Sindemsale	unknown	unknown	unknown
Eastern	Chadiza	Vumbwe/Vubwi	32,863636	-14,044909	3
Eastern	Chadiza	Zozwe	33	-13,981273	3
Eastern	Chadiza	Chadiza central	32,436364	-14,081273	3
Eastern	Chipata	Chanje	32,9	-13,344909	3

Eastern	Chipata	Chikanda	32,481818	-13,890364	3
Eastern	Chipata	Chipangali	32,781818	-13,226727	3
Eastern	Chipata	Chiparamba	32,490909	-13,581273	3
Eastern	Chipata	Chiwalezulu	32,390909	-13,635818	3
Eastern	Chipata	Feni	32,745455	-13,790364	3
Eastern	Chipata	Jungujam	32,590909	-13,899455	3
Eastern	Chipata	Kakumbi	unknown	unknown	unknown
Eastern	Chipata	Kalichero	32,6	-13,717636	3
Eastern	Chipata	Kanyanja	32,6	-13,690364	3
Eastern	Chipata	Kaphinde	32,627273	-13,944909	3
Eastern	Chipata	Kwenje	32,136364	-13,808545	3
Eastern	Chipata	Mafuta	32,636364	-13,372182	3
Eastern	Chipata	Mambwe	32,157	-13,318	unknown
Eastern	Chipata	Mnoro	32,663636	-13,526727	3
Eastern	Chipata	Msandile	32,618182	-13,399455	3
Eastern	Chipata	Mtenguleni	32,381818	-13,644909	3
Eastern	Chipata	Mwami quarantine	unknown	unknown	unknown
Eastern	Chipata	Chipata central	32,609091	-13,635818	3
Eastern	Katete	AI Katete	32,163636	-14,035818	3
Eastern	Katete	Chilingondi	unknown	unknown	unknown
Eastern	Katete	Chinkhombe	unknown	unknown	unknown
Eastern	Katete	Chipopela/Chipopera	31,927273	-13,944909	3
Eastern	Katete	Kafumbwe	32,281818	-14,281273	3
Eastern	Katete	Kagoro	32,1	-14,154	3
Eastern	Katete	Kameta	unknown	unknown	unknown
Eastern	Katete	Mphangwe	unknown	unknown	unknown
Eastern	Katete	Mtandaza/Mutandaza	32,027273	-14,363091	3

Eastern	Katete	Mthunya	31,736364	-14,190364	3
Eastern	Katete	Seya	31,745455	-14,126727	3
Eastern	Katete	Vulamkoko	31,872727	-14,108545	3
Eastern	Katete	Katete Boma	32,1	-14,090364	3
Eastern	Lundazi	Chama	unknown	unknown	unknown
Eastern	Lundazi	Chikomena	32,880734	-12,6812727	3
Eastern	Lundazi	Egichiken west	33,137615	-11,9267273	3
Eastern	Lundazi	Egichikeni	33,165555	-11,95555	1
Eastern	Lundazi	Egichikeni East	unknown	unknown	unknown
Eastern	Lundazi	Japhet	unknown	unknown	unknown
Eastern	Lundazi	Kanyunya	33,348624	-12,3358182	3
Eastern	Lundazi	Kayelele	unknown	unknown	unknown
Eastern	Lundazi	Lumeza	33,036697	-12,5176364	3
Eastern	Lundazi	Lusanta	33,238532	-12,0903636	3
Eastern	Lundazi	Mwase	33,376147	-12,3994546	3
Eastern	Lundazi	Lundazi Central	33,174312	-12,2812727	3
Eastern	Petauke	Chataika	unknown	unknown	unknown
Eastern	Petauke	Chikalawa	31,613953	-14,4994546	3
Eastern	Petauke	Chikuse	unknown	unknown	unknown
Eastern	Petauke	Chimpundu	31,613953	-14,3267273	3
Eastern	Petauke	Chipembe	31,018605	-14,5449091	3
Eastern	Petauke	Kalindawalo	31,372093	-14,3449091	3
Eastern	Petauke	Manyane	31,15814	-14,6358182	3
Eastern	Petauke	Minga	31,195349	-14,3721818	3
Eastern	Petauke	Mumbi north	unknown	unknown	unknown
Eastern	Petauke	Mumbi south	31,297674	-14,4903636	3
Eastern	Petauke	Mwanjawanthu	31,418605	-14,6358182	3

Eastern	Petauke	Nyampande	31,213953	-14,2358182	3
Eastern	Petauke	Nyanje	31,753488	-14,4267273	3
Eastern	Petauke	Nyimba	30,804651	-14,5630909	3
Eastern	Petauke	Sinda	31,781395	-14,2176364	3
Eastern	Petauke	Ukwimi	unknown	unknown	unknown
Eastern	Petauke	Petauke Central	31,316279	-14,2721818	3
Luapula	Kawambwa	Chama	29,472727	-9,854545	3
Luapula	Kawambwa	Mbereshi	unknown	unknown	unknown
Luapula	Kawambwa	Mununshi	28,772727	-9,790909	3
Luapula	Kawambwa	Mushota	unknown	unknown	unknown
Luapula	Kawambwa	Kawambwa Central	29,045455	-9,8	3
Luapula	Mansa	Chisunka	28,736364	-10,927273	3
Luapula	Mansa	Milenge	29,436364	-12,436364	3
Luapula	Mansa	Mansa Central	28,881818	-11,209091	3
Luapula	Mwense	Mwense Central	28,7	-10,381818	3
Luapula	Mwense	Mwenda	29,172727	-10,472727	3
Luapula	Nchelenge	Nchelenge	28,763636	-9,354545	3
Luapula	Samfya	Mwewa	29,490909	-10,918182	3
Luapula	Samfya	Samfya Central	29,509091	-11,372727	3
Luapula	Samfya	Lumbwe	29,627273	-11,127273	3
Lusaka	Chongwe	Chinyunyu	unknown	unknown	unknown
Lusaka	Chongwe	Lwiimba	unknown	unknown	unknown
Lusaka	Chongwe	Mutamino	unknown	unknown	unknown
Lusaka	Chongwe	Nyangwena	unknown	unknown	unknown
Lusaka	Chongwe	Rufunsa	unknown	unknown	unknown
Lusaka	Chongwe	Chalimbana	unknown	unknown	unknown
Lusaka	Kafue	Chipapa	unknown	unknown	unknown

Lusaka	Kafue	Chiyawa	unknown	unknown	unknown
Lusaka	Kafue	Mungu	unknown	unknown	unknown
Lusaka	Kafue	Kasenje (Kafue Central)	unknown	unknown	unknown
Lusaka	Luangwa	Chitope	unknown	unknown	unknown
Lusaka	Luangwa	Luangwa Central	unknown	unknown	unknown
Lusaka	Lusaka	Lusaka Town Office	unknown	unknown	unknown
Northern	Chinsali	Charles	31,325133	-10,171617	1
Northern	Chinsali	Chikwanda	31,466667	-11,7445	1
Northern	Chinsali	Chinsali central	31,772727	-10,7	3
Northern	Chinsali	Chinsali vet	unknown	unknown	unknown
Northern	Chinsali	Chunga	32,82935	-9,82935	1
Northern	Chinsali	Iondola/Ilondola	31,772727	-10,7	3
Northern	Chinsali	Kalele	32,260267	-9,9041	1
Northern	Chinsali	Kaso	32,3092	-10,027083	1
Northern	Chinsali	Matumbo	unknown	unknown	unknown
Northern	Chinsali	Mbesuma	unknown	unknown	unknown
Northern	Chinsali	Mundu	32,245455	-10,345455	3
Northern	Chinsali	Shiwa nga'ndu	31,745455	-11,2	3
Northern	Chinsali	Musemanzi	32,5445	-9,87645	1
Northern	Isoka	Isoka Tsetse	unknown	unknown	unknown
Northern	Isoka	Chipeta	unknown	unknown	unknown
Northern	Isoka	Chuwi	unknown	unknown	unknown
Northern	Isoka	Isoka Vet Office	32,6125	-10,125	
Northern	Isoka	Kalungu	32,690909	-9,745455	3
Northern	Isoka	Kampumbu	32,927273	-10,263636	3
Northern	Isoka	Komani	unknown	unknown	unknown
Northern	Isoka	Mukwa	unknown	unknown	unknown

Northern	Isoka	Mukwavi	32,6	-9,990909	3
Northern	Isoka	Mulekatembo	33,154545	-10,2	3
Northern	Isoka	Mwenya	unknown	unknown	unknown
Northern	Isoka	Ntipo	32,581818	-10,081818	3
Northern	Isoka	Wenela/Walena	33,354545	-10,436364	3
Northern	Isoka	Thendere	33,36907	-10,25952	1
Northern	Kasama	Chitoshi	unknown	unknown	unknown
Northern	Kasama	Kampampa	unknown	unknown	unknown
Northern	Kasama	Kasama East	unknown	unknown	unknown
Northern	Kasama	Kasama Town	31,209091	-10,2	3
Northern	Kasama	Kasama tse tse	unknown	unknown	unknown
Northern	Kasama	Kayambi	unknown	unknown	unknown
Northern	Kasama	Makasa	31,872727	-9,654545	3
Northern	Kasama	Malole	31,909091	-10,181818	3
Northern	Kasama	Mungwi	unknown	unknown	unknown
Northern	Kasama	Mumba	31,4	-10,163636	3
Northern	Luwingu	Matipa	unknown	unknown	unknown
Northern	Luwingu	Luwingu District office	29,954545	-10,263636	3
Northern	Mbala	Chikoti	unknown	unknown	unknown
Northern	Mbala	Chozi	32,22808	-9,38597	1
Northern	Mbala	Kaka	31,672	-9,176167	1
Northern	Mbala	Kakungu	31,763636	-8,927273	3
Northern	Mbala	Kapufi	31,781818	-9,354545	3
Northern	Mbala	Kasunga	31,671	-8,925833	1
Northern	Mbala	Kawa	31,472727	-8,827273	3
Northern	Mbala	Kawimbe	31,554545	-8,809091	3
Northern	Mbala	Kowa	31,4735	-8,871833	1

Northern	Mbala	Mbala central	31,3625	8,6	unknown
Northern	Mbala	Mwamba	31,636333	-8,909167	1
Northern	Mbala	Mwamba	31,609091	-8,890909	3
Northern	Mbala	Nondo	31,218182	-9,536364	3
Northern	Mbala	Senga Hills	31,254545	-9,372727	3
Northern	Mbala	Kawimbe	31,526667	-8,8265	1
Northern	Mbala	Nsokolo	31,827273	-9,163636	3
Northern	Mpika	Lukulu	30,870167	-12,826833	1
Northern	Mpika	Mpika District Vet	31,436364	9,045455	unknown
Northern	Mpika	Mufubushi	31,251	-12,131167	1
Northern	Mpika	Chikwanda	31,509091	-9,018182	3
Northern	Mporokoso	Chitoshi	30,227273	-10,009091	3
Northern	Mporokoso	Kalungwishi ranch	unknown	unknown	unknown
Northern	Mporokoso	Kaputa	29,672727	-8,454545	3
Northern	Mporokoso	Mporokoso Central	30,118182	-9,354545	3
Northern	Mpulungu	Mpulungu	31,2	8,8	unknown
Northern	Nakonde	Chitamba	32,606667	-9,3705	1
Northern	Nakonde	Ilola	32,53445	-9,353783	1
Northern	Nakonde	Kantongo	32,637333	-9,491	1
Northern	Nakonde	Kaombwe	32,881818	-9,509091	3
Northern	Nakonde	Nakonde Central	32,763636	-9,345455	3
Northern	Nakonde	Ntatumbila	32,2837	-9,207167	1
Northern	Nakonde	Nteko	32,445633	-9,287967	1
Northern	Nakonde	Ntipo	32,676217	-10,114017	1
Northern	Nakonde	Musani	32,945455	-9,718182	3
North-Western	Kabompo	Chikenge	23,806818	-13,418182	3
North-	Kabompo	Kabompo Boma	24,172727	unknown	3

Western					
North-Western	Kabompo	Mumbeji	23,6667	-13,85991	1
North-Western	Kabompo	Manyinga	24,327273	unknown	3
North-Western	Kasempa	Kasempa Boma	25,75	-13,4375	unknown
North-Western	Mufumbwe	Mufumbwe Boma	24,725	-13625	unknown
North-Western	Mwinilunga	Kanyama	unknown	unknown	unknown
North-Western	Mwinilunga	Lumwana	25,081818	-25,081818	3
North-Western	Mwinilunga	Lwawu	unknown	unknown	unknown
North-Western	Mwinilunga	Mwinilunga Central	24,42	11,83	unknown
North-Western	Solwezi	Chafukuma West	unknown	unknown	unknown
North-Western	Solwezi	Kakoma	25,181818		3
North-Western	Solwezi	Kakombe	unknown	unknown	unknown
North-Western	Solwezi	Luamala	unknown	unknown	unknown
North-Western	Solwezi	Mapunga	unknown	unknown	unknown
North-Western	Solwezi	Mumena	unknown	unknown	unknown
North-Western	Solwezi	Mutanda	unknown	unknown	unknown
North-Western	Solwezi	St. Francis	unknown	unknown	unknown

North-Western	Solwezi	Solwezi central	26,42	12,5	unknown
North-Western	Zambezi	Chinyamalitapi	22,270455	-13,518182	3
North-Western	Zambezi	Chinyingi	22,997727	-13,354545	3
North-Western	Zambezi	Chitokoloki	23,225	-13,872727	3
North-Western	Zambezi	Dipalata	23,252273	-13,318182	3
North-Western	Zambezi	Kucheka	22,906818	-13,781818	3
North-Western	Zambezi	Lukolwe	22,688636	-13,190909	3
North-Western	Zambezi	Mpidi	23,261364	-14,081818	3
North-Western	Zambezi	Zambezi central	23,115909	-13,554545	3
North-Western	Zambezi	Chavuma	22,697727	-13,090909	3
Southern	Choma	Batoka	27,253521	-16,7718121	2
Southern	Choma	Chilalantambo	26,8709	-16,319	1
Southern	Choma	Choma Central	26,978873	-16,818792	2
Southern	Choma	Choompa	27,422535	-16,5100671	2
Southern	Choma	Gamela	27,0171	-16,9317	1
Southern	Choma	Kabimba	26,7671	-16,5241	1
Southern	Choma	Kanchomba	27,492958	-16,5637584	2
Southern	Choma	Kasiya	27,274648	-16,5369128	2
Southern	Choma	Macha	26,788732	-16,4161074	2
Southern	Choma	Mang'uza	27,005634	-16,3758389	2
Southern	Choma	Mapanza	26,908451	-16,261745	2

Southern	Choma	Masuku	27,105634	-17,2281879	2
Southern	Choma	Mbabala	26,956338	-16,5771812	2
Southern	Choma	Muntanga/Mutunga	26,8404	-16,4998	1
Southern	Choma	Muzoka	27,323944	-16,6845638	2
Southern	Choma	Nakeempa	26,936	-16,9949	1
Southern	Choma	Namoonza	27,2354	-16,9584	1
Southern	Choma	Pemba	27,352113	-16,5302013	2
Southern	Choma	Siamaluba	27,028	-17,0494	1
Southern	Choma	Sikatumba	27,4237	-16,7721	1
Southern	Choma	Sinalungu	26,943662	-16,6979866	2
Southern	Choma	Simaubi	26,84507	-16,261745	2
Southern	Gwembe	Chipepo	27,82935	-16,80853	2
Southern	Gwembe	Gwembe	27,6118	-16,5041	2
Southern	Gwembe	Jumbo Sompani	27,774648	-16,7516779	2
Southern	Gwembe	Lukonde	27,725352	-16,590604	2
Southern	Gwembe	Luumbo	27,549296	-16,7248322	2
Southern	Gwembe	Munyumbwe	27,77837	-16,64323	2
Southern	Gwembe	Bbondo	27,887324	-16,5234899	1
Southern	Itezhi Tezhi	Babizhi	26,309859	-15,6308725	2
Southern	Itezhi Tezhi	Banamwanze	26,598592	-15,6174497	2
Southern	Itezhi Tezhi	Basanga	26	-15,9597315	2
Southern	Itezhi Tezhi	Baunza	unknown	unknown	unknown
Southern	Itezhi Tezhi	Itezhi-tezhi	26,077465	-15,7114094	2
Southern	Itezhi Tezhi	Itezhi-tezhi Central	unknown	unknown	unknown
Southern	Itezhi Tezhi	Lubanda	26,352113	-15,6711409	2
Southern	Itezhi Tezhi	Luubwe	26,28169	-15,8053691	2
Southern	Itezhi Tezhi	Makunku	26,541408	-15,3306711	2

Southern	Itezhi Tezhi	Muunga	26,928592	-15,3775168	2
Southern	Itezhi Tezhi	Nanzhila	25,929577	-16,2885906	2
Southern	Itezhi Tezhi	Baanga	26,43662	-15,6442953	2
Southern	Kalomo	Chifusa	26,7793	-16,7061	1
Southern	Kalomo	Chiidi	26,971831	-17,3758389	2
Southern	Kalomo	Dimbwe	26,978873	-17,2751678	2
Southern	Kalomo	Kabanga	26,7433	-17,5074	1
Southern	Kalomo	Kalomo Central	26,4838	-17,0284	1
Southern	Kalomo	Kanchele	26,788732	-17,3087248	1
Southern	Kalomo	Kauwe	26,126761	-17,0604027	1
Southern	Kalomo	Malende	26,478873	-16,9395973	2
Southern	Kalomo	Moonde	26,901408	-17,147651	2
Southern	Kalomo	Mukwela	26,647887	-17,0402685	2
Southern	Kalomo	Munyeke	26,591549	-16,5100671	1
Southern	Kalomo	Number 3	26,3494	-16,8974	2
Southern	Kalomo	Nyawa	25,894366	-17,1879195	2
Southern	Kalomo	Siachitema	26,7059	-16,8122	2
Southern	Kalomo	Siamafumba	26,6567	-17,4913	1
Southern	Kalomo	Sipatunyana	26,558	-17,2894	2
Southern	Kalomo	Zimba	26,2025	-17,3172	1
Southern	Kalomo	Lungunya	26,6892	-16,3449	2
Southern	Livingstone	Bombwe	25,25493	-16,988255	1
Southern	Livingstone	Katapazi	26,1437	-17,6111	1
Southern	Livingstone	Livingstone Central	25,8592	-17,8479	1
Southern	Livingstone	Makunka	25,637	-17,5354	2
Southern	Livingstone	Moomba	25,619718	-16,4697987	2
Southern	Livingstone	Mukuni	25,9402	-17,9024	1

Southern	Livingstone	Musokotwane	25,8929	-17,6165	1
Southern	Livingstone	Ngwezi	25,4714	-17,4489	1
Southern	Livingstone	Sikaunzwe	25,2253	-17,5644	1
Southern	Livingstone	Simango	25,8966	-17,4319	1
Southern	Livingstone	Simonga	25,7093	-17,8051	1
Southern	Livingstone	Kazungula	25,2689	-17,7899	2
Southern	Mazabuka	Chalimbana	27,5891	-15,9382	unknown
Southern	Mazabuka	Kalambabakali	27,5808	-15,8678	unknown
Southern	Mazabuka	Lubombo	27,8708	-15,8644	1
Southern	Mazabuka	Mazabuka Central	27,7363	-15,8433	1
Southern	Mazabuka	Mulando	28,056338	-16,1275168	unknown
Southern	Mazabuka	Nadezwe	28,0698	-16,2142	unknown
Southern	Mazabuka	Naluama	28,1147	-15,9434	1
Southern	Mazabuka	Namalundu	unknown	unknown	unknown
Southern	Mazabuka	Nameembo	28,1143	-16,1042	1
Southern	Mazabuka	Nansenga	28,2165	-15,8685	unknown
Southern	Mazabuka	Nasenga	28,2165	-15,8685	1
Southern	Mazabuka	Nega Nega	28,0275	-15,8302	unknown
Southern	Mazabuka	Ngwezi	27,7136	-16,067	unknown
Southern	Mazabuka	Nkonkola	27,8681	-16,2361	1
Southern	Mazabuka	Sianjalika	27,7561	-16,1159	1
Southern	Mazabuka	Chaaya	28,2079	-15,92106	unknown
Southern	Monze	Bweengwa	27,1324	-16,096	1
Southern	Monze	Chisekesi	27,4776	-16,4348	1
Southern	Monze	Chona (Sikabenga)	27,6334	-16,4209	unknown
Southern	Monze	Hakunkula/Lochnivar	27,147887	-15,9060403	2
Southern	Monze	Hamamvwa	27,2834	-16,3058	1

Southern	Monze	Hamangaba	27,1121	-16,1887	1
Southern	Monze	Hatontola	27,2522	-16,4378	1
Southern	Monze	Hufwa	27,333	-16,2325	1
Southern	Monze	Katimba	27,1692	-16,3633	1
Southern	Monze	Kayuni	27,507042	-16,2214765	2
Southern	Monze	Keemba	27,3698	-16,0549	1
Southern	Monze	Monze Central	27,478	-16,2759	1
Southern	Monze	Muyobe	27,43662	-16,2416107	2
Southern	Monze	Nakansangwe	27,2016	-16,0991	1
Southern	Monze	Namilongwe	27,3196	-16,4184	1
Southern	Monze	Njola	27,701	-16,2336	1
Southern	Monze	Nteme	27,396	-16,1739	1
Southern	Monze	Siakasenke	27,4101	-16,3441	1
Southern	Monze	Siamamvwa	unknown	unknown	unknown
Southern	Monze	Siatantola	unknown	unknown	unknown
Southern	Monze	Silwiili A	27,394366	-16,4899329	2
Southern	Monze	Silwiili B	27,366197	-16,4630873	2
Southern	Monze	Monzwe	27,3853	-15,9719	1
Southern	Monze	Ufwenuka	27,5642	-16,4209	1
Southern	Namwala	Chitongo	26,9345	-16,0363	1
Southern	Namwala	Kabulamwanda	26,880282	-15,8590604	2
Southern	Namwala	Kantengwa	26,878	-15,7752	1
Southern	Namwala	Katantila	26,85	-15,868	1
Southern	Namwala	Maala	26,7333	-15,728	1
Southern	Namwala	Muchila	26,5969	-16,2377	1
Southern	Namwala	Nakamboma	26,9775	-16,1234	1
Southern	Namwala	Namusonde	26,887324	-15,8456376	2

Southern	Namwala	Namwala Central	26,435	-15,7498	1
Southern	Namwala	Ndema	26,7445	-16,1116	1
Southern	Namwala	Baambwe	26,5176	-15,7761	1
Southern	Siavonga	Chaanga	28,39707	-16,28196	unknown
Southern	Siavonga	Chikanzaya	28,46079	-16,13474	unknown
Southern	Siavonga	Manchamwva	28,056338	-16,5503356	2
Southern	Siavonga	Sianyoolo	28,30537	-16,39213	unknown
Southern	Siavonga	Siavonga Central	28,71475	-16,53869	unknown
Southern	Siavonga	Simamba	28,6995	-16,40777	unknown
Southern	Siavonga	Lusitu	28,75398	-16,18698	unknown
Southern	Sinazongwe	Maamba	27,2094	-17,3629	unknown
Southern	Sinazongwe	Malima	27,562	-17,056	2
Southern	Sinazongwe	Mukuku	27,260563	-17,3624161	1
Southern	Sinazongwe	Siameja	27,112676	-17,4161074	unknown
Southern	Sinazongwe	Sinazeze	27,4047	-17,1467	unknown
Southern	Sinazongwe	Sinazongwe Boma	27,4614	-17,2639	unknown
Southern	Sinazongwe	Kanchindu	27,2742	-17,4517	unknown
Western	Kalabo	Kalabo Boma	22,6761	-14,953	2
Western	Kalabo	Kuuli	22,7676	-14,4027	2
Western	Kalabo	Libonda	22,9718	-14,8658	2
Western	Kalabo	Lueti	22,3028	-15,6309	2
Western	Kalabo	Mambolomoka	22,13676	-16,08471	1
Western	Kalabo	Mapungu	unknown	unknown	2
Western	Kalabo	Ndoka	22,7056	-15,2617	2
Western	Kalabo	Ngombe	22,4225	-14,9195	2
Western	Kalabo	Nguma	22,6901	-15,4631	2
Western	Kalabo	Sihole	22,5352	-15,3356	2

Western	Kalabo	Sikongo	22,15371	-15,03452	1
Western	Kalabo	Sishekanu	22,8028	-14,6577	2
Western	Kalabo	Yuka	22,60569	-14,99043	1
Western	Kalabo	Kaluwe	22,0704	-14,396	2
Western	Kaoma	Chitwa	24,9789	-14,5973	2
Western	Kaoma	KaomaBoma	24,7958	-14,7785	2
Western	Kaoma	Luampa	24,4225	-15,0537	2
Western	Kaoma	Mangango	24,52249	-14,66338	1
Western	Kaoma	Munkuye	25,1549	-14,8859	2
Western	Kaoma	Winda	unknown	unknown	2
Western	Kaoma	Banyutu	24,338	-14,953	2
Western	Lukulu	Kamilende	23,5423	-14,1275	2
Western	Lukulu	Lupui	22,1408	-13,8859	2
Western	Lukulu	Mbanga	23,197674	-14,652272	2
Western	Lukulu	Mulongo	23,2324	-14,4765	2
Western	Lukulu	Muyondoti	22,993	-14,5235	2
Western	Lukulu	Mwito	24,1268	-14,2953	2
Western	Lukulu	Namboma	23,0634	-14,2416	2
Western	Lukulu	Lukulu Central	23,2425	-14,39243	1
Western	Senanga	Causeway	23,237649	-16,244779	1
Western	Senanga	Kaunga Lueti	23,03316	-16,07271	1
Western	Senanga	Kaunja	unknown	unknown	unknown
Western	Senanga	Luandui	unknown	unknown	unknown
Western	Senanga	Lui-mwemba	23,4507	-15,8993	2
Western	Senanga	Lui-Wanyau	23,40775	-16,191694	1
Western	Senanga	Lukanda (Central)	23,2817	-15,9933	2
Western	Senanga	Mata	23,9789	-15,8725	2

Western	Senanga	Mukukutu (Moyo)	23,2042	-15,4832	2
Western	Senanga	Mulele	unknown	unknown	unknown
Western	Senanga	Mulonga	22,5634	-16,3221	2
Western	Senanga	Namulundu	23,2958	-16,047	2
Western	Senanga	Namulundu(Central)	23,2746	-16,1141	2
Western	Senanga	Nande	unknown	unknown	unknown
Western	Senanga	Nanjucha	23,1901	-15,6913	2
Western	Senanga	Nanjucha	23,1901	-15,6913	2
Western	Senanga	Sibukali	23,7746	-16,3087	2
Western	Senanga	Sinungu	23,0352	-15,7517	2
Western	Sesheke	Bwina	24,8028	-16,4295	2
Western	Sesheke	Kalobolelwa	23,9859	-17,0403	2
Western	Sesheke	Luapungu	unknown	unknown	unknown
Western	Sesheke	Lusu	24,1127	-17,2013	2
Western	Sesheke	Machile	25,112667	-16,839972	1
Western	Sesheke	Magumwi	25,0704	-17,2282	2
Western	Sesheke	Maondo	24,54022	-17,42751	1
Western	Sesheke	Masese	24,6479	-17,2886	2
Western	Sesheke	Mulobezi	25,1972	-16,7919	2
Western	Sesheke	Mushukula	unknown	unknown	unknown
Western	Sesheke	Mwandi	24,8451	-17,5168	2
Western	Sesheke	Namukoma	unknown	unknown	2
Western	Sesheke	Nande	23,3028	-15,8456	2
Western	Sesheke	Nawinda	unknown	unknown	unknown
Western	Sesheke	Sankolongo	24,9718	-17,2685	2
Western	Sesheke	Sesheke Central	24,25983	-17,47908	1
Western	Sesheke	Mwandi	24,81133	-17,5158	1

Western	Shangombo	Kaanja	23,39208	-16,46697	1
Western	Shangombo	Kaunga Mashi	22,62929	-16,9608	1
Western	Shangombo	Mulele	23,116119	-16,626899	1
Western	Shangombo	Mutomena	23,1	-16,733332	1
Western	Shangombo	Nangweshi	23,3451	-16,4295	2
Western	Shangombo	Natukoma	22,57784	-16,36404	1
Western	Shangombo	Shangombo Boma	22,0928	-16,3194	1
Western	Shangombo	Sinjembela	23,02712	-17,31328	1
Western	Shangombo	Sioma	23,50496	-16,60144	1
Western	Shangombo	Beshe	22,8454	-16,4847	1
Western	Mongu	Kama	22,93502	-15,3443	1
Western	Mongu	Limulunga	23,14637	-15,13163	1
Western	Mongu	Litawa	23,5775	-15,1007	2
Western	Mongu	Luandui	23,493	-15,4228	2
Western	Mongu	Luatembo	23,8099	-15,2081	2
Western	Mongu	Namushakende	23,1972	-15,4362	2
Western	Mongu	Ndanda	23,7465	-14,9396	2
Western	Mongu	Sitoya	23,4859	-14,7651	2
Western	Mongu	Tungi	unknown	unknown	unknown
Western	Mongu	Ushaa	23,28397	-14,95396	1
Western	Mongu	Mangu Central	23,1268	-15,2416	2
Western	Senanga	Liliachi	22,993	-15,6376	2

b/ Gazetteer cf. excel file as the list is long

NAME	ADMIN1	CLASS	LONGITUDE	LATITUDE	ID
Kalala	Caprivi Oos	6	24.866667000000000	-17.533332999999900	320566
Luhopi	Caprivi Oos	6	24.500000000000000	-17.483332999999900	320625
Abelo	Central Province	6	30.449999999999900	-12.716666999999900	321483
Adamson Chibuye	Central Province	6	30.733332999999900	-12.783333000000000	321485
Adamson Kulubale	Central Province	6	30.449999999999900	-12.583333000000000	321486
Akim Kosoma	Central Province	6	30.333333000000000	-12.800000000000000	321501
Alec Chimponda	Central Province	6	30.583333000000000	-12.916667000000000	321503
Amos Kalunga	Central Province	6	30.266667000000000	-12.883333000000000	321512
Amos Mwelwa	Central Province	6	30.399999999999900	-12.933332999999900	321513
Andersoni	Central Province	6	30.866667000000000	-13.216666999999900	321523
Anock Chikwaba	Central Province	6	27.199999999999900	-14.400000000000000	321531
Balumika	Central Province	6	29.416667000000000	-14.466666999999900	321543
Baskolo	Central Province	6	30.600000000000000	-13.233333000000000	321548
Bayeka	Central Province	6	26.183333000000000	-14.883333000000000	321554
Belama	Central Province	6	26.399999999999900	-14.633333000000000	321555
Ben Kashiya	Central Province	6	29.533332999999900	-15.100000000000000	321561

Etc..

ANNEX IX – Web-mapping manual on http://lims.sadc.int

EPIDEMIOLOGY AND INFORMATICS SUBCOMMITTEE MEETING

MAURITIUS 15 – 17 APRIL 2008

LIMS Web GIS – Introduction

The SADC Livestock Information Management System (LIMS) is a tool for collection, collation and analysis of livestock related data and sharing of information for decision making and planning. The System relies on the network of livestock professionals in the SADC Member States for data provision and operates a database for the storage and analysis of data and a portal and hardcopy publication for the dissemination of information. The PRINT Livestock Project is in charge of the establishment and running of LIMS on behalf of the Livestock Sector Unit under the Food Agriculture and Natural Resources (FANR) Directorate of the SADC Secretariat. The types of information LIMS covers include Animal Production, Animal Health and Livestock Marketing and Trade.

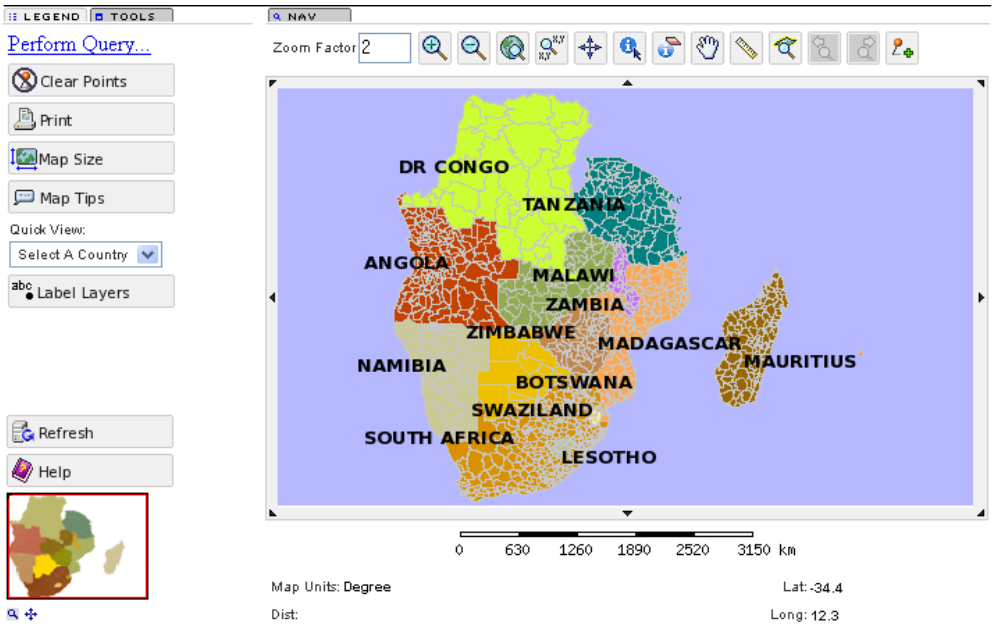
The LIMS Web GIS is a portal for interactive query and display of livestock information for the SADC region. The system is composed of a simple and user friendly query building and a basic mapping facility for searching animal diseases based on different criteria as well as the number of livestock by species at different administrative level in each Member State. The next target of LIMS Web GIS is expanding the interactive queries to other topics of livestock information.

This introduction highlights some of the basic functionalities that are available within the system so as to help users understand the functionality and effectively use the system for searching livestock-related information. The following section summarizes the functionality and the operation of the application.

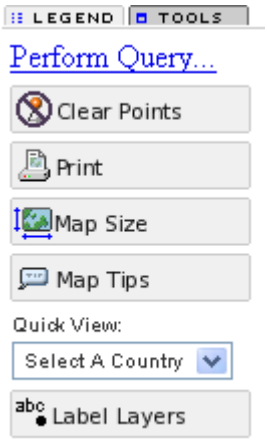
Using LIMS Web GIS

The Web GIS application interface has four main areas summarized below.

A) The Map & Navigation Tools



B) The Tools Tab



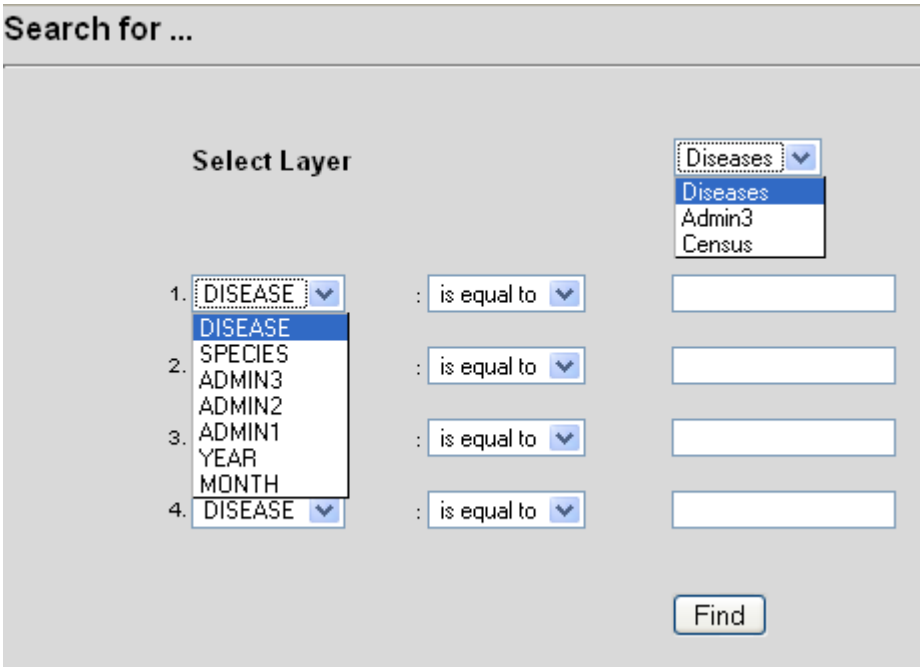
The tools tab shown on the left has a critical functionality for the user. The ***Perform Query*** function is the most important and is summarized in the following sections. The ***Print* option** is for printing maps and query results. There is a wizard which guides the user in customizing the map to be printed out. The ***Map Size*** option allows the user to change the size of the map display area. The ***Map Tips*** option allows the user to display a selected feature attribute on the map. The ***Label Layer*** option allows the user to label a selected layer with an attribute on the map. Users can zoom to any particular country by using the ***Quick View*** option.

C) The Legend Tab

The ***Legend*** tab displays all the map data layers. The user can select or switch off any map layer. The ***Update*** button regenerates the map and displays a new map after switching on or off map layers.

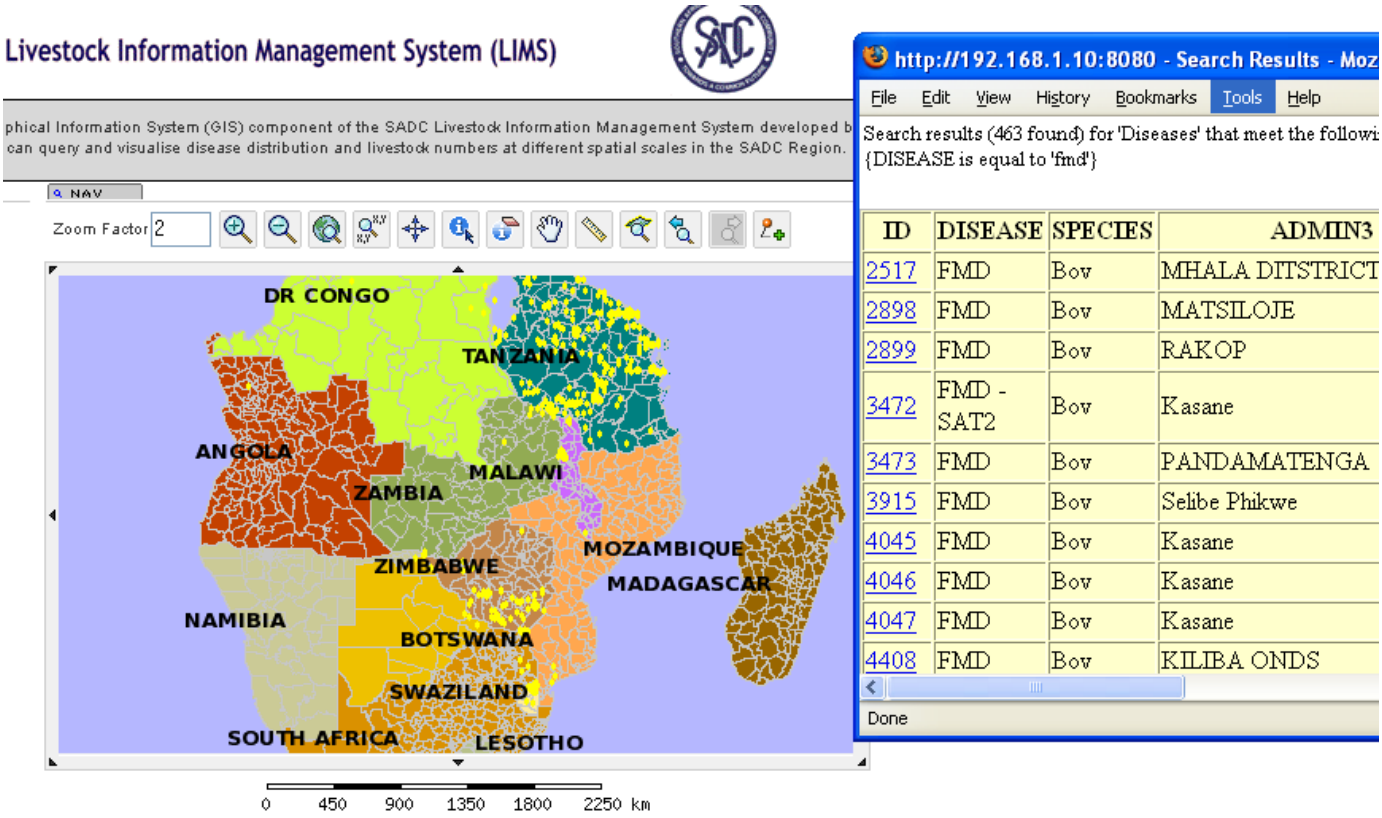
D) The Query Page

The ***Perform Query*** option on the Tools Tab opens the query page shown on the next page. Users can query all the map layers. The most important queries are on livestock diseases (Diseases) and Livestock numbers (Census) or the location of a specific administrative layer (e.g. district – Admin 3). Querying diseases and livestock numbers can be done using four criteria, namely Disease, Species, any administrative layer (spatial) and Month and Year (temporal). This implies that the user can combine various criteria e.g. disease type, species, district, and year at the same time. The user has up to 35 different queries he can perform for different criteria combinations.

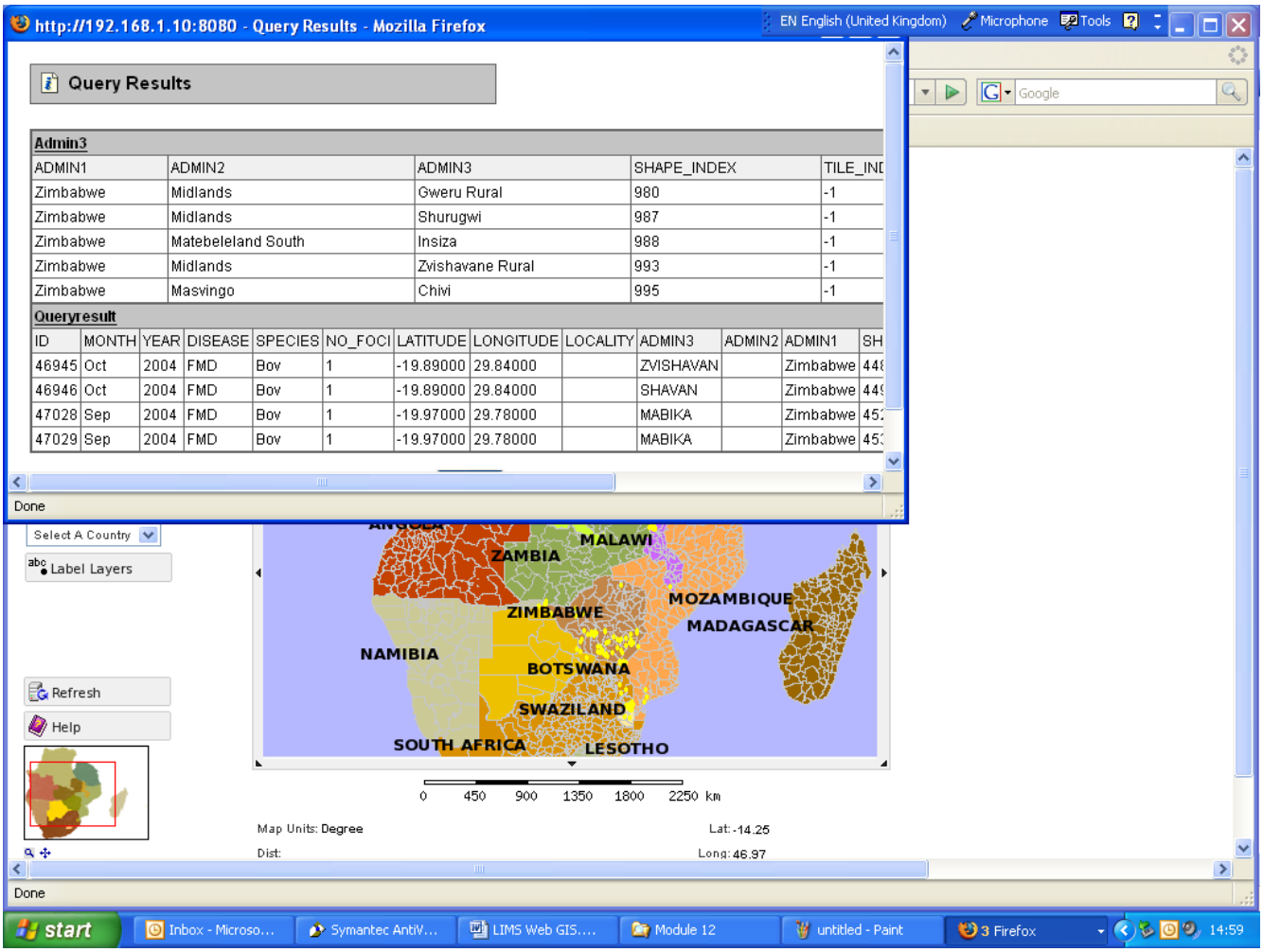


E) Query results

The query results are automatically displayed (as shown below) both in a table and on the map. The user can zoom to the query results using the map navigation tools.



Users can further query each distribution point (location of disease outbreak) to get additional information. This can be achieved using the button (information) and clicking on individual points (the yellow points in the example above). The table like the one shown below will be displayed. Depending on the number of points selected or the distance between each of them, one or many rows of information will be displayed. The zoom-in function can be used to select the specific point of interest.


http://192.168.1.10:8080 - Query Results - Mozilla Firefox
Query Results
Admin3
ADMIN1 | ADMIN2 | ADMIN3 | SHAPE_INDEX | TILE_IND
Zimbabwe | Midlands | Gweru Rural | 980 | -1
Zimbabwe | Midlands | Shurugwi | 987 | -1
Zimbabwe | Matebeleland South | Insiza | 988 | -1
Zimbabwe | Midlands | Zvishavane Rural | 993 | -1
Zimbabwe | Masvingo | Chivi | 995 | -1
Queryresult
ID | MONTH | YEAR | DISEASE | SPECIES | NO_FOCI | LATITUDE | LONGITUDE | LOCALITY | ADMIN3 | ADMIN2 | ADMIN1 | SH
46945 | Oct | 2004 | FMD | Bov | 1 | -19.89000 | 29.84000 | | ZVISHAVAN | | Zimbabwe
46946 | Oct | 2004 | FMD | Bov | 1 | -19.89000 | 29.84000 | | SHAVAN | | Zimbabwe
47028 | Sep | 2004 | FMD | Bov | 1 | -19.97000 | 29.78000 | | MABIKA | | Zimbabwe
47029 | Sep | 2004 | FMD | Bov | 1 | -19.97000 | 29.78000 | | MABIKA | | Zimbabwe
Done
Select A Country
Label Layers
Refresh
Help
ZAMBIA
MALAWI
ZIMBABWE
MOZAMBIQUE
MADAGASCAR
NAMIBIA
BOTSWANA
SWAZILAND
SOUTH AFRICA
LESOTHO
0 450 900 1350 1800 2250 km
Map Units: Degree
Lat: -14.25
Dist:
Long: 46.97
Done
start
Inbox - Microso...
Symantec AntiV...
LIMS Web GIS....
Module 12
untitled - Paint
3 Firefox
14:59