GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Naoko Ishii
CEO and Chairperson

January 14, 2016

Dear LDCF/SCCF Council Member:

AfDB as the Implementing Agency for the project entitled: ***Zambia: Climate Resilient Livestock Management Project***, has submitted the attached proposed project document for CEO endorsement prior to final approval of the project document in accordance with AfDB procedures.

The Secretariat has reviewed the project document. It is consistent with the proposal approved by LDCF/SCCF Council in October 2013 and the proposed project remains consistent with the Instrument and LDCF/SCCF policies and procedures. The attached explanation prepared by AfDB satisfactorily details how Council's comments have been addressed. I am, therefore, endorsing the project document.

We have today posted the proposed project document on the GEF website at www.TheGEF.org. If you do not have access to the Web, you may request the local field office of UNDP or the World Bank to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,

Naoko Ishii
Chief Executive Officer and Chairperson

Attachment: GEFSEC Project Review Document
Copy to: Country Operational Focal Point, GEF Agencies, STAP, Trustee

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CEO ENDORSEMENT
PROJECT TYPE: FULL SIZE PROJECT
TYPE OF TRUST FUND: LDCF

For more information about GEF, visit TheGEF.org

PART I: PROJECT INFORMATION

Project Title: CLIMATE RESILIENT LIVESTOCK MANAGEMENT PROJECT (CRLMP)			
Country(ies):	Zambia	GEF Project ID:[1]	5394
GEF Agency(ies):	AfDB (select) (select)	GEF Agency Project ID:	
Other Executing Partner(s):	Ministry of Agriculture and Livestock	Submission Date:	2015-09-16
GEF Focal Area (s):	Climate Change	Project Duration(Months)	60
Name of Parent Program (if applicable): ➢ For SFM/REDD+ ☐ ➢ For SGP ☐ ➢ For PPP ☐		Project Agency Fee ($):	589,950

A. FOCAL AREA STRATEGY FRAMEWORK[2]

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Grant Amount ($)	Co-financing ($)
CCA-1	Outcome 1.3: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	Output 1.3.1: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	LDCF	5,110,000	15,205,500
CCA-2	Outcome 2.3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	Output 2.3.1: Targeted population groups participating in adaptation and risk reduction awareness activities	LDCF	1,100,000	5,502,500
Total project costs				6,210,000	20,708,000

B. PROJECT FRAMEWORK

Project Objective: To strengthen the adaptive capacity of Zambian livestock farmers to the impacts of Climate Change						
Project Component	**Grant Type**	**Expected Outcomes**	**Expected Outputs**	**Trust Fund**	**Grant Amount ($)**	**Confirmed Co-financing ($)**
1. Promoting Climate Resilient Livestock investments and increasing climate change adaptive capacity of livestock farmers	Inv	**1.1** - Livestock farmers able to cope with climate change through adoption of improved practices that enhance livelihoods	**1.1.1** - Livestock farmers acquire **3 450** LUs of breeds resilient to climate change **1.1.2** - Livestock farmers set up **2 250** ha of sustainable livestock pastures, fodder banks & rangeland and **292** water harvesting systems	LDCF	4,195,749	13,226,279

[1] Project ID number will be assigned by GEFSEC.
[2] Refer to the Focal Area Results Framework and LDCF/SCCF Framework when completing Table A.

Project Objective: To strengthen the adaptive capacity of Zambian livestock farmers to the impacts of Climate Change						
Project Component	**Grant Type**	**Expected Outcomes**	**Expected Outputs**	**Trust Fund**	**Grant Amount ($)**	**Confirmed Co-financing ($)**
			1.1.3 - Effective practices developed for the community to manage indigenous livestock **1.1.4 –** Operational livestock index-based insurance scheme **1.1.5 –** Operational Livestock Early Warning Information System			
	Inv	**1.2 -** Resilience of natural resources to climate change enhanced	**1.2.1 -** Restoration of **4 500** ha of degraded pasture and increased vegetation cover with different drought tolerant perennials	LDCF	331,396	1,044,660
	Inv	**1.3 -** Increased resilience of infrastructure to climate change threats	**1.3.1 – 11** Climate resilient infrastructure designs in place **1.3.2 – 217** Climate resilient infrastructure constructed and maintained	LDCF	43,606	137,459
	Inv	**1.4 -** Reduced GHG emissions from LISP infrastructure and processes	**1.4.1 – 11** LISP infrastructure designs for reduced GHG emissions in place **1.4.2 – 11** LISP infrastructure designs with GHG emissions reduction technologies	LDCF	94,249	297,102
2. Capacity Building on climate change Adaptation for stakeholders	TA	**2.1 -** Increased knowledge and risk preparedness and adaptive capacity to climate variability at country and targeted community levels	**2.1.1 -** Country: **160** technical staff of Government trained in climate risk assessment and adaptation skills for livestock farmers **2.1.2 -** Community level: Training **80** artisans in manufacturing livestock-related material as a source of income diversification	LDCF	631,177	2,631,694

Project Objective: To strengthen the adaptive capacity of Zambian livestock farmers to the impacts of Climate Change						
Project Component	**Grant Type**	**Expected Outcomes**	**Expected Outputs**	**Trust Fund**	**Grant Amount ($)**	**Confirmed Co-financing ($)**
	TA	**2.2 -** Diversification and strengthened livelihoods and source of incomes for rural population (artisan and livestock farmers)	**2.2.1 - 180** Livestock farmers (30% F) equipped with skills for livestock feed conservation for dry season and implement other adaptation measures autonomously **2.2.2 –** Strengthened adaptive capacity for sustainable land use management for **180** villages **2.2.3 –** Technical and business capacity developed for construction of biogas plants for **180** livestock farmers	LDCF	368,823	1,537,806
3. Knowledge, Monitoring and Evaluation	TA	M&E management and lessons learnt are captured and appropriately disseminated	**3.1 –** Compile **5** knowledge adaptation products **3.2 -** Participate in **30** adaptation practitioners events **3.3 -** Produce **29** Monitoring and evaluation reports	LDCF	250,000	500,000
Subtotal					5,915,000	19,375,000
Project management Cost (PMC)[3]				LDCF	295,000	1,333,000
Total project costs					6,210,000	20,708,000

C. SOURCES OF CONFIRMED CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME ($)

Please include letters confirming co-financing for the project with this form

Sources of Co-financing	**Name of Co-financier (source)**	**Type of Co-financing**	**Co-financing Amount** ($)
GEF Agency	African Development Bank/Fund	Soft Loan	18,600,000
National Government	Republic of Zambia	In-kind	2,108,000
Total Co-financing			20,708,000

D. TRUST FUND RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY[1]

GEF Agency	**Type of Trust Fund**	**Focal Area**	**Country Name/ Global**	**(in $)**		
				Grant Amount (a)	**Agency Fee** (b)[2]	**Total** c=a+b
AfDB	LDCF	Climate Change	Zambia	6,210,000	589,950	6,799,950

[3] PMC should be charged proportionately to focal areas based on focal area project grant amount in Table D below.

Total Grant Resources	6,210,000	589,950	6,799,950

[1] In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table.

[2] Indicate fees related to this project.

F. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

Component	Grant Amount ($)	Co-financing ($)	Project Total ($)
International Consultants	290,500	525,300	290,500
National/Local Consultants	301,000	544,300	301,000

G. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? No

(If non-grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF/NPIF Trust Fund).

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF[4]

A.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NCSA, NIPs, PRSPs, NPFE, Biennial Update Reports, etc.

N/A

A.2. GEF focal area and/or fund(s) strategies, eligibility criteria and priorities.

N/A

A.3 The GEF Agency's comparative advantage:

N/A

A.4. The baseline project and the problem that it seeks to address:

N/A

A. 5. Incremental /Additional cost reasoning: describe the incremental (GEF Trust Fund/NPIF) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF/NPIF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

A few definitional changes, as well as an increase in number of Outcomes under **Component 1** (an increase from two to four) and an increase in the number of Outputs for selected Outcomes (from nine to sixteen) were made between

[4] For questions A.1 –A.7 in Part II, if there are no changes since PIF and if not specifically requested in the review sheet at PIF stage, then no need to respond, please enter "NA" after the respective question.

the PIF approval and the full proposal (set within the GEF CEO Endorsement Form) submission. Attention was also paid to the comments raised, and recommendations made by the GEF/STAP during its review of the initial PIF. The changes made in the current full project proposal formulation in relation to material in the approved PIF https://www.thegef.org/gef/project_detail?projID=5394 are as follows:

I. Definitional changes

a) Change from "Stock breeders" to" Livestock farmers/keepers"

In the context of the Zambia livestock sector, the main actors and end-user beneficiaries of the proposed CRLMP, and those in the baseline project (the Livestock Infrastructure Support Project, LISP), are commonly referred to as "livestock farmers/keepers". These livestock farmers or keepers are in almost all cases also crop farmers and practice crop-livestock mixed farming at different level of integration (ranging from minimal associations between crops and livestock, to higher level of integration where exchanges between crop-residues as feed, manure and animal traction for land preparation occur). Other potential beneficiaries are specialized herd/flock-based livestock multipliers, and specialized animal improvement societies or scientific research groups. However, the latter groups are relatively few in number. Therefore, the terminology "Stockbreeders" has been dropped in favour of "Livestock farmers/keepers" to reflect common usage in Zambia. Such a change in nomenclature was agreed upon during the stakeholder Inception Workshop (Nakonde, Muchinga Province, 11-12 August, 2015) conducted as part of the project formulation.

b) Endemic livestock and habitat to Indigenous livestock and habitat

In the context of the two administrative provinces selected for the implementation of LISP and CRLMP, the term "indigenous livestock" is more recognizable than "endemic livestock". Only in the very few situations where imported dairy breeds such as the Friesian or Jersey or crosses between these and local breeds will the term "indigenous"not be used. However, these exotic breeds and crossbreds are very few and are used by relatively fewer livestock farmers/keepers. Thus, the term "indigenous livestock" is used in place of "endemic livestock" in this submission.

II. Changes in the number of Outcomes and justification for addition

Component 1

The two original Outcomes defined for Component 1 were considered not adequate for the range of activities that needed to be carried out to attain the intended results of this component. Therefore, two additional Outcomes were created over and above that provided under the PIF, and coresponding Activities identified during interactions with stakeholders at the Inception Workshop.

Additional Outcomes:

1.3 Increased resilience of infrastructure to climate change threats

The justification for this new Outcome stems from the consideration of what CRLMP was set up to accomplish relative to the baseline project, LISP. As LISP deals with installation of livestock infrastructure, there were concerns during its Appraisal phase that the installed facililities and some of the planned activities/processes might negatively affect the environment and contribute to climate change. Therefore, the CRLMP PIF recognized the need to promote climate resilient investments including infrastructure (paragraph 3 page 6, Component 1). It was for these concerns that LISP initiated a Consultancy service to conduct an Environmental Risk Assessment for LISP activities, including the installed

infrastructure. Similarly, the CRLMP project preparation was also encouraged to prepare a Climate Risk Assessment Report to accompany the CEO Endorsement Form. However, Outcome 1.1 and Outcome 1.2 were considered not to have addressed infrastructure so there was need to have an Outcome that will make the installed infrastructure resilent to climate change threats. The two Outputs 1.3.1 and 1.3.2 will result or materialize to ensure the new Outcome when quick and strategic actions (activities) are undertaken with LISP to review and modify the infrastructure which are yet to be installed (Activity 1.3.1.1) and to realign the locations of LISP infrastructure (Activity 1.3.1.2) and to establish and construct climate resilient interventions around infrastructure (Activity 1.3.1.3).

Outcome 1.4: Reduced GHG emissions from LISP infrastructure and processes

The justification for this new Outcome stems from the recognition that some processes/activities and infrastructure installed by the LISP are bound to have negative impacts on the environment. For example, the introduction of additional livestock into the two provinces through LISP "restocking" and "pass-on" schemes" will over time increase the amount of solid manure dropped in the holding and marketing areas. Improper handling of manure stands a good chance to add to greenhouse gas (GHG) emission. Poor quality feeds eaten by ruminant livestock will add greater production and release of methane into the environment. Similarly, there was the consideration that the acquisition of the materials used for building infrastructure such as wooden crushes, human and livestock housing, and animal holding pens should not leave huge "carbon footprints" in the areas where the materials came from. Furthermore, the process of rehabilitation of feeder roads and access to newly constructed livestock markets should not lead to unwanton cutting of trees and destruction of ecosystems that incease GHG emission. Hence an Outcome of "Reduced GHG emissions from LISP infrastructure and processes" and the associated Output (1.4.1) - "LISP infrastructure designs for reduced GHG emissions in place" and the associated Activity (1.4.1.1) - "Review and modify LISP infrastructure designs to reduce GHG emissions" are justified and strategic in reducing potential negative future climate change impacts. Similarly the awareness creation and knowledge acquisition in the use of products from bio-gas digesters and generation of incomes from the alternative livelihoods offered from operation of bio-gas digesters will put farmers in a better position to adapt to current and future climate change impacts. Project support for demonstrating these benefits and to build skills to install and use them is therefore justified as an adaptation activity (1.4.2.1) of Output 1.4.2- (LISP infrastructure fitted or constructed with GHG emissions reduction technologiesactivity).

Component 2

The two original Outcomes defined for Component 2 in the PIF, namely, Outcome 2.1: - Increased knowledge and risk preparedness and adaptive capacity to climate variability at country and targeted community levels; and Outcome 2.2 - Diversification and strengthened livelihoods and source of incomes for rural population (artisan and livestock farmers) were retained . Two additional Outputs were added as it was considered that the range of activities that needed to be carried out to reach the specified Outcome were not adequately covered by the single Output 2.2.1 (Livestock farmers equipped with skills for livestock feed conservation for dry season and implement other adaptation measures autonomously) for Outcome 2.2. The additional outputs are as follows:

2.2.2 – Strengthened adaptive capacity for sustainable land use management; and

2.2.3 – Technical and business capacity developed for construction of biogas plants for livestock farmers.

The main argument for Outputs 2.2.2 that concern the strengthening of adaptive capacies is that improvement in skills in sustainable land management could open the way for new or diversified livelihoods. With respect to the economic benefits that can arise from use of products of biogas, and from sale of same for cash a realization of the stated Output (2.2.3) technical and busuness capacity development are considered to be a "game changer" for livestock farmers to earn cash income and still use the manure that has passed through the bio-digester. This Output will bring synegies to the LISP activities of introducing bio-gas construction and use at selected sites in the Project area.

Additional Detail on Project Activities for Components 1, 2, and 3

The CRLMP is primarily about adaptation by farmers, especially livestock farmers, to climate change impact, and how their farming practices, their installed facilities and equipment (from LISP investments) and processes in the implentation of the LISP could affect the environment and subsequently climate change. It is also recognized that traditionally, approaches to combat the negative impacts of climate change and climate variability have included adaptation and mitigation. Adaptation measures allow farmers and communities to confront the impacts of climate change and climate variability in the short to medium term. Some of these adaptation pracitices improve the conditions of the production base and the environment in general. Long term options that contribute to climate change mitigation are being sought at the same by those responsible for higher level development. For example, in the livestock subsector, farmers keeping livestock in the face of climate change impacts might change their crop-mix to include drought tolerant varieties of sorghum or millet (rather than maize) that are more likely to survive drought better, and might also select those varieties that give moderate yield of grains and reasonable quantities of fodder to feed livestock (rather than very high yield of grains but no fodder as crop residues for livestock feeding). Farmers may also introduce leguminous crops such as cowpeas, grounduts, soyabean and trees such as glyricedia with the view to increase the quality of crop residues for livestock as the aforementioned crops have higher protein content than ceareal crop residues. However, the nitrogen fixation attributes of leguminous plants improve soil quality and their growing patterns provide more soil cover, and hence better prevent soil GHG emissions. Thus, some of the adaptation activities proposed under CRLMP may also have addional benefits for contributing to climate change mitigation. These dual benefits of the CRLMP were recognized and advocated for by stakeholders during the Inception Workshop, conducted as part of the project preparation. Thus, some relatively few Outputs and their associated activities proposed for the Project may have both climate change adaptation and climate change mitigation outlook. However, even for these few cases the activities are generally carried out from the perspectives of adaptation. In general the focus of the CRLMP activities/outputs was to complement and/or supplement LISP's (baseline project) activities/outputs.

As a result of stakeholder consultation (both Inception and Validation Workshops) and project preparation activities, additional detail has been developed in describing the additional project orientations and activities requested for LDCF financing and the associated adaptation benefits to be delivered by the project. They are described in detail below:

Component 1: Promoting Climate Resilient Livestock investments and increasing climate change adaptive capacity of livestock farmers

This component will entail implementing a financing mechanism to enable livestock farmers to acquire livestock breeds resilient to climate change and set up sustainable livestock management practices; development of effective models for community management of indigenous livestock breeds and grazing resources; demonstrations for livestock feed conservation for dry season use and restoration of degraded pastures or rangelands through planting of drought tolerant perennials and annuals; development of models on how local communities they can be enhanced to mitigate the effects of climate change; and exploring and identifying water harvesting technologies that are best suited to guarantee good water supply (rainwater, boreholes etc.) for livestock watering. This Component comprises of four outcomes as follows:

i. Livestock farmers able to cope with climate change through adoption of improved practices that enhance livelihoods;
ii. Resilience of natural resources to climate change enhanced;
iii. Increased resilience of infrastructure to climate change threats. This outcome will be achieved through two (2) key outputs - Climate resilient infrastructure designs in place, and Climate resilient infrastructure constructed and maintained; and
iv. Reduced GHG emissions from LISP infrastructure. This outcome will be achieved through two (2) key outputs - LISP infrastructure designs for reduced GHG emissions in place, and LISP infrastructure fitted or constructed with GHG emissions reduction technologies.

These four outcomes under Component 1 will be achieved through ten key outputs – (i) Livestock farmers acquire breeds resilient to climate change, (ii) Livestock farmers set up sustainable livestock pastures, fodder banks, rangeland and water harvesting systems, (iii) Effective practises developed for the community to manage indigenous livestock, (iv) Operational livestock index-based insurance scheme, (v) Operational Livestock Early Warning Information System, (vi) Restoration of degraded pasture and increased vegetation cover with different drought tolerant perennials, (vii) Climate resilient infrastructure designs in place, (viii) Climate resilient infrastructure constructed and maintained, (ix) LISP infrastructure designs for reduced GHG emissions in place, and (x) LISP infrastructure fitted or constructed with GHG emissions reduction technologies

Description of Detailed Ouputs and Activities

Outcome 1.1: Livestock farmers able to cope with climate change through adoption of improved practices that enhance livelihoods

1.1.1 Livestock farmers acquire breeds resilient to climate change

Existing known indigenous livestock species and breds and breeding systems

It is acknowledged that the majority of livestock breeds in all the major ruminant species (cattle, goats and sheep) kept by smallholder farmers in Zambia are of local origin. In a general sense these breeds are considered by some actors in the livestock sector to be less productive than their high-yielding 'exotic' relatives, but they are well adapted to the prevailing harsh environments. These indigenous breeds in majority of cases are more disease resistant and drought

tolerant; furthermore, they are crucial to the effective management of the environments in which they were developed. However, in the case of cross-bred cattle used in some of the dairy schemes they had been developed by crossing exotic dairy cattle breeds with indigenous beef-type cattle breeds. In this case while the crossbreds end up producing more milk and meat than the indigenous breeds, the level of resistance to diseases and environmental factors often gets reduced.

The Angoni, Baila, Tonga and Barotse, are the only known indigenous cattle breeds in Zambia that are fully characterized and are known to be disease tolerant as well do withstand harsh climatic conditions. These breeds are known to thrive over scanty vegetation comprising mainly thorny bushes. These breeds are being multiplied through a careful breeding system at the following breeding Centres: Batoka Livestock Development Trust (cattle, sheep and goats); Mochipapa (Dairy cattle); Mukulayukwa (cattle, sheep and goats); and Mbesuma ranch (cattle). There are a few commercial farmers in the country that are also breeding cattle and goats and are formally registered with the herd Book Society of Zambia. The country's policy is to establish breeding centres at each of the provincial capitals.

Whilst the indigenous cattle breeds of Zambia are well documented, the genetic characteristics and extent of genetic diversity of goats, sheep, pigs, and poultry are not fully documented. Of great concern is the fact that the indigenous livestock genetic resources are being eroded through outcrossing, introgression and over harvesting. This has resulted in dilution or complete replacement of the indigenous goats, sheep, and poultry species by exotic genotypes. There is therefore a need to characterize the indigenous livestock genetic resources in the wake of climate change. Through both phenotypic and genetic characterization it is possible to identify sub-types within breeds of species that might have greater or more of the attributes that make breeds resilient, tolerance and resistant to diseases and other stressful environments and that are more likely to endure more lasting climate change impacts. Where such superior sub-types are found they will constitute the bulk of the animals used for restocking and pass-on schemes in the Projects (LISP and CRLMP) as a way of propagating the superior attributes inherent in them. Based on the performance of targetted indigenous breeds in their original environments/locations, environmental factors (such fodder availability, level and incidence of diseases), and management regimes it is possible to undertake an *ex-ante* assessment on how these breeds might perform in new locations where there are significant differences in the level of environmental stressers and management regimes as comapred with the original locations. Where the levels of stressors and mangement regimes are about the same in the original and new locations, the performance of the targetted breds are not expected to change in any appreciable extent. CRLMP will collaborate with LISP in underaking these assessments.

Livestock Pass-on Scheme

Based on the livestock breeds/breeding systems described above, the CRLMP will implement a pass-on livestock scheme as an incremetal activity to that of LISP, but will be focusing using only adapted local species/breeds acquired from government and private breeding centers or from individual farmers who are known to be multiplying improved brreds from those centers. The scheme will particularly empower women and youths with ownership of small ruminants (sheep and goats). The project will identify and recruit a Livestock Fund Manager who will manage the "pass-on" scheme

following co-financing mechanisms such as those obtaining under the Agribusiness Promotion Programme (APP) and the Small Livestock Improvement Programme (SLIP) implemented under MAL. The APP and SLIP have proven successful in that the beneficiary farmer pays a co-financing of 25% of the value of an animal before receiving it. In the case of goats or sheep, when the animal gives birth to two kids, one female kid is passed on to the next farmer who has already paid his/her 25%. The scheme will revolve and will ensure that no one beneficiary farmer will acquire more than five animals from the pass-on. The pass-on scheme will be augmented with ancillary resources such as grass choppers, feeders, water drinking troughs and salt leaks. Besides setting up the co-financing mechanisms, additional proposed activities are:

- ✓ Identify target villages and beneficiary livestock keeping households per project area (district);
- ✓ Procure & distribute livestock;
- ✓ Conduct livestock breed characterization study in the project provinces and perform *ex-ante* assessments; and
- ✓ Training of extension officers on GIS to evaluate / assess carrying capacities

1.1.2 Livestock farmers set up sustainable livestock pastures, fodder banks, rangeland and water harvesting systems

Setting-up sustainable livestock pastures, fodder banks and rangelands

Rangelands in the project target areas are communally owned, i.e. there are collective and group tenure arrangements to use of grazing resources. More generally, collective tenure facilitates equal access to temporally and spatially variable forage resources. However, due to a range of factors including human population growth and increasing poor governance over natural resources, some of the rangelands are degraded and will continue to degrade, leaving the livestock systems and hence smallholder farmers highly vulnerable to climate change. To enable smallholder farmers to make informed choices about the adaptation and associated mitigation strategies that are at their disposal to resolve the problem of rangelands degradation, the project will adopt a participatory approach to improved rangeland management. The following key activities will be implemented:

- ✓ Establish land use plans at village level using participatory GIS;
- ✓ Planting of fodder & fruit trees (e.g. guava, mulberry) around homesteads, planting of fodder trees along the riverines; and
- ✓ Construction of fire breaks around rangelands.

Sustainable Management of existing water resources and developing alternative water sources for livestock

The effect of climate change has made droughts and floods to become recurrent. It has been observed that Region 3 (AEZ 3 where Muchinga and Northern provinces fall) will generally get less rainfall while possibly the rainfall intensities would increase. Floods result in disaster, death of both human beings and livestock and the general destruction that affects the economy.

In the project area there is limited capacity in rainwater harvesting and harvesting of runoff. In all the seven communities that were visited during the project preparation and formulation, it is evident that existing water sources (rivers, streams and wells) are drying up during the dry season. People have to travel distances ranging from 1 to 10 kilometers to source

portable water and water for watering their livestock. The communities visited hinted that while the quantity of water may have reduced the situation could not be described as critical in some cases. Thus, there is need to accelarate the development of water harvesting and storage infrastructure if the effects of droughts are to be minimised.

To ensure ready and easy access to water for livestock watering (and domestic use), sustainable management of exisiting water sources and developing of alternative water will take a centre stage during the implementation of the CRLMP. Attention will be paid to awareness creation in the areas of adaptation to, and mitigating against droughts by storing water when it is available and use it when it is in short supply, rain water harvesting, recyling of water and the use of water-saving technologies, harnessing water from the roofs for homesteads with iron sheets, and diggging of protected wells that are lined to reduce high water seepage during the dry season. The following key activities will be implemented to improve livestock watering in the project areas:

- ✓ Lining of shallow water wells where necessary;
- ✓ Construct weirs, and small dams/reservoirs as livestock watering points;
- ✓ Construct communal boreholes and wells for watering livestock; and
- ✓ Promote appropriate / sustainable water harvesting at household level (e.g. roof catchment water harvesting and storing in tanks).

1.1.3 Effective practises developed for the community to manage indigenous livestock

Raising awareness of the value of idigenous livestock species and breeds

In general there is inadequate information on the potential of the existing indigenous livestock breeds. The value of indigenous breeds needs to be better understood by extension agents and local communities. Better balancing of the merits of disease and climate resilience against the cost of lower production and marketability is needed. Once the activity of characterizing livestock breeds is completed, the project will embark on a livestock farmers' awareness campaign concerning breeds that are available in the local communities and those that are available from other parts of Zambia. The focus of the awareness raising campaigns will be on highlighting the climate change and management implications of keeping the indigenous livestock breeds. It is expected that through the awareness raising campaigns, farmers will be able to make informed decisions as to which livestock breeds to adopt.

Community management of indigenous livestock breeds

Livestock breeding skills will be developed at the community level, to both conserve and develop locally-adapted breeds, and to introduce new breeds where appropriate. Breed improvement will be based on simple record-keeping and to the extent possible will be built on existing knowledge. Breed improvement will be carried out by local communities in order to be compatible with their production and livelihood objectives and their environmental and socio-cultural demands. To ensure sustainable populations of targeted indigenous livestock breeds in the two provinces and to ensure the conservation of these breeds and their globally unique genetic traits, the following activities will be implemented:

- ✓ Survey of best practices to manage indigenous breeds;

- ✓ Develop breed management manual for farmers and extension workers in local language;
- ✓ Train extension personnel and farmers on breed management; and
- ✓ Exchange visits for livestock farmers (in farmer groups).

1.1.4 Operational index-based livestock insurance (IBLI) scheme

In Zambia, agriculture insurance exist covering a wide range of products such as loss or damage due to fire, lightning, storm, malicious damage, transit and theft of harvested crops whilst stored in the silo or building in the case of crop insurance. Livestock insurance covers risks of mortality and is suitable for various animals. The cover provided by most insurance companies include accident, disease, epidemics and theft. Livestock insurance that compensates for the loss of animals or reduced productivity because of drought or flooding has rarely been offered, especially in the smallholder farmer systems. In the context of climate change and the already highly unpredictable nature of most livestock keeping areas, insurance is a particularly crucial gap to fill. Insurance is often hampered by the lack of trust in local legal institutions or other systems for verifying claims. Traditional systems of insurance are flawed by the fact that all members of a community are likely to be impacted simultaneously by climate events, rendering the traditional insurance systems ineffective.

The need for appropriate livestock insurance products to be developed for and provided to livestock farmers is critical. One such product is the index-based livestock insurance (IBLI) against climatic hazards. With the IBLI, livestock farmers pay a market premium rate for the base insurance product, which pays out to individual herders whenever the livestock mortality rate in a given location exceeds a defined threshold. This threshold is index-based, so it is measured based on weather data (which is related to data on the economic impact of past climate events) rather than the rate of individual losses. This is considered an attractive way to reduce the risk of moral hazard (individuals 'playing the system'), reducing costs and creating an incentive on the part of the herders to adopt effective risk management techniques.The climate change orientation or outlook stems from the fact that the livestock insurance scheme is intended to enable livestock farmers who lose their stock assets due to reasons related to natural (including climate change impacts) or economic conditions to be able to replace them so to better adapt to current and future climate variabilities and cimate change. At a minimum, the project will implement the following activities to develop and implement the IBLI for livestock farmers in the participating provinces:

- ✓ Identify institutions to provide index-based insurance;
- ✓ Create awareness among livestock keepers on the importance of insuring livestock; and
- ✓ Assess models for climate/weather index-based livestock insurance and adapt for Zambia.

1.1.5 Operational Livestock Early Warning Information System

One of the major first steps in raising adaptive capacities at local and national levels will be to improve the assessment of the threat of climate change to enable planners and farmers to react appropriately. The available early warning information

systems mainly focus on crop production, yet both commercial and communal livestock production are often affected by floods, droughts and diseases, which result in the loss of income and product supply. The smallholder livestock sector is therefore likely benefit from some form of livestock early warning information system (LEWIS). The objective of the LEWIS will be to provide forecast information on the signs of emerging hazards which will trigger farmers to find early and appropriate responses to the hazards. As such, a strategy for enhancement of the capabilities of the meteorological department to render better services will be developed and adopted. The main focus will be on improving the quality of service in issuing long-range climate and climate change forecasts to reasonably predict floods and droughts. To that effect, through the CRLMP, the meteorological department will establish at least one automatic weather station in each and every project district in Northern and Muchinga provinces. As part of a sub-programme on weather prediction, there could be value in learning more about how farmers and livestock farmers predict the weather and what sort of additional information they would value.The climate change adaptation orientation or outlook stems from the fact that adaptation practices such as changing crop-mixes to include tolerant crop varieties and rich nitrogen-crops in the face of approaching or on-going drought will benefit from a functional early warning system so farmers go into actions of adaptation in reasonably good time based on information provided by the early warning system. Building capacity to use weather forecasts will be valuable. Forecasting will not aim only at short and mid-term forecasting for the sake of reactive adaptation, but it will also focus on long-term forecasting with a view to influencing proactive adaptation. The forecasting information will be used to inform envisioning exercises linked to understanding the implications of climate change.

To complement this development will be the development of a mechanism to disseminate weather and climate information to livestock farmers. For effective dissemination, a climate reporting mechanism will be developed. Communication of forecasting information will be developed in consultation with the livestock farmers in order to understand the most appropriate means of communication, such as radio and/or mobile telephone. Activitiess are:

- ✓ Establish automatic weather stations in the project area. Have a minimum threshold number of stations by Meteorological Department; and
- ✓ Create awareness to register for weather reports through cell phones.

Outcome 1.2: Resilience of natural resources to climate change enhanced

1.2.1 Restoration of degraded pasture and increased vegetation cover with different drought tolerant perennials

The key natural resources in the project areas that are readily subjected to the vagaries of climate change are land (soils), streams and rivers, natural occuring ponds, rangelands and pastures, wildlife, flora and fauna and ecosystems that provide goods and services. Whereas water-related issues where dealt with under Output 1.1.2, and wildlife is generally outside of the scope of these projects (LISP and CRLMP), the resilience of rangelands achieved through the restoration of degraded pastures and rangelands (including those at water fronts, usually degraded by overgrazing and excessive movements by cattle around these spots) have a direct impact on the functioning of ecosystems that provide services, and on flora and fauna. Activities to be undertaken include:

- ✓ Characterization of the rangelands; and

- ✓ Carry out rangeland improvement interventions/strategies (eg. planting of drought tolerant annual and perennial species).

Outcome 1.3: Increased resilience of infrastructure to climate change threats

1.3.1 Climate resilient infrastructure designs in place

Climate change has significant implications for the LISP infrastructure. The infrastructure investment under LISIP cover crush pens, dip tanks, slaughter houses, milk collection centers, marketing infrastructure and feeder roads. As infrastructure assets have long operational lifetimes, they are sensitive not only to the existing climate at the time of their construction, but also to climate variations over the decades of their use. Achieving more climate resilient infrastructure, requires the impacts of climate change to be a key consideration in the way that significant pieces of are designed, built and maintained.

Recent impacts from flooding and severe weather highlight the risks infrastructure could face and the significant economic damage these types of events bring. Effective, reliable infrastructure underpins economic activity, and failure to adapt, increases the possibility of service disruption and adverse economic impacts. The climate change adaptation orientation or outlook stems from the fact service disruption of and economic losses arising from poor, non-resilient facilities cripples capacity to adapt to current and futue climate climate change impacts. Hence, the LISP infrastructure designs will be modified where appropriate to minimize climate change risks like increased fire incidences, flooding, and droughts. Hence the activity is:

- ✓ Review and modify LISP infrastructure designs.

1.3.2 Climate resilient infrastructure constructed and maintained

Besides taking into consideration other several environmental factors in constructing the LISP infrastructure, the project will construct and maintain project infrastructure as per improved designs for climate change resilience. All new infrastructure will be sited on relatively flat terrain, avoiding flood paths. Standard fire breaks will be prepared around all infrastructure. The activities to be implemented are:

- ✓ Review and realign the locations of LISP infrastructure; and
- ✓ Establishment and construction of climate resilient interventions around infrastructure (eg. Contour ridging and vertiva grass promotion).

1.4 Reduced GHG emissions from LISP infrastructure and processes

1.4.1. LISP infrastructure designs for reduced GHG emissions in place

It is recognized that during the construction, operation, and maintenance of the infrastructure and some of proposed processes under the LISP there will be emission of GHGs and that these are bound to have negative impact on the

environment. For example the introduction of additional livestock into the two provinces through LISP "restocking" and "pass-on" schemes" will over time increase the amount of solid manure dropped in the holding areas. Improper handling of manure stand a good chance to add to greenhouse gas (GHG) emission. Poor quality feeds eaten by ruminant livestock will add greater production of methane into the environment. Similarly, the acquisition of the materials used for building infrastructure such as wooden crushes, human and livestock housing, and animal holding pens should not leave a huge "carbon footprint" in areas where they came from. Furthermore, the process of rehabilitation of feeder roads and access to newly constructed livestock markets should not lead to unwanton cutting of trees and destruction of ecosystems that incease GHG emission.

The aim of this sub-component is to ensure that such emissions will be minimized. Infrastructure designs will take into account and mitigate against the possible sources of GHG emission arising from the LISP infrastructure.

Livestock handling, abattoir and dairy infrastructure

There is relatively little information in the literature that provides significant detail on the GHG footprint of infrastructure in relation to overall GHG emissions. For the LISP, GHG emissions from infrastructure will be predominantly due to the use of materials including: iron/steel, aluminium, plastics, cement/concrete and copper. The project will establish the carbon footprint of the LISP infrastructure. The idea will be to build infrastructure using less emissions-intensive materials.

Road infrastructure

Evidence shows that emissions related to road construction, maintenance, operation and end-of-life may range from just a few per cent to typically 10%-15% of total road lifecycle GHG emissions. There are a number of methods and processes that could be employed in the road transport sector to reduce the GHG emissions at the road construction stage, including the use of alternative materials and low carbon energy. In addition the condition of the road surface can also directly influence traffic safety, noise generation and vehicle fuel consumption. Road surface maintenance can therefore be optimised to fulfil GHG emission reductions and other sustainable transport and safety objectives.

Electricity Supply

As electricity supply is likely to contribute greatly to the GHG emissions related to the operation of the LISP infrastructure like abattoirs, staff houses, and dairy facilities, energy-efficient powering scenarios will be explored to reduce energy supply emissions. Renewable energy sources like use of solar will be adopted in the project. Photovoltaic panels will be installed to produce renewable electricity to replace electricity supply from the grid. The main activity to be implemented is:

- ✓ Review and modify LISP infrastructure designs to reduce GHG emissions.

<u>1.4.2 LISP infrastructure fitted or constructed with GHG emissions reduction technologies</u>

All LISP infrastructure will be constructed, operated, and maintained as per designs that minimize GHG emissions. To the extent feasible and technically possible, solar energy will be utilized to power equipment and cooling systems under the project. LISP infrastructure such as abbatoirs, animal holding pens, milk collection centres and livestock marketing centres in particular have potential to negatively impact the environment through pollution from accumulated manure, spilled milk, and pollution of streams and underground water from effluence from such facilities, and from emissions from accumulated manure. Fitting some technologies to these facilities or close to them could potentially reduce GHG emissions from the facilities/infrastructure. Of the known tecnologies that can render manure less emitting is passing manure through bio-gas digesters. In addition to the products, such as gas for cooking and ligthnening the residual manure from the digesters are still of value and can be used for farming. Thus, the proposed LISP bio-gas digesters to be installed in selected communities will also be supported by the CRLMP through incremental construction, awareness creation on biogas use and dangers associated with its you, and the livelihood diversification potentials from their operations by rural communities. The main activitity to be implemented is:

- ✓ Construct demonstration bio-digesters.

Component 2: Capacity Building on Climate Change Adaptation for Stakeholders

The ability of the livestock farmers to understand the risks they are faced with and how to deal with them is of prime importance. If people do not understand what the risks are, they might not also value the measures put in place to counter such risks. Therefore, the project will train livestock farmers with regard to understanding climate change issues including climate change data and how to use the models that would have been developed to effectively manage their livestock as well as the habitat around them (grazing and pasture management). This will be done with the help of relevant institutions (like the Meteorology Department etc.). In addition, the project will impart livestock feed conservation skills and other business skills so as to increase livestock farmers' livelihood diversity. Biogas technology will be demonstrated and the technical and business capacity of artisans improved to roll out within the framework of the Domestic Biogas Programme in Zambia.

This project component has two outcomes: (i) Increased knowledge and risk preparedness and adaptive capacity to climate variability at country and targeted community levels, and (ii) Diversification and strengthened livelihoods and source of incomes for rural populations. The first outcome will be achieved through two (2) outputs – (i) Country: Technical staff of Government trained in climate risk assessment and adaptation skills for livestock farmers, (ii) - Community level: Training artisans in manufacturing livestock-related material as a source of income diversification.

2.1.1 - Country: Technical staff of Government trained in climate risk assessment and adaptation skills for livestock farmers

Providing forecasting will not be enough to equip either livestock farmers or extension agents to adapt more effectively to climate change. Support will be provided to build the capacity of all stakeholders to make sense and use of climate information. Building understanding of climate information will go hand in hand with understanding what information

is relevant and useable by livestock farmers. Institutionalizing the capacity for interpreting climate information will be explored at different levels: community based organizations (CBOs) including co-operatives, as well as national and local government.

There are a number of options for raising awareness at the community level of the possible outcomes of climate change, but given the uncertainty of predictions, it will be prudent to build consensus initially through participatory learning and action with selected communities to learn how they currently experience climate change, how they perceive future changes impacting on their livelihood, and how they propose to respond to that. To have a meaningful impact, this information will be disseminated further, and a number of communication approaches will be used, including mass media, local government and grassroots organizations.

Through focused training, an effort will be made to ensure that information disseminated to farmers and other stakeholders is transformed into knowledge. At a community level this will require building basic human capabilities on how to use the climate information availed. Attention will be piad to the development of evidence based sensitization materials on climate risks.

Development agencies and local level communities will be trained on the CRiSTAL approach. CRiSTAL is a project planning tool that helps users design activities that support climate adaptation (i.e., adaptation to climate variability and change) at the community level. CRiSTAL stands for "Community-based Risk Screening Tool – Adaptation and Livelihoods". CRiSTAL helps project planners and managers integrate climate change adaptation into community-level projects through participatory planning through identifying and prioritizing climate risks that their projects might address. Without a tool to systematically assess the impacts of a project on some of the local determinants of vulnerability and exposure, it is difficult for project planners and managers to design activities that foster adaptation to climate variability and change.

Strengthened capacity to develop and implement the index-based livestock insurance scheme

Capacity to develop and implement the index-based livestock insurance (IBLI) will be done at two levels. The first level will be to build the capacity of insurance providers and support services like the meteorological department personnel to develop and implement the IBI that is relevant to the Zambian smallholder livestock farmers. The second level will entail creating awareness of the livestock farmers on the existence of an IBI and an elaboration of how it would work, and the implication of adopting the IBI on their livelihoods. The planned activities include:

- ✓ Prepare training materials for government technical staff on climate risk assessment and adapatation skills for livestock farmers;
- ✓ Training of government technical staff on climate risk assessment and adaptation skills for livestock farmers;
- ✓ Facilitate workshop(s) for experts and experts on index-based insurance provision; and
- ✓ Facilitate workshop(s) for experts and stakeholders in early warning systems.

2.1.2 - Community level: Training artisans in manufacturing livestock-related material as a source of income diversification

The major sources of livelihood among rural inhabitants of Muchinga and Northern Provinces are farming, livestock rearing and off-farm income generating activities. The most commonly grown crops are maize, finger millet, groundnuts, common beans, paddy rice, sweet potatoes, pumpkins and sorghum. The two provinces have an estimated 274,000 agricultural households (LCMS, 2010) rearing an estimated 87,000 cattle; 236,000 goats; 72,000 pigs and 5,000 sheep. About 176,000 households keep an estimated 2,805,000 chickens.

Crop production in the two provinces shows variations in production levels in recent years. In Northern Province alone, maize registered a 22 % decrease in 2013, a 34 % increase in 2014 and 3 % decrease in 2015 while finger millet recorded 15 % decrease, 27 % increase and 13 % increase over the same period. The increase in finger millet production may be a serious threat to the environment as it is an indicator of increased deforestation.

In 2010, households in the two provinces were reported to generate an estimated ZMW 1,956,000 per annum from livelihood activities as compared to ZMW 3,233,964 for the whole Zambia (LCMS, 2010). The major sources of income are from sales of crops, small livestock, and charcoal. Minor sources of income included cattle sales, beer brewing, hiring out labour, trading, sale of pan bricks, mushrooms and caterpillars.

The households were also found to spend an average ZMW 1,500,000 per annum, mostly on food and non-food items. Expenditure on food comprised expenses on purchased food items, the value of own produced food items and food items received in-kind for consumption. Expenditure on non-food items comprised expenses on goods and services. A large proportion of the expenditure (50-70%) is on food items.

Livelihoods in the two provinces are affected by deforestation, poor state of roads linking productive areas and markets, late onset of the rain season and early cessation, poor rainfall distribution, high cost of agricultural inputs, low agricultural and livestock productivity. The overall effects arising from these challenges are deepening rural poverty and increased reliance on environmental goods and services.

Forest resources, in the two provinces are howver declining at an alarming rate and little effort is being made to arrest the situation. This poses a very big challenge to livelihoods which depend on forests and other natural resources. This decline limits the range of alternative livelihoods and adaptation strategies.

Taking up of artisan works outside of the farm environment especially by the youth is seen as livelihood opportunities for these groups. In the context of the LISP and CRLMP training of already qualified and new entrants into the artisan workforce in thea areas related to the livestock sector is considered strategic. Thus, carpenters and masons trained on how

to repair and maintain some of the LISP-installed facilities (e.g. crushes and dip tanks) will bring useful services to the project beneficiaries. The planned activities include:

- ✓ Prepare training materials for artisans in manufacturing livestock-related materials as a source of income diversification;
- ✓ Training of artisans in manufacturing livestock-related materials as a source of income diversification;
- ✓ Development of evidence-based sensitization materials on climate risks;
- ✓ Conduct climate change awareness campaigns (community meetings, radio, TV);
- ✓ Exchange visits to affected communities;
- ✓ Create awareness among livestock farmers of existence of index-based livestock insurance providers;
- ✓ Link livestock farmers with index-based livestock insurance providers; and
- ✓ Create awareness among livestock farmers of existence of early warning systems and how to access it.

Outcome 2.2 - Diversification and strengthened livelihoods and source of incomes for rural population (artisan and livestock farmers)

2.2.1 - Livestock farmers equipped with skills of feed conservation for dry season and for other adaptation measures autonomously implemented

The dominant farming system in the project areas identified during field visits as part of the preparation of this project was found to be a range of crops grown at various levels of integration with different species of livestock. Further insights into the prevailing crop and livestock systems and farming methods are described below.

Livestock/ Mixed Crop-Livestock Systems

In terms of spatial distribution of the livestock production systems significant proportions of the Grazing Humid and Mixed Humid Systems are only found in the most northern districts of Kaputa and Mpulungu. Significant portions of the Grazing Temperate system are found in Mbala and Shiwangandu districts but most of the project area fall into the arid agro-ecological zone, with the Grazing Arid and to a much lesser extent the Mixed Arid livestock production systems.

Conservation Agriculture/Farming

The CRLMP will support the process of introducing or maturing the integration of CA and mixed crop-livestock farming in the project area by inclusion of targeted activities in this domain. Collaboration will be sought by CRLMP with nationational and international institutions working on CA in Zambia. The United Nations Food and Agriculture Organization (UN-FAO) is such one institution. Based on the findings on the ground and from studies on livestock and farming in Zambia considerations will be given to the actions listed below.

Existing local level crop–livestock systems will be further developed and promoted through transmission of best practices in terms of agricultural sustainability, labour efficiency, animal husbandry and healthcare (of both animals and humans). Livestock farmers will be sensitized on the importance of diversified production, use of livestock manure, grazing management and conservation farming. Capacity building will be done on fodder production, including forage and cover crops, introduction of legume forages (with appropriate prior environmental evaluation), and distribution of fodder trees.

Good agricultural practices (GAPs) on Conservation Agriculture and its interphace with semi-intensive and extensive livestock farming activities identified by farmers in Southern and Central Provinces reported in Agyemang, K. (2011)--. *Good Agricultural Practices from Conservation Agriculture and Livestock Farming in Southern Africa: Observations from field studies in Zimbabwe, Zambia and Swaziland*) will be promoted through training and field demonstrations to farmers in Muchinga and Northern Provinces. In general the 3-country (Zimbabwe, Zambia, Swaziland) study found that Good Agricultural Practices which resulted in highest crop yields and provided best indicators of farm-household food security were those with high level of integration of CA and livestock farming. Among the GAPs were manure use, use of crop residues for feeds and soil cover, complemented with animal draft power. In Zambia, practicing CA alone and practicing CA with Mixed Crop-livestock farming appears to have similar level of advantages based on the three indicators used in the analysis. From the analysis based on the three indicators and the combined ranking, the best agricultural practices are those that are associated with two Groups (those practicing CA alone and practicing CA with Mixed Crop-livestock farming) typically include minimum tillage and the spreading of crop residues as soil cover.

Issues on conflicts and synergies between conservation-based farming and livestock farming in Zambia as identified in Agyemang, K. and Han, G**.** (2010a)--- *Conflicts and Synergies attendant to Conservation and Livestock Farming.---- A Policy Brief,* will be incorporated in training and capacity building sessions for policy makers, government staff, community leaders and project beneficiaries in the districts where the LISP/CRLMP projects will be implemented. In the study in Zambia the percentage of households in two Groups (those practicing CA alone and practicing CA with Mixed Crop-livestock farming) who saw synergies between CA and livestock farming were slightly less than 70%. On reducing conflicts between CA and LF, over 80% in the two Groups suggested that CA farmers should guard their CA plots or build fences around them.

Fodder production and conservation for dry season feed

Given the value of livestock for the smallholder farmers in the project provinces, an investment will be made in developing fodder crops and more digestible crop residues and in promoting and expanding these technologies. Suitable fodder crops will include those cultivated with almost zero input on marginal land or field boundaries. With growing pressure on water and increasing risk of drought, emphasis will be placed on the development and spread of improved dry-land forage species. Capacity building will focus on the following aspects: the variety of plants that are available that can be used for fodder production; different techniques for forage conservation and identifying solutions that fit with their

production system; security of tenure issues around fodder production and how they can be resolved to ensure that farmers who invest effort in cultivating a crop retain the right to exclude others from harvesting the crop; and Training of technitians and farmers on fodder production, hay production, crop stover management. Increasing feed quality has been shown to significantly reduce methane emission by cattle. As such livestock farmers will be trained on the strategies to reduce the emission of greenhouses gasses include increasing the proportion of consumption of legumes, which yield less methane during digestion than lignified grasses, and increasing the ratio of energy to fibre intake. In addition awareness will be raised on the available feed additives that reduce methanogenesis without reducing the digestive capacity for grass and straw. Among the planned activities are:

- ✓ Prepare training materials for feed and fodder production and conservation; and
- ✓ Farmer training on feed and fodder production;
- ✓ Sensitization of livestock farmers on how to adapt and mitigate for climate change, especially through mixed crop-livestock systems; and
- ✓ Training farmers on the importance of diversified production, use of manure, conservation farming – demonstrations on mixed crop-livestock production technologies, and demonstrations on Conservation Agriculture Farming.

2.2.3 – Strengthened adaptive capacity for sustainable land use management

Improved land use planning is needed to enable livestock farmers to take greater advantage of the range of natural resources at their disposal and to diversify their livelihood portfolio as a hedge against risk. Planning capacities will be improved to reflect the importance of livestock production in mixed farming systems, which may increase if crop farmers are forced to shift steadily from crops to livestock production as climate deteriorates. Similarly, planning capacities will be built on communal rangeland where the scale of landscape management is large and the range of resources is wide.

Participatory planning tools that are highly suitable for land use planning and are consistent with a broader approach to empower livestock farmers will be used. Natural resource maps provide an excellent planning and management tool, and capacities of local government to conduct genuine participatory planning will need to be built. The main activities to be implemented are:

- ✓ Preparation of training materials for sustainable agriculture land use management;
- ✓ Conducting community campaigns to sensitize livestock farmers in sustainable land use management; and
- ✓ Training farmers on sustainable land use management.

2.2.4 – Technical and business capacity developed for construction of biogas plants for livestock farmers

Biogas energy production using livestock waste fermentation will be promoted through the project as a livelihood option in support of LISP activities that involve the installation of biogas digesters around infrasture in communities. Bio-gas production will be promoted at household level, community livestock infrastructure handling level, and at marketing

infrastructure level. This approach has the dual benefit of reducing methane emissions and reducing reliance on wood fuel. The following key activities will be implemented:

- ✓ Training farmers on the construction and maintenance of bio-gas digesters; and
- ✓ Create awareness on how to utilize bio-gas safely.

Component 3: Knowledge, Monitoring and Evaluation

This component deals with the effective planning, management, implementation, monitoring and evaluation of the project activities. This Component will have one key expected Outcome, namely: M&E management and lessons learnt are captured and appropriately disseminated with three expected Outputs: (i) Compile Knowledge adaptation products, (ii) Participate in adaptation practitioners events, and (iii) Produce Monitoring and Evaluation reports.

3.1 Compile Knowledge Adaptation Products

Under this component, the project will compile a number of knowledge adaptation products including climate change adaptation videos, fact sheets, training materials, and studies. These products will be derived from similar projects elsewhere and from the project.

3.2 Participation in Adaptation Practitioners Events

Members of the PIU, the technical steering committee, and the project implementing personnel at the provincial and district levels will participate in adaptation practitioners' events. It is envisaged that at least 24 adaptation practitioners' events will be held as part of the CRLMP implementation. Stakeholders are expected to attend and participate in at least six (6) adaptation practitioners' events elsewhere but relevant to the project.

3.3 Produce Monitoring and Evaluation Reports

The project will produce and submit quarterly progress reports as well as financial reports. It is anticipated that 29 reports will be submitted including the annual work plan and budget (AWPB), progress reports, and financial reports. The evaluation reports by the project will include the baseline survey during Year 1, the mid-term review during Year 3, the beneficiary impact assessment during Year 5, and the project completion review during Year 5.

A.6 Risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and measures that address these risks:

The project Objective is "To strengthen the adaptive capacity of Zambian livestock farmers to the impacts of climate change". The achievement of this objective is subjected to many risks. If risk is defined as a loss, or as a word synonym with "probability of occurrence of a damaging event", then it can be taken to mean that all factors that can cause the loss or damage to the elements/benefits stated in the project Objective are risks themselves or are risk-related factors.

Climate change, climate variability, environmental factors, and social development patterns are among factors that might pose various degrees of risks and hence prevent the project objective from being achieved. The likelihood of any of these factors causing loss in the project setting, outputs or on beneficiaries over the project duration or few years after completion will depend on the historical trend and future predictions.

In broad terms rainfall in Zambia is strongly influenced by the El Niño Southern Oscillation (ENSO), which causes large inter-annual variability. El Niño brings drier than average conditions in the wet summer months (DJF) in the southern half of the country, whilst the north of the country simultaneously experiences significantly wetter-than average conditions. The Government of Zambia Meteorological Services Department predicts that for the 2015/16 agricultural season, the whole country is expected to experiece the impacts of El Nino phenomenon, already in force. The forecast suggests that most of the country will receive normal to below normal rainfall. The effect is expected to last up to April 2016. The last time the magnitude of the on-going El Nino occurred in Zambia was 50 years ago, according to the Report.

The reverse pattern occurs with La Niña episodes, with dry conditions in the north and wet conditions in the south. Recent studies on Zambia has also shown that the mean annual temperature has increased by 1.3^{O}C since 1960, an average rate of 0.29^{O}C per decade, with the rate of increase most pronounced during winter months (0.34^{O}C per decade); whilst the number of hot days and hot nights per year has increased by 43 days. Therefore, recent trends in floods, droughts and temperatures could provide indications as to how climate change, climate variability and environmental stresses in the project areas can affect the achievement of project objectives. In this connection the recent observations that from 2000 to 2007, the intensity and frequency of droughts and floods and the number of people affected changed, with a net trend towards more floods and, over a longer time-period, droughts, and that the area affected by floods and droughts appears to have expanded as indicated by the fact that the 2006/07 flood affected 41 districts in nine provinces, and the 2004/05 drought left nearly two thirds of Zambia with little or no rainfall. Climate

With the two project provinces, Muchinga and Northern, lying almost completely in the Agro-ecological Region III and receiveing over 1000 mm of rainfall annually, and with highly leached and acidic soils, both severe floods and droughts are major climatic and environmental risks. On one hand, droughts affect agricultural production and plant growth and therefore directly affect livestock production through the availability, quantity and quality of feeds. Bush fires that destroy large hectarages of vegetation also have severe negative impact on animal feed production and livestock losses. On the other hand excessive rainfall contribute to breeding of vectors that carry and spread animal diseases, whilst floods can cause drowning and death of livestock. Climate change impacts, vulnerability and coping measures in general are presented in Table 1 whilst the climate change impacts as perceived by livestock farmers in the target project provinces/districts as well as impediments to adaptation to climate change and variability impacts are presented in Table 2.

Socio-economic factors or conditions that force farmers and other society members to adopt unsustainable farming, livestock and natural resources management practices, such as overgrazing, degradation of soils and setting of bush fires for hunting could negatively affect the sustainability of the project activities and erode the socio-economic benefits envisaged from the project. Available demographic data show that the Zambia's Northern and Muchinga Provinces are particularly vulnerable because of their high dependence on natural resources, and their limited capacity to cope with climate variability and extremes. The capacity to cope with climate variability and extreme weather events is highly dependent on the level of human well-being. In general, livelihood sources of the poor are usually narrower and more climate-sensitive than those of the non-poor. Therefore, any worsening of the socio-economic related vulnerability factors of the communities in the two provinces in the course of implementing the project will negatively affect the prospects of achieving the project objectives. Other risks associated with project implementation and the associated measures of risk mitigation are listed in the Table 3.

Table 1: Climate Change Impacts, Vulnerability and Coping Measures in the Project Area

Impacts	**Vulnerability & Impediments to Adaptation**	**Coping Measures**
Increase in frequency of extreme events at some locations Stress on water resources, human health, and infrastructure, hampering development. Decrease crop yields, livestock productivity or diminishing food security. No changes or substantial increases in crop production projected for the Northern parts of the country including Northern and Muchinga Provinces (Davis, C.L. 2011). Rivers may experience decreases in run-off and water availability affecting agriculture and hydropower systems. Damage or destruction of infrastructure Higher incidence of animal and crop diseases and new strains of diseases Unreliable and insufficient energy Loss of lives due to epidemics Loss of biodiversity Soil erosion	Adaptive capacity is low due to widespread poverty in the area. Social safety nets are not adequate to shield against harvest failures. High dependence on rain-fed agriculture. Low recognition of Climate change as a major threat to food security, water resources, productivity of natural resources, human health and land degradation. Lack of cooperation between farmers and research institutions. Little or no availability of finances to invest in the water sector. Technological and institutional barriers. Lack of information on local climate change characteristics. Low educational levels and risk awareness. Unknown effectiveness of conservation measures; concerns over property rights regarding land acquisition; governance challenges. Higher projected rainfall in the Northern Provinces increases risk of erosion on steeper slopes.	Adopt Watershed Development Approach with Sustainable Land Management practices. Train extension personnel on improved land-use practices and GIS to enhance capacity for sustainable land use management. Adopt water conservation measures and water conservation structures like hillside terracing, bunds and micro-basins, semi-circle terracing and trenches, infiltration pits, ponds and diversion ditches. Supplement water supply from other dams and wells. Improve on efficient water extraction and distribution methods to reduce wastage. Take advantage of the over-supply during flood periods by adopting new water harvesting techniques to accumulate sufficient levels of water to sustain dams through the dry seasons. Construct dykes to control the flow of flood water, and divert water for irrigation. Divert flood water to other uses by installing appropriate infrastructures. E.g. use saved water for irrigation and even hydro-power generation. Introduce drought-tolerant and fast-maturing crop varieties. Change timing of planting. Introduce adaptable local livestock breeds. Diversify livelihood activities, promote agro-forestry and plant trees along rivers. Develop early warning systems. Early warning systems and capacity building for health personnel. Introduce and advance weather index insurance. Use modern infrastructure construction techniques to ensure infrastructure is climate proof. Set up and maintain a strategic fund for the repair and maintenance of infrastructure damages and ensure an uninterrupted water distribution. Promote private sector investment or public-private partnerships for investments in the water sector. Diversify energy resources by developing climate resilient energy sources and introducing drought-tolerant, fast-growing bio-energy crops and high-yielding bio-fuel trees. Mapping and regular census of flora and fauna. Enhancing conservation measures considering the flora and fauna under high risk, e.g. migration corridors; expansion of conservation areas. Enhance capacity for natural adaptation and migration to changing climatic conditions. Reforestation, Cover cropping, Terracing and benching.

Table 2: Impacts of projected climate change on livestock production, adaptation measures and barriers to adaptation

	General Livestock Impacts	**Impacts as identified by local communities in Northern and Muchinga Provinces**	**Adaptation Barriers**
Direct Impacts	Changes in forage quality and quantity (including the availability of fodder crops) Changes in water quality and quantity Reduction in livestock productivity by increasingly exceeding the temperature thresholds above the thermal comfort zone of livestock, which could lead to behavioural and metabolic changes (including altering growth rate, reproduction and ultimately mortality) Increased prevalence of 'new animal diseases' Increases in temperature during the winter months could reduce the cold stress experienced by livestock, and warmer weather could reduce the energy requirements of feeding and the housing of animals in heated facilities	Drought related impacts: Crop damage/loss, leading to food scarcity and hunger. Water shortages. Reduced fish stocks in rivers. Income loss. Reduced charcoal business. Increase in diseases (e.g. diarrhea), affecting humans and animals. Decreased water quality. Increased soil erosion. Floods related impacts: Crop damage/loss, leading to food scarcity and hunger. Loss of crop land and grazing ground. Decline in fish catches. Increase in diseases (malaria, dysentery, cholera, etc.). Destruction of infrastructures (houses, roads). Life loss (humans and livestock). Extreme heat: Increase in diseases affecting animals, crops and humans (especially malaria). Decreased human capacity to do work. Loss of life (animals and humans). Crop damage/loss. Reduced fish stocks. Decreased livestock feed. Reduced water quality. Shorter Rainy Season: Decreased crop yields. Crop damage/loss. Decreased income from crop selling. Crop seeds do not reach maturity (which negatively affects the next crop generation). Reduced charcoal production and business.	Limited or no access to breeds more resilient to climate change. Low Capacity for Income diversification. Limited accessibility to markets. Limited or no accessibility to agricultural extension services. (e.g. to advice on earlier crop planting, crop diversification, conservation agriculture and crop intensification, growing drought resistant crops, using irrigation, using "zero grazing" for some animals). Limited knowledge and skills on mitigation and lack of irrigation opportunities
Indirect Impacts	Increased frequency of disturbances, such as wild fires Changes in biodiversity and vegetation structure	Standing crops and harvested/stored crops destruction by bush fires	Absence or limited community mechanisms to develop, implement and enforce community actions related to bush fires.

SOURCES: Modified after Davis, C.L. (2011)

Table 3: Other Risks Associated with Project Implementation and Measures of Risk Mitigation

Risk	Risk Mitigation Measure
Poor farmer Organization	This will be mitigated by the capacity building initiatives including training on livestock production, community mobilisation and sensitization
Incompetent contractors	Adequate training during the launch of the project will be taken and also use will be made of stringent evaluation methods to enforce quality and also monitoring and evaluation of the contract execution. Government has developed a capacity building programme and suitable legislation for local contractors in Zambia.
Inadequate MAL technical staff	The government has made an assurance that it will recruit and make available qualified and experienced field personnel. The EU supported project of enhancing the institutional capacity of the MAL in sector planning, programme implementation and monitoring and evaluation, will raise the quality of personnel. The project will also provide room for recruitment of key personnel.
Non-workable Institutional arrangements. The close link between the LISP and CRLMP could benefit from rationalized institutional arrangements, in terms of cost and efficiencies of operations. However, oversimplification of unified arrangements may lead to serious reductions in counter balances and checks to the extent that the "climate proofing" of LISP may not be realized to the extent desired.	This probability will be minimized by targeting an appropriate level of mix of personnel from the two projects within a single Project Implementing Unit.

A.7. Coordination with other relevant GEF financed initiatives: There have been a number of GEF financed projects in Zambia. Through the GEF Agency, United Nations Development Programme (UNDP), three projects related to livestock have been identified as, the Preparation of the National Adaptation Programme of Action (NAPA), Strengthening Climate Information and Early Warning Systems in Eastern and Southern Africa for Climate Resilient Development and Adaptation to Climate Change - Zambia and Adaptation to the effects of drought and climate change in Agro-ecological Zone 1 and 2 in Zambia. All these projects are in close coordination with the current project as they all were targeted at understanding the effects of climate change. The deliverables under this project have been derived from the NAPA as it is the reference point for countries to deal with adaptation to climate change. The second component of the project is the cornerstone towards achieving the capacity building objective of the current project by provision of adequate information and early identification of climatic risks and how they are interpreted as well as being understood by the end-users. In addition, the project being championed by one of the

development partners indicates the commitment to provide value-addition to already existing projects like the AU IBAR financed Smallholder Livestock Investment Project (SLIP).

The Livestock Development Programme that Government has embarked on is nationally coordinated with different Cooperating Partners funding different aspects or geographic zones. The government is funding some aspects from its own resources. The Agriculture Cooperating Partners Group (led by AfDB, EU and Finland comprising also of JICA, World Bank, FAO, WFP, IFAD, USAID, Sweden and Norway) has a sub-committee on livestock development to coordinate and dialogue with Government on livestock issues. The World Bank is covering Southern Central and Eastern provinces. IFAD is covering livestock disease control across the country. EU is providing institutional capacity building within the Ministry. AfDB is covering the northern regions of the country. The WB and AfDB projects are quite similar in design though WB has less infrastructure component.

The project will also benefit from the parallel implementation of the:

(i) Special Programme on Climate Resilience in the Kafue and Zambezi river basins (SPCR) where adaption measures will be piloted.

(ii) Strengthening Climate Resilience in the Kafue Sub-Basin (SCRIKA) which strengthens the capacity of communities to cope with floods and droughts thereby contributing to a population that is more resilient to climate change.

(iii) The Lake Tanganyika Regional Integrated Management Program (LTRIMP) which was designed to facilitate the implementation of the Convention on the Sustainable Management of Lake Tanganyika, Strategic Action Program (SAP) and Lake Tanganyika Framework Fisheries Management Plan (FFMP). The objectives of SAP are: (i) to achieve sustainable management of the natural resources of Lake Tanganyika through implementation of activities prioritized in the SAP and (ii) to improve livelihoods through physical and social infrastructure development.

B. Additional information not addressed at PIF stage:

B.1 Describe how the stakeholders will be engaged in project implementation.

The Project preparation Team from its inception has considered the CRLMP and the Baseline project (LISP) as community –based projects and that both beneficiaries and other stakeholders be part of project design, implementation and monitoring and evaluation. This entrenched position informed the large participation of farmers/associations (civil scocieties) to participate in the Inception Workshop were they constituted about 30% of the participants. Similarly, over 150 farmers (males, females, youth) were consulted during the preparation of the Project. The Project design has in-built mechanisms for continued participation of beneficiaries and other stakeholders in the project activities. Additional beneficiaries will be mobilized and engaged through livestock cooperatives. Among Government Ministries or departments to be engaged will be the Zambia Environment Management Authority (ZEMA) to ensure that all the infrastructure development under the CRLMP and LISP are environmental friendly. There is a possibility for ZEMA to

have a representative on the Project Steering Committee. Stakeholder participation in Project Governance will include the following processes:

- LISP/CRLMP Project Steering Committee as the first forum for stakeholders will involve stakeholders from the Provincial Development Coordination Committee (PDCC) and District Development Coordination Committee (DDCC).
- The LISP/CRLMP PIU will integrate a Climate Adaptation Expert hired with CRLMP funding.

The LISP and CRLMP accounts will be managed separately. The Accountants already appointed under the LISP will, in addition to managing LISP account, also manage the CRLMP account. As with the LISP, the MAL Chief Accountant and Procurement Officer will also facilitate implementation of the CRLMP.

The CRLMP monitoring and evaluation activities will be coordinated through the LISP M&E expert. To ensure the smooth implementation of M&E activities at the provincial level, the LISP provincial Focal Points will be assigned M&E duties over and above their provincial coordination duties. The Focal points will prepare and consolidate district quarterly reports to form the provincial quarterly reports for submission to the M&E Specialist. The M&E specialist will consolidate the provincial reports into a national report which will be submitted to the Ministry. At the district level, the Subject Matter Specialists (SMSs) - livestock technicians or livestock production extension officers - will be assigned M&E duties over and above their normal duties. The SMSs will be responsible for data collection and capturing at district level and for the production of district quarterly reports for submission to the provincial Focal Points.

Through the project Steering Committee, the GRZ, the Bank and GEF will review and approve the CRLMP's annual work plan and budget, at least 3 months before the beginning of the fiscal year. It is critical that the CRLMP's annual plan will be synchronized with the LISP's annual plan. As with the LISP, at the Provincial level, the responsibility for delivery rests with the existing institutional structures of MAL under coordination of the Provincial Agriculture Coordinator (PACO). The Provincial and District Offices have technical officers who will spearhead Project implementation. The PDCCs and DDCCs will supervise and monitor the project.

Sustainability: The CRLMP will follow the sustainability principles adopted for the LISP whereby the Bank adopted a participatory approach in identification and preparation of project. This is an important step towards ensuring the relevance of the investments made and the laying of an institutional capacity at the community level for the sustainability of the planned activities. The use of the Provincial and District decentralized implementation system will ensure full community participation guided by District authorities. The Project will put much emphasis on developing the capacity of beneficiaries and strengthening their institutions like interest groups and cooperatives. The beneficiaries will be mobilised, organised into viable self-reliant entities, trained and empowered to view their activities as business rather than subsistence activity. Gender

sensitisation training at the community and local administration levels will ensure that women continue to participate and benefit equally from all rural livestock development activities. Project sustainability will also be ensured by the proactive involvement of the beneficiaries, District/Provincial staff in participatory M&E of activities.

The Project beneficiaries will contribute towards the cost of acquiring livestock through the pass-on scheme which will show their commitment and cultivate sense of ownership. The skills training modules will include rangeland and livestock breeds management.

B.2 Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund/NPIF) or adaptation benefits (LDCF/SCCF):

The proposed project together with its baseline project, the LISP, are set in two provinces which have large proportions of the land area falling into the rural areas. As in other rural areas of Zambia, rural poverty is high in the two provinces - as high as 78 percent as of 2010. The poor population in the Muchinga and Northern Provinces are more vulnerable because of their high dependence on natural resources, and their limited capacity to cope with climate variability and extremes.

The implementation of the LISP and the CRLMP in the two provinces is to promote economic activity in the communities through profitable livestock farming and related activities. Due to the fact that some livestock activities are reserved for specific gender/and or age groups in the households, and even at community level, and also by reason of differences in intra-household decission making privileges, men, women and youth may be impacted differently by project activities and outcomes. In order for the Project benefits to equitably reach the various socio-economic, gender and age groups across the communities, a broad knowledge of the demography, agricultural and off-farm livelihood options available to social and gender/age groups and the understanding of the vulnerability of these groups to natural events such as drought and floods must be assured. As part of the preparation of the Project proposal, demographic data for the project areas were sought. Among key data are: From the total projected population of 2,199,493 in 2015, women in Northern and Muchinga Provinces account for 50.6 % of the population while men account for 49.4 %. The two Provinces together accounted for a total number of 296,014 agricultural households in 2010. Women headed households account for a significant 19.8% of the agricultural households whislt male headed households account for 80.2% of the households. According to the Central Statistical Office, 67.85% out of Muchinga's total population of 895,085 in 2015, are under 25 years old. For the Northern Province with a higher total population of 1,304,435 this number stands at a dramatic 68.44% (CSO, 2013).

Thus, given the overall high poverty levels in rural Zambia, it can be deduced that women and youth constitute a vast majority of the poor people in the Northern and Muchinga Provinces. As stated earlier both women and men in rural

areas are especially vulnerable when they are highly dependent on local natural resources for their livelihoods. However, those charged with the responsibility to secure water, food and fuel for cooking and heating (mainly women and youth such as found in the project areas), face greater challenges. When coupled with unequal access to resources and to decision-making processes, and limited mobility, women in rural areas are disproportionately affected by climate change as it affects water availability, agricultural and livestock productivity, and access to forest products such as fire wood. Similarly the youth are considered as a high vulnerable group. As heads or members of young households, youth are disadvantaged in ownership of assets – at their age, they have not accumulated much in liquid or fixed assets. Without much formal education, they also have difficulties finding reliable employment. Since in rural areas, such as where the project activities will take place, agriculture is the main form of employment the youth are at more risk when agricultural production is affected by vagaries of weather.

The LISP (baseline project to CRLMP) interventions cover a range of livestock and livestock-related infrastructure, including feeder roads, crushes and dip tanks, marketing facilities, abattoirs, milk collection facilities. The project is designed to improve livestock production and productivity and to link these activities to markets. The implementation of the CRLMP is to ensure that the infrastructure is durable to impacts of climate change and variability and to build capacities of livestock farmers to adapt to negative impacts of climate change. It is expected that the well being of livestock producers and their families will be improved through increased livestock production/productivity, increased incomes from sales of live animals and products and better nutrition through increased consumption of livestock products.

The implementation of the CRLMP, alongside the baseline project, LISP, is expected to increase the per cent of households owning livestock in the target Districts in the two project Provinces, as a result of the "pass on scheme" and livestock restocking. Furthermore, the mean household per capita livestock incomes from selected species targeted under the project, namely cattle, goats, sheep, pigs and chicken are expected to increase. For example, in the Northern Province the baseline of ZK 264,300 household per capita cattle income (*Zambia 2012 Post-harvest Report*) is expected to improve by at least 40% or to ZK 370,000 by the end of Project (5 years) as a result of improvement in feed resources from pastures, rangelands, and supplementary feeding from improved quality crop residues, and from improved veterinary care and services. These improvements in general livestock husbandry are expected to positively impact on calving rates, milk yields and body weight gains in dams and calves. For the livestock species that are often owned in greater frequency by women, namely, goats and chicken, the gains in household per capita incomes are expected to be even higher due to higher offtake rates in these species. For example, for goats an average of 60% improvement in household per capita is expected on the baseline of ZK 45,238 to ZK 72,380. Improved access to livestock markets made possible by LISP markets and road infrastructure are expected to reduce marketing costs of livestock products, and hence increase profit margins of livestock farmers. These expected increases in the incomes from livestock as a result of projects implementation would be expected to result in improvement in the purchase power of mixed crop-livestock farmers and empower them to invest more in other aspects of agriculture, which should lead to increases in the percentage of food-secure households. Women in reproductive phases (pregnancy, lactation, nursing) and children are particularly expected

to gain more from improved household food and nutrition security, as low caloric intake rates are often present in these groups

It is also expected that the agricultural and livestock production base (farms, rangelands, etc.) will be improved through project activities such as sowing of improved pastures, planting of leguminous multi-purpose trees and better management of communally–owned resources. The potential of improving the socio-economic status of people living in the communities where the project will be implemented was deemed quite high during visits to seven of such communities during the preparation of the project, where a wide range of activities related to livestock were being undertaken by men, women and the youth who expressed interest in capacity building (training and mentoring) as a means to improve productivity, processing and marketing, and ultimately earning of higher farm and off-farm incomes. The challenge is how to design an inclusive CRLMP that will ensure that the interests of women, youth and men are equitably addressed in the project implementation such that project benefits are fairly distributed during and after the project.

At the farm household level, the Livestock restocking and "pass-on" scheme in Component 1 and the Capacity building in Component 2 are particularly placed to benefit women and youth, through skills development, income generation, assured livelihoods, asset building, and improved nutrition. The implementation of CRLMP will assure the sustainability and durability of these benefits.

At the community and District levels, the anticipated benefits are expected to be felt beyond the local and/or district areas as the entire provinces and the nation stand to benefit from quality livestock products, and possible reduction in prices of these commodities arising from increased in production efficiencies. Improved feeder road systems and market access are likely to add increased availability of products to urban dwellers in the target provinces and beyond.

At the national level improved farming practices to be promoted under the project are expected to reduce GHG production through proper feeding of livestock, proper handling and use of manure, planting of perenial crops and pastures and cover crops that protect soil surfaces, and hence reduce emissions. In a recent modelling study by the Livestock Information, Sector Analysis and Policy Branch (AGAL) of the FAO a short list of relevant mitigation options were identified for the livestock production systems in Zambia and three mitigations packages were designed based on their anticipated impacts on emissions and productivity:

- ✓ Improve feeding practices and grassland management: crop residues processing + increased legumes in pastures + improved grazing management,
- ✓ Improve health & reproduction management (fertility and mortality rates), and
- ✓ Improve manure management: recovery of nutrients and energy through anaerobic digestion (biogas).

Results of the modeling confirm that there is a potential for both livestock production growth and mitigation of climate change in Zambia (FAO-AGAL, 2014). The study concludes that with feasible improvements in forage digestibility, animal health and reproduction management, carbon sequestration and manure management, emissions from livestock in

Zambia can potentially be reduced by 32% to 38% of the total annual baseline emissions. Thus, these improved food production and attendant food security, as well improved environment will not be experienced not only at the project districts/provinces but the country as a whole and even adjoining districts in other countries bordering Zambia.

B.3. Explain how cost-effectiveness is reflected in the project design:

Executing and Implementing Agencies: At the Inception Workshop where the design of the Project was further discussed beyond what was in the PIF, three Options for Project management were considered, and the pro and cons (including) costs of implementation were considered. Option 1 was the management of CRLMP independent of LISP (a format in the PIF), Option 2 was to have certain management components be common for CRLMP and LISP, but with two Coordinators , and Option 3, which sought to have only one or two disciplinary specialist recruited to serve the two Projects under one management unit. The projected cost structure was highest for Option 1, then Option 2 , with lowest cost for Option 3. However, It was proposed by the AfDB that based on its experience elsewhere with similar "twined" projects the CRLMP will be implemented under the existing LISP Project Implementation Unit (PIU). This means the project will be implemented using the existing LISP Steering & Technical Committees and MAL structures. A Climate Change Specialist will be an additional member to the PIU. The Climate Change Specialist will be a national expert appointed competitively and will be based in Kasama District with the rest of the PIU. This proposal is based on the following reasoning:

- ✓ Establishing a separate PIU for the CRLMP will be costly in terms of salaries for experts and support staff; establishing a separate project steering committee, and a separate technical committee; establishing separate office space; and procurement of a completely new set of project resources like vehicles, furniture, computers, and the like.
- ✓ Having the two projects run by different management may stifle implementation of both projects especially at community level as this may result in community fatigue as the projects will be talking to similar if not the same issues. Implementation problems might also arise if the Project Managers do not agree on the implementation approach taken by the other. Thus implementation efficiency will be compromised.
- ✓ The requirement that the Climate Change Adaptation Specialist be a national expert would be expected to reduce staff cost to be charged to the M&E component (Component 3) which budget is considered too low, and for which no co-funding amount has been indicated in the PIF.

The above named cost-saving approaches in favour of those initially identified but later on rejected as being either more expensive or impratical or non-workable. Among those initially proposed and rejected are:

- ✓ A full fedged independent project management structure for CRLMP was rejected on the basis of cost and also for the reasons adduced above.
- ✓ The alternative to recruit an international Climate Change Adaptation Specialist was rejected in favour of a national Expert on the consideration of cost.

C. DESCRIBE THE BUDGETED M&E PLAN:

For the CRLMP, a results-based monitoring and evaluation (M&E) will be implemented. Most of the M&E will be done through the MAL system and the experts in the AfDB's country office. Involving the project team will also serve the purpose of raising awareness of the need for vulnerability reduction and adaptation and improve the likelihood of post-project sustainability and follow-up. One outcome of this M&E will be knowledge management to ensure that lessons learned from the project's implementation are available for application to other adaptation projects such as the Special Programme on Climate Resilience in the Kafue Basin that the Bank is developing with the Government.

Monitoring and Evaluation: M&E will be done to improve the programme implementation and impact. M&E will entail monitoring the project activities, outputs, outcomes, and the performance of implementing agencies against the specified targets, reviewing progress and constraints, and using the information for improved project management towards achieving the project goals and objectives. The result based framework will provide the basis for monitoring and evaluation. Monitoring of the Project activities will be done at community (beneficiary), District, Provincial and PIU levels. The M&E milestones are presented in Table 4.

Table 4: M&E Milestones Over the Five Year Implementation Period

Year and Quarter	**Activity**	**Responsible Person(s) and/or Unit(s)**
Year 1, 1st Quarter	M&E Unit in Place	Project Coordinator
Year 1, 1st Quarter	Year 1 AWPB	Project Coordinator, M&E Specialist
Year 1, 1st Quarter	Quarterly review Meeting	PIU
Year 1, 2nd Quarter	Project MIS	M&E Specialist and Short Term Consultant
Year 1, 2nd Quarter	Strategic Review Meeting	PIU
Year 1, 2nd Quarter	AfDB / GEF Mission	PIU
Year 1, 3rd Quarter	Project Baseline Study	M&E Specialist, Communities, Districts, Provinces, Short Term Consultant
Year 1, 3rd Quarter	Quarterly review Meeting	PIU
Year 1, 3rd Quarter	Year 2 AWPB	Project Coordinator, M&E Specialist
Year 1, 3rd Quarter	Steering Committee Meeting	PIU
Year 1, 4th Quarter	Quarterly review Meeting	PIU
Year 1, 4th Quarter	AfDB / GEF Mission	PIU
Year 2, 1st Quarter	Annual Report	M&E Specialist
Year 2, 1st Quarter	Quarterly review Meeting	PIU
Year 2, 2nd Quarter	Strategic Review Meeting	Project Coordinator, M&E Specialist
Year 2, 2nd Quarter	AfDB / GEF Mission	PIU
Year 2, 3rd Quarter	Quarterly review Meeting	PIU
Year 2, 3rd Quarter	Year 3 AWPB	Project Coordinator, M&E Specialist
Year 2, 3rd Quarter	Steering Committee Meeting	PIU
Year 2, 4th Quarter	Quarterly review Meeting	PIU
Year 2, 4th Quarter	AfDB / GEF Mission	PIU
Year 3, 1st Quarter	Annual Report	M&E Specialist
Year 3, 1st Quarter	Quarterly review Meeting	PIU
Year 3, 2nd Quarter	Strategic Review Meeting	PIU
Year 3, 2nd Quarter	AfDB / GEF Mission	PIU

Year and Quarter	Activity	Responsible Person(s) and/or Unit(s)
Year 3, 3rd Quarter	Quarterly review Meeting	PIU
Year 3, 3rd Quarter	Year 4 AWPB	Project Coordinator, M&E Specialist
Year 3, 3rd Quarter	Mid-term review	M&E Specialist, Communities, Districts, Provinces, Short Term Consultant
Year 3, 3rd Quarter	Steering Committee Meeting	PIU
Year 3, 4th Quarter	Quarterly review Meeting	PIU
Year 3, 4th Quarter	AfDB / GEF Mission	PIU
Year 4, 1st Quarter	Annual Report	M&E Specialist
Year 4, 1st Quarter	Quarterly review Meeting	PIU
Year 4, 2nd Quarter	Strategic Review Meeting	PIU
Year 4, 2nd Quarter	AfDB / GEF Mission	PIU
Year 4, 3rd Quarter	Quarterly review Meeting	PIU
Year 4, 3rd Quarter	Year 5 AWPB	Project Coordinator, M&E Specialist
Year 4, 3rd Quarter	Steering Committee Meeting	PIU
Year 4, 4th Quarter	Quarterly review Meeting	PIU
Year 4, 4th Quarter	AfDB / GEF Mission	PIU
Year 5, 1st Quarter	Annual Report	M&E Specialist
Year 5, 1st Quarter	Quarterly review Meeting	PIU
Year 5, 2nd Quarter	Beneficiary Impact Assessment	M&E Specialist, Communities, Districts, Provinces, Short Term Consultant
Year 5, 2nd Quarter	Strategic Review Meeting	PIU
Year 5, 2nd Quarter	AfDB / GEF Mission	PIU
Year 5, 3rd Quarter	Quarterly review Meeting	PIU
Year 5, 3rd Quarter	Project Completion Review	M&E Specialist, Communities, Districts, Provinces, Short Term Consultant
Year 5, 3rd Quarter	Steering Committee Meeting	PIU
Year 5, 4th Quarter	Quarterly review Meeting	PIU
Year 5, 4th Quarter	AfDB / GEF Mission	PIU
Years 2 to 5 1st Quarter	Progress and Financial Audit Reports	PIU, Auditor General / External Audit Firm (Annually)

Monitoring: Monitoring will be an important project management tool for the CRLMP. Monitoring will focus on the two lower levels of the results framework i.e. output and activity levels under each component which are the basis of the work plans and budgeting. The activity and output indicators will form the basis for routine data collection (i.e. monthly or quarterly) for the project. To capture financial progress, the monitoring of financial progress will be done by compiling accurate monthly summary information of management on expenditure per component, category, disbursement/contribution and status of accounts (balances) and review of use of programme facilities, allowances and other services. The project will be reporting on a quarterly basis. The annual reporting calendar for the project is presented in Table 5.

Evaluation: CRLMP evaluation will involve examining the changes brought about by programme interventions and their significance in relation to achieving the programme objective. It will also involve assessing the efficiency (cost effectiveness), relevance (relevance of objective to priority needs and efforts), and programme impact. Based on the various evaluation activities, conclusions will be drawn about implementation progress, capacity, and efficiency in terms of the use of project resources.

Table 5: Annual Reporting Calendar Roles and Responsibilities

Type of report	**Responsibility**	**Deadline for submission**	**Submitted to**
1st district quarterly report	SMS	8th April	PFP
1st consolidated provincial quarterly report	PFP	15th April	M&E Specialist
1st quarterly report	M&E Specialist	30th April	Project Coordinator / National / AfDB
2nd district quarterly report	SMS	8th July	PFP
2nd consolidated provincial quarterly report	PFP	15th July	M&E Specialist
2nd quarterly report	M&E Specialist	30th July	Project Coordinator / National / AfDB
3rd district quarterly report	SMS	8th October	PFP
3rd consolidated provincial quarterly report	PFP	15th October	M&E Specialist
3rd quarterly report	M&E Specialist	30th October	Project Coordinator / National / AfDB
Annual district report	SMS	8th January	PFP
Annual consolidated provincial report	PFP	15th January	M&E Specialist
Annual report	M&E Specialist	30th January	Project Coordinator / National / AfDB

SMS – Subject Matter Specialist **PFP** – Provincial Focal Point

The CRLMP evaluation will mainly focus on the impact and outcome level indicators of the project results based framework. The project evaluation will require carrying out a **baseline survey** in Year 1 to establish the initial project situation, **mid-term evaluation** in Year 3, and an **end of project beneficiary impact assessment** in Year 5. In order to establish the "with" and "without" project scenarios to rigorously estimate the impact of the LISP / CRLMP intervention, evaluation data collection will be extended to include those districts in Muchinga and Northern provinces where the LISP and CRLMP interventions will not occur. A draft questionnaire for baseline, mid-term, and end of project household survey data collection is presented in the attached Appendix 1. In addition to the indicated standard periodic evaluations, the project will conduct annual performance evaluations which will form the basis for annual planning and budgeting.

The M&E Specialist will facilitate the incorporation of the CRLMP M&E data into the established LISP Management Information System (MIS), during PY1. MIS will include the participatory monitoring and evaluation, data collection techniques, analysis and reporting tools. A short term consultancy will provide periodic backstopping to build a computerized web-based MIS that will be operational at district level and will be able to aggregate data from Household

level to the National level. The project MIS will be interfaced with the project financial and procurement systems to ensure ease of reporting on both financial and physical progress.

The Project will provide funds for the development of the project M&E system ($46 656), conducting of the project baseline survey ($98 496), mid-term review ($108 864), beneficiary impact assessment ($120 269), project completion review ($31 622), and annual financial audits ($54 500 over the 5 years). The project will have milestones over the five-year implementation period. The M&E of CRLMP activities, including implementation progress and expenditure will be an integral part of the Executing Agency, as a regular management function through the PIU's M&E Specialist. The PIU will submit to the Bank & GEF, on a quarterly and annual basis, progress reports, annual work plans and budgets, and annual procurement plans using the Bank's & GEF format. The quarterly progress report will be submitted to the Bank & GEF within two months after the end of the reporting period, whilst the annual progress report will be submitted within three months after the end of reporting period.

The Bank & GEF will closely monitor the implementation of the Project through regular follow-up, review and Supervision Missions. The Supervision Missions will be undertaken at least twice a year, and will include, at least once a year, a climate change specialist and an M&E expert knowledgeable in climate change issues. These Missions will verify implementation progress and give guidance to the project to ensure that project results are achieved and reported on.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT(S) ON BEHALF OF THE GOVERNMENT(S):): (Please attach the Operational Focal Point endorsement letter(s) with this form. For SGP, use this OFP endorsement letter).

NAME	POSITION	MINISTRY	DATE *(MM/dd/yyyy)*

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for CEO endorsement/approval of project.

Agency Coordinator, Agency Name	**Signature**	**Date *(Month, day, year)***	**Project Contact Person**	**Telephone**	**Email Address**

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Expected results	**Indicators (indicative)**	**Baseline**	**Targets**	**Data sources and collection methods**	**Frequency**	**Responsibility**	**Assumptions**
IMPACTS (Strategic Level)							
Overall Objective: Strengthen the adaptive capacity of Zambian livestock farmers to the impacts of Climate Change	Percentage of food-secure households Mean household livelihood index (based on HH income (agric. & off-farm), HH assets, HH access to natural assets	45 (*)	80 80	Household survey	Baseline Mid-term End of investment	Independent Service Provider	Economic and political stability in Zambia and neighboring countries to the project area
	Mean household per capita agriculture income (from crop and livestock production) ($)	344	750	Household survey	Baseline Mid-term End of investment	Independent Service Provider	Absence of natural disasters (floods, drought, etc.) and/or climate change with no catastrophic impacts on habitats, livestock
	Mean household per capita livestock income ($)	115	365	Household survey	Baseline Mid-term End of investment	Independent Service Provider	No major pandemic during the project life.
	% household income derived from livestock production	33	50	Household survey	Baseline Mid-term End of investment	Independent Service Provider	Macroeconomic environment remains conducive to investment, private sector development, and trade
	Percentage of households with year-round access to adequate water (quality and quantity for livestock watering) minimum Distance to water source for livestock (Km)	48	90	Household survey	Baseline Mid-term End of investment	Independent Service Provider	
	Livestock disease incidences (% of livestock population) Emerging diseases which were not there before (Diseases appearing in non-endemic areas)	0	0	Vet livestock records Household survey	Quarterly Baseline Mid-term End of investment	Vet Services Independent Service Provider	
	% farmers with access to markets for livestock and livestock products	(*)	90			Independent Service Provider	
	Mean number of livestock by type:						

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Expected results	**Indicators (indicative)**	**Baseline**	**Targets**	**Data sources and collection methods**	**Frequency**	**Responsibility**	**Assumptions**
	Cattle Sheep Goats Chickens	17.2 5.3 8.6 28.5	30 10 20 50				
	% Change in GHG emissions due to livestock activities (estimated)	0	95				
OUTCOMES							
Component 1: Livestock infrastructure development and increasing adaptive capacity of livestock farmers							
Outcome 1.1: Livestock farmers able to cope with climate change through adoption of improved practices that enhance livelihoods	Number (percent) households affected by climate related disasters	(*)	0%	Household survey	Annually[§] Baseline Mid-term End of investment	Independent Service Provider	Direct measure of impact. The results will depend on whether and when extreme climate events occur. An indicator over the long-term
	Number (percentage) of households adopting a wider variety of livelihood strategies	(*)	75	Household survey	Baseline Mid-term End of investment	Independent Service Provider	
	Improved livestock performance: **Cattle** ✓ Calving rate (%) ✓ Calving interval (days) ✓ Calf mortality rate (%) ✓ Adult cattle mortality rate (%) ✓ Lactation milk yield (Litres / year per cow) ✓ Lactation length per cow (days) ✓ Age at first calving (months) ✓ Weaning rate (%) ✓ Cattle off-take (%) **Small stock** ✓ Fertility rate (%) ✓ Kidding rate (%) ✓ Off-take rates (%) ✓ Weaning rate (%)	 56.4 650 16.7 2.95 2122 248 (*) 35 7.5 75 94.0 15 (*)	 77.6 403 5.2 3 4650 301 25 75 15 87.6 105 30 52.3	Household survey	Baseline Mid-term End of investment	Independent Service Provider	Effective participation of livestock breeders and multipliers in the breeding programme Coordination and measures taken to limit natural or artificial crossbreeding between indigenous and exotic breeds

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Expected results	**Indicators (indicative)**	**Baseline**	**Targets**	**Data sources and collection methods**	**Frequency**	**Responsibility**	**Assumptions**
	✓ Dressing percentage	(*)	41.8				
Outcome 1.2: Resilience of natural resources to climate change enhanced	Economic losses through management (establishment, maintenance, etc.) of climate resilient natural assets ($US)	0	0	Household survey	Baseline Mid-term End of investment	Independent Service Provider	Appropriate benefits / loss valuation methodologies are available & adopted
Outcome 1.3: Increased resilience of infrastructure to climate change threats	Percent LISP infrastructure made climate resilient to rapid-onset events (i.e. floods & storm surges, heat-waves)	0%	100%	Replacement cost of infrastructure estimated to have been saved from weather events (weather intensity factored in)	Quarterly	M&E Unit	
Outcome 1.4: Reduced GHG emissions from LISP infrastructure	Percent of LISP infrastructure with GHG emission reduction technology	0%	100%	Quarterly progress reports	Quarterly	M&E Unit	
Component 2: Capacity Building on climate change Adaptation for stakeholders							
Outcome 2.1: - Increased knowledge and risk preparedness and adaptive capacity to climate variability at country and targeted community levels	**P**ercent households who are aware of climate change issues	(*)	90%	Scorecards to measure climate information generation, analysis and communication	Quarterly	M&E Unit	Competence of service providers to provide adequate capacity building Effective participation and adherence of livestock farmers
Outcome 2.2 - Diversification and strengthened livelihoods and source of incomes for rural population (artisan and livestock farmers)	Number (percentage) of households adopting climate change resilient livestock management practices / technologies Number (percentage) of households adopting climate change resilient crop husbandry practices	(*) (*)	90% 90%	Household survey and survey of managers of emergency response agencies with data disaggregated by sex.	Routine Baseline Mid-term End of investment	M&E Unit Independent Service Provider	The policies of local and national extension services in charge of livestock production promote the sustainable preservation indigenous livestock breeds
Component 3:- Knowledge, Monitoring and Evaluation							
Outcome 3.1: - M&E management and lessons learnt are captured and appropriately disseminated	Percent actual/budgeted expenditure achieved No. of unqualified PIU audit reports	0 0	100 5	Supervision missions reports Project MTR reports Project audit reports Project completion report		PIU	Adequate resources provided for M&E activities M & E / MIS set-up and used for decision making
OUTPUTS							
1.1.1 - Livestock farmers acquire breeds resilient to climate change	Number of climate resilient livestock units procured and distributed	0	3 450	Quarterly progress reports	Quarterly	M&E Unit	There are enough budgetary allocations and human resources to

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Expected results	**Indicators (indicative)**	**Baseline**	**Targets**	**Data sources and collection methods**	**Frequency**	**Responsibility**	**Assumptions**
							implement project activities
1.1.2 - Livestock farmers set up sustainable livestock pastures, fodder banks, rangeland and water harvesting systems	Number of village land use plans established Area under sustainable livestock pastures, fodder banks, and rangeland Kilometers of fire breaks constructed around rangelands Number of livestock water sources improved or developed	0 0 0 0	270 2 250 600 292	Quarterly progress reports	Quarterly	M&E Unit	
1.1.3 - Effective practices developed for the community to manage indigenous livestock	Number of best practices identified and documented for the community to manage indigenous livestock	0	-	Quarterly progress reports	Quarterly	M&E Unit	
1.1.4 – Operational livestock index-based insurance scheme	Operational livestock index-based insurance scheme in place	0	1	Quarterly progress reports	Quarterly	M&E Unit	
1.1.5 – Operational Livestock Early Warning Information System	Operational Livestock Early Warning Information System in place	0	1	Quarterly progress reports	Quarterly	M&E Unit	
1.2.1 Restoration of degraded pasture and increased vegetation cover with different drought tolerant perennials	Rangeland area (ha) under improved interventions (e.g. drought tolerant annual and perennial species)	0	4500	Quarterly progress reports	Quarterly	M&E Unit	
1.3.1 – Climate resilient infrastructure designs in place	Number of infrastructure designs improved to be climate resilience	0	11	Quarterly progress reports	Quarterly	M&E Unit	
1.3.2 – Climate resilient infrastructure constructed and maintained	Number of climate resilient infrastructure constructed Number of climate resilient infrastructure maintained	0 0	217 217	Quarterly progress reports	Quarterly	M&E Unit	
1.4.1 – LISP infrastructure designs for reduced GHG emissions in place	Number of LISP infrastructure designs improved to reduce GHG emissions	0	11	Quarterly progress reports	Quarterly	M&E Unit	
1.4.2 - LISP infrastructure fitted or constructed with GHG emissions reduction technologies	Number of LISP infrastructure designs constructed with GHG emissions reduction technologies	0	11	Quarterly progress reports	Quarterly	M&E Unit	
2.1.1 - Country: Technical staff of Government trained in climate risk assessment and adaptation skills for livestock farmers	Number of staff trained on climate risk assessment and adaptation skills for livestock farmers	0	160	Quarterly progress reports	Quarterly	M&E Unit	Competence of service providers to provide adequate capacity building
2.1.2 - Community level: Training artisans in manufacturing livestock-related material as a source of income diversification	Number of beneficiary cooperative members trained on manufacturing livestock-related material as a source of income diversification	0	80	Quarterly progress reports	Quarterly	M&E Unit	
2.2.1 - Livestock farmers (30% F) equipped with skills for livestock feed conservation for dry season and implement other adaptation measures autonomously	Number of livestock farmers equipped with skills of feed conservation for dry season	0	180	Quarterly progress reports	Quarterly	M&E Unit	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Expected results	**Indicators (indicative)**	**Baseline**	**Targets**	**Data sources and collection methods**	**Frequency**	**Responsibility**	**Assumptions**
2.2.2 – Strengthened adaptive capacity for sustainable land use management	Number of village committee members with capacity developed for sustainable land use management	0	180	Quarterly progress reports	Quarterly	M&E Unit	
2.2.3 – Technical and business capacity developed for construction of biogas plants for livestock farmers	Number of farmers trained on the technical and business capacity for construction of biogas plants	0	180	Quarterly progress reports	Quarterly	M&E Unit	
3.1 – Compile Knowledge adaptation products	Number of knowledge adaptation products compiled (e.g. videos, fact sheets, projects reports, training materials, books, ...)	0	5	Quarterly progress reports	Quarterly	M&E Unit	Efficient and capable PCU staff recruited
3.2 - Participate in adaptation practitioners events	Number of adaptation practitioners events attended	0	30	Quarterly progress reports	Quarterly	PIU	Transparent criteria developed and applied
3.3 – Produce Monitoring and Evaluation reports	No. of AWPB, Progress and Financial Reports submitted timely by PIU	0	29	Quarterly progress reports	Quarterly	M&E Unit	Procurement undertaken in a transparent and competent way
TASKS / ACTIVITIES							
1.1.1.1 Recruit fund manager	Fund manager identified	0	1	Quarterly progress reports	Quarterly	M&E Unit	There are enough budgetary allocations and human resources to implement project activities
1.1.1.2 Identify target villages & beneficiary households per project area (district)	Number of project target villages identified	0	-	Quarterly progress reports	Quarterly	M&E Unit	
1.1.1.3 Procure & distribute livestock	Operational co-financing mechanism in place	-	-	Quarterly progress reports	Quarterly	M&E Unit	
1.1.2.1 Establish land use plans at village level using participatory GIS	Number of reports of community meetings to establish and implement village land use plans	0	16	Quarterly progress reports	Quarterly	M&E Unit	
1.1.2.2 Planting of fodder & fruit trees (e.g. guava, mulberry) around homesteads, planting of fodder trees along the riverines				Quarterly progress reports	Quarterly	M&E Unit	
1.1.2.3 Construction of fire breaks around rangelands				Quarterly progress reports	Quarterly	M&E Unit	
1.1.2.4 Lining of shallow water wells where necessary **1.1.2.5** Construct weirs, and small dams/reservoirs as livestock watering points **1.1.2.6** Construct communal boreholes and wells for watering livestock	Number of reports of community meetings to improve and establish livestock water sources	0	16	Quarterly progress reports	Quarterly	M&E Unit	
1.1.2.7 Promote appropriate / sustainable water harvesting at household level (e.g. roof catchment water harvesting and storing in tanks)	Number of households hosting demo technologies for water harvesting	0	365	Quarterly progress reports	Quarterly	M&E Unit	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Expected results	**Indicators (indicative)**	**Baseline**	**Targets**	**Data sources and collection methods**	**Frequency**	**Responsibility**	**Assumptions**
1.1.4.1 Identify institutions to provide index-based insurance	**I**nstitutions to provide index-based insurance identified	0	2	Quarterly progress reports	Quarterly	M&E Unit	
1.1.5.1 Establish automatic weather stations in the project area. Have a minimum threshold number of stations by Meteorological Dept.	Number of automatic weather stations established	0	9	Quarterly progress reports	Quarterly	M&E Unit	
1.2.1.2 Carry out rangeland improvement interventions/strategies (eg. Planting of drought tolerant annual and perennial species)	Number of reports of community meetings on rangeland interventions (e.g. planting drought tolerant annual and perennial species)	0	16	Quarterly progress reports	Quarterly	M&E Unit	
1.3.1.1 Review and modify LISP infrastructure designs	LISP infrastructure designs reviewed and modified for climate resilience	-	-	Quarterly progress reports	Quarterly	M&E Unit	
1.3.2.1 Review and realign the locations of LISP infrastructure	**Number of** LISP infrastructure correctly sited / located	-	-	Quarterly progress reports	Quarterly	M&E Unit	
1.3.2.2 Establishment and construction of climate resilient interventions around infrastructure (e.g. Contour ridging and vertiva grass promotion)	Number of LISP infrastructure sites with climate resilient interventions around infrastructure (e.g. Contour ridging and vertiva grass promotion)	0	217	Quarterly progress reports	Quarterly	M&E Unit	
1.4.1.1 Review and modify LISP infrastructure designs to reduce GHG emissions	LISP infrastructure designs reviewed and modified to reduce GHG emissions	-	-	Quarterly progress reports	Quarterly	M&E Unit	
1.4.2.1 Construct demo bio-digesters at slaughter houses and holding centers	**Number of** demo bio-digesters at slaughter houses and holding centers	0	180	Quarterly progress reports	Quarterly	M&E Unit	
2.1.2.7 Link livestock farmers with index-based livestock insurance providers	**Number of** livestock farmers linked with index-based livestock insurance providers	0	10 750	Quarterly progress reports	Quarterly	M&E Unit	
1.1.4.2 Create awareness among livestock keepers on the importance of insuring livestock	Number of awareness campaigns conducted	0	99	Quarterly progress reports	Quarterly	M&E Unit	
1.1.5.2 Create awareness to register for weather reports through cell phones **2.1.2.4** Conduct climate change awareness campaigns (community meetings, radio, TV) **2.1.2.6** Create awareness among livestock farmers of existence of index-based livestock insurance providers **2.1.3.8** Create awareness among livestock farmers of existence of early warning systems and how to access it	Number of beneficiaries reached during awareness campaigns	0	139 750	Quarterly progress reports	Quarterly	M&E Unit	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Expected results	**Indicators (indicative)**	**Baseline**	**Targets**	**Data sources and collection methods**	**Frequency**	**Responsibility**	**Assumptions**
2.2.1.1 Sensitization of livestock farmers on how to work as cooperatives to adapt and mitigate for climate change **2.2.3.2** Community campaigns to sensitize livestock farmers in sustainable land use management **2.2.4.2** Create awareness on how to utilize bio-gas safely							
1.1.1.5 Training of extension officers on GIS to evaluate / assess carrying capacities	Number of staff training workshops conducted	0	8	Quarterly progress reports	Quarterly	M&E Unit	
1.1.3.3 Train extension personnel and farmers on breed management **2.1.1.2** Training of government technical staff on climate risk assessment and adaptation skills for livestock farmers	Number of staff training reports	0	8	Quarterly progress reports	Quarterly	M&E Unit	
1.1.3.3 Train extension personnel and farmers on breed management	Number of beneficiary training workshops conducted	0	47	Quarterly progress reports	Quarterly	M&E Unit	
2.1.2.2 Training of artisans in manufacturing livestock-related materials as a source of income diversification **2.2.1.2** Training farmers on the importance of diversified production, use of manure, conservation farming **2.2.2.2** Farmer training on feed and fodder production and conservation **2.2.3.3** Training farmers on sustainable land use management **2.2.4.1** Training farmers on the construction and maintenance of bio-gas digesters	Number of beneficiary training reports	0	47	Quarterly progress reports	Quarterly	M&E Unit	
1.1.3.4 Exchange visits for livestock farmers (in farmer groups)	Number of beneficiary exchange visits conducted	0	20	Quarterly progress reports	Quarterly	M&E Unit	
2.1.2.5 Exchange visits to affected communities	Number of beneficiaries participating in exchange visits	0	400	Quarterly progress reports	Quarterly	M&E Unit	
1.1.3.2 Develop breed management manual for farmers and extension workers in local language **2.1.1.1** Prepare training materials for government technical staff on climate risk	Number of training modules prepared	0	6	Quarterly progress reports	Quarterly	M&E Unit	

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Expected results	**Indicators (indicative)**	**Baseline**	**Targets**	**Data sources and collection methods**	**Frequency**	**Responsibility**	**Assumptions**
assessment and adaptation skills for livestock farmers **2.1.2.1** Prepare training materials for artisans in manufacturing livestock-related materials as a source of income diversification **2.2.2.1** Prepare training materials for feed and fodder production and conservation **2.1.2.3** Development of evidence-based sensitization materials on climate risks **2.2.3.1** Prepare training materials for sustainable agriculture land use management							
1.1.1.4 Conduct livestock breed characterization study in the project provinces **1.1.3.1** Survey of best practices to manage indigenous breeds **1.1.4.3** Assess models for climate/weather index-based livestock insurance and adapt for Zambia **1.2.1.1** Characterization of the rangelands	Number of studies conducted (apart from baseline, mid-term, and beneficiary impact assessment studies)	0	5	Quarterly progress reports	Quarterly	M&E Unit	
2.1.1.3 Facilitate workshop(s) for experts and experts on index-based insurance provision	Number of technical meetings conducted	0	6	Quarterly progress reports	Quarterly	M&E Unit	
2.1.1.4 Facilitate workshop(s) for experts and stakeholders in early warning systems	Number of participants attending technical meetings	0	120	Quarterly progress reports	Quarterly	M&E Unit	

§ As and when required

* Not available. To be determine from Baseline survey

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

Responses to GEF/STAP Scientific and Technical screening of the Project Identification Form (PIF)

The STAP recommended two types of Revisions – Minor and Major listed below. These have been addressed in the current CEO Endorsement Form. Pertinent additions have added to fill the gaps identified by the STAP on the PIF

Minor revision required

STAP has identified specific scientific or technical challenges, omissions or opportunities that should be addressed by the project proponents during project development.
Follow up: One or more options are open to STAP and the GEF Agency:
(i) GEF Agency should discuss the issues with STAP to clarify them and possible solutions.
(ii) In its request for CEO endorsement, the GEF Agency will report on actions taken in response to STAP's recommended actions.

Response:

The project preparation team had access to the "updated/revised" PIF made available at the GEF website on link https://www.thegef.org/gef/project_detail?projID=5394. The revised PIF had taken into consideration some of the omissions identified by the STAP and the project preparation Team extensively used the content and comments in preparing the CEO Endorsement Form. Specifically the project preparation Team has addressed the scientific challenges by consulting relevant literature some which were directly related to Zambia. Among those related to farming systems, livestock systems, conservation agriculture, livelihoods and policy were:

- K. Agyemang, J. Mulila-Mitti, G. Han, I. Kadzere, C. Chomba, C. Makunka and H. Munguzwe: Conservation Agriculture and Livestock Farming interactions in Zambia: An assessment of conflicts and synergies
- Mubaya, C. P. *et a*l (2012) Climate variability and change or multiple stressors? Farmers perceptions regarding threats to livelihoods in Zimbabwe and Zambia". *Journal of Environmental Management* 102, pages 9 17. 2012.
- Agyemang, K. (2011). Good Agricultural Practices from Conservation Agriculture and Livestock Farming in Southern Africa: Observations from field studies in Zimbabwe, Zambia and Swaziland. SFS Livestock Programme Working Document No. 4, Harare, Zimbabwe, 30 pp.",
- Dejene, A., Midgley, S., Marake, M. and Ramasamy, S**.** (2011). Strengthening Capacity for Climate Change Adaptation in Agriculture: Experience and Lessons from Lesotho. Environment and Natural Resources Management Series # 18, FAO, Rome, Italy, 66 pp"

- Agyemang, K. and Han, G**.** (2010a). Conflicts and Synergies attendant to Conservation and Livestock Farming.---- A Policy Brief. FAO Sub-Regional Office for Southern Africa, Harare, Zimbabwe, 13 pp
- Agyemang, K. (2011). Looking for "the smell of Livestock" in the SADC First Draft of the Regional Agricultural Policy (RAP): A Contribution to the Livestock Component of the SADC RAP. FAO SFS Working Paper # 5, Harare, Zimbabwe. September 2011.
- Agyemang, K. (2011) Mitigating the impacts of climate change on farming systems, and adaptation to climate variability by smallholder farmers, through livestock-based technologies and mixed crop-livestock integrated farming practices in the Southern Africa region.—A Concept Note/Project Proposal. FAO-SFS Working Document, Harare, Zimbabwe, November, 2011.

Key Information from these technical and policy Papers have been incorporated in various Sections of the CEO Endorsement Form: Specifically:

A 5: Sub-section: Additional detail on Project Activities for Components 1, 2, and 3:- where the possibilities of Climate Change impacts adaptation activities in the study areas may end up contributing to environmental improvement and climate change mitigation and that such possibilities are looked upon favourably by stakeholders. Therefore capacity building in adaptation can legitimately include aspects of mitigation actions.

2.2.1 Strengthened adaptive capacities of beneficiaries with regard to organization, production, processing and marketing of their products: where issues on the following are addressed and clarified

- Livestock/ Mixed Crop-Livestock Systems,
- Conservation Agriculture/Farming
- Issues on conflicts and synergies between conservation-based farming and livestock farming in Zambia
- Good agricultural practices (GAPs) on Conservation Agriculture and its interphase with semi-intensive and extensive livestock farming

A set of key conclusions from one of the Papers (Agyemang *et al.,* 2010 on Group and Household interviews in Southern and Central Zambia but also other study sites in Zimbabwe and Swaziland) that gave impetus to include Activities on Conservation Agriculture and Mixed crop-livestock farming in the CRLMP and to promote synergies and reducing conflicts state: *" Key findings from the Group level of surveys include, 1) the generally unanimity of the Groups' views observed in all three countries, 2) the fact CA is seen in a very good light among a vast majority of the Groups interviewed, as several benefits (increased in crop yields, environmental sustainability, food security, income generation, etc) were attributed to CA, 3) very strong views from most of the Groups that Livestock Farming and Conservation Agriculture are complementary activities, 4) the somewhat emphatic recommendations that Animal Traction should be made part of CA, 5) the broad agreement among the Groups that there are really no major conflicts among CA and CF, and 6) the overwhelming expression from the Groups about the synergies that are currently occurring between CA and CF and*

opportunities that exist for further exploitation. Although some level of conflicts were raised by individuals from various households, when the overall consensus views of the larger pool of households were taken into consideration it emerged that CA as practiced in Zambia is not disturbed on a broad scale by the presence of livestock and production methods. The policy implications of these findings were analyzed and policy recommendations provided".

1.1 Livestock farmers strengthened to effectively cope with climate change and to improve livelihoods through enhanced resilience of natural resources:- where issues on how might introduced livestock breeds from outside of project areas to the project region might perform under climate change and vulnerabilities were addressed by proposing an *ex-ante* impact assessment be undertaking by comparing differences in the level of environmental stressors, management regimes at the two differing locations.

Major revision required

STAP recommends significant improvements to project design.
Follow-up:
(i) The Agency should request that the project undergo a STAP review prior to CEO endorsement, at a point in time when the particular scientific or technical issue is sufficiently developed to be reviewed, or as agreed between the Agency and STAP.
(ii) In its request for CEO endorsement, the Agency will report on actions taken in response to STAP concerns.

Responses

The Project preparation Team improved on the project design at technical, implementation/coordination, timing/duration of Project and monitoring/evaluation levels

Technical:

Efforts were made to put Project and the Baseline Project in the context of farming/livestock systems by documenting the farming practices and off-farm livelihood options of the beneficiaries through community discussions and proposing activities that offer solutions to the problems and challenges communicated to the Team during field visits, augmented by views expressed during the Inception and Validation Workshops.

Activities were developed that would reduce the negative impacts that might affect the environment directly and climate change indirectly, as well as actions and designs that will reduce the impact of climate change and variability on the facilities/infrastructure provided by the Baseline Project (LISP)

Implementation/Coordination:

The Project preparation Team recognized the fact that the CRLMP is meant to support the Baseline project and therefore proposed cost-effective designs that rejected some of the earlier thinking such as independent management structure for CRLMP. For example CRLMP will be implemented under the existing LISP Project Implementation Unit (PIU). This means the project will be implemented using the existing LISP Steering & Technical Committees and MAL structures. A Climate Change Adaptation Specialist (a national expert) recruited under CRLMP funding will be an additional member to the PIU. It was the view of the Project preparation team, and endorsed by a section of stakeholders that: i) establishing a separate PIU for the CRLMP will be costly in terms of salaries for experts and support staff; establishing a separate project steering committee, and a separate technical committee; establishing separate office space; and procurement of a completely new set of project resources like vehicles, furniture, computers, and the like, ii) having the two projects run by different management may stifle implementation of both projects especially at community level as this may result in community fatigue as the projects will be talking to similar if not the same issues.

Timing/Duration of Project:

The Project preparation Team understood the urgency for the CRLMP implementation to overlap with the LISP activities which had started earlier (8-12 months) by proposing CRLMP activities that can be undertaken alongside on-going activities, and by allocating resources to incremental activities that might be able to rectify some of the LISP designs where they are considered to be obvious non-friendly with respect to the environment. For example, newer technologies on feeder road construction that reduce the formation of "pot-holes" by stagnant water on road surfaces were recommended to be undertaken on on-going construction rather than to be rectified after completion.

Monitoring & Evaluation:

The Project preparation Team proposed a " state of the art" M & E framework for the CRLMP which is expected to improve the procedures adopted under the Baseline project (LISP). Among the key features are:

- For the CRLMP, a results-based monitoring and evaluation (M&E) will be implemented.
- Most of the M&E will be done through the MAL system and the experts in the AfDB's country office
- M&E will be done to improve the programme implementation and impact. M&E will entail monitoring the project activities, outputs, outcomes, and the performance of implementing agencies against the specified targets
- Monitoring will focus on the two lower levels of the results framework i.e. output and activity levels under each component which are the basis of the work plans and budgeting.
- Evaluation: CRLMP evaluation will involve examining the changes brought about by programme interventions and their significance in relation to achieving the programme objective.
- The CRLMP evaluation will mainly focus on the impact and outcome level indicators of the project results based framework. The project evaluation will require carrying out a baseline survey in Year 1 to establish the initial project situation, mid-term evaluation in Year 3, and an end of project evaluation in Year 5

Responses to Comments from GEF Agencies—The African Development Bank (AfDB)

The AfDB raised several comments, several of them related to the issues raised earlier by the GEF/STAP during its review of the PIF. The AfDB drew the attention to an updated PIF which had been prepared in response to some of the issues raised by the STAP, two documents (an updated PIF and STAP comments) which were not initially avilable to the Team.

The current CEO Endorsement Form has benefitted from useful comments raised by AfDB. Selected key Comments and Responses are presented below:

Several Comments on TABLE B: PROJECT FRAMEWORK

- This objective is different from the one in the PIF. Need continuity.
- This component was for 4,665,000. Please correct. GEF guidelines doesn't allow big change or we need to provide strong justification
- Many of the outputs in table B are worded more as outcomes. It would be better to quantify outputs where needed, e.g. number of ha of degraded pastures rehabilitated
- Interesting but this is mitigation not adaptation. Why was such an activity added to an LDCF project?
- In the PIF, there was an outcome on livelihood diversification but it seems this has been removed. Why? Livelihood diversification is fully in line with CCA1 of the focal area strategy as an adaptation mechanism
- Why the PMC amount changed from PIF, please justify and correct

The Comments listed above, in the view of the Project preparation Team, arose principally from initial inaccessibility of the Updated PIF to the project preparation Team and the reliance on an earlier version of PIF that had benefitted from earlier comments from the STAP.

With the availability of the Updated PIF to the Team most of the above Comments have been rectified, in most cases addressing the issues raised in the STAP Review directly

Several Comments on SECTION A 5: Incremental /Additional cost reasoning

The Quoted statements below as Comments from AfDB under SECTION A5

"*It is unclear what PIF was consulted to prepare this CEO endorsement but the version available on the GEF website seems to be different. Table B has different outcomes and outputs from the ones described here. See PIF on GEF website: https://www.thegef.org/gef/project_detail?projID=5394*

For e.g. In the above link PIF, one outcome for component 2 is 2.2 Diversification and strengthened livelihoods and source of incomes for rural population (artisan and stock breeders). This outcome on livelihood diversification does not appear in this new document".

"In the original PIF (as found on the GEF website) there were actually two outcomes for component 1. See PIF here https://www.thegef.org/gef/project_detail?projID=5394. This will be the one used for the review of the CEO endorsement document"

This again reinforces the response by the Team on the initial unavailability of the Updated PIF to it (Team). Some of these have been subsequently rectified. Responses to Specific Comments have been provided as below:

COMMENT: The document would benefit from additional information on specific climate change impacts on the livestock sector in particular and in the target districts. This was a STAP comment as well. STAP review stated that the document needs to be further developed by: "describing more explicitly the risks posed by climate change to the livestock sector, the barriers hampering adaptation responses, and how the proposed components intend to address these barriers.".

It would be good to add more on the climate change impacts specific to the target districts. Also, how are households affected? Food security?

RESPONSE: A Table on Impacts of projected climate change on livestock production, direct impacts and indirect impacts has been provided under Section A.6 Risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and measures that address these risks:

In addition a broader Table - Climate Change Impacts, Vulnerability and Coping Measures in the Project Area on general agriculture and livelihoods has also been added in Section A. 6 where impediments to adaptation are also considered as vulnerability.

COMMENT: Actually, it seems that some major changes in outputs were made, for example, by the inclusion of activities on biogas, reduced GHG emissions, insurance scheme, pass-on scheme, early warning, etc. A number of these are not aligned with the LDCF focal area but are more CC mitigation. There needs to be a better explanation of why these were included in an adaption project

RESPONSE: The Team has established in Section A 5 the need to recognize the "thin" line between Adaptation activities and those that can be classified as mitigation particularly under mixed crop-livestock systems. We understand that some adaptation activities such as planting leguminous plants/crops to enrich crop residue quality for livestock may end up contributing to mitigation. It would be strategic to include mitigation in capacity building and awareness creation on climate change adaptation. Adaptation practices such as changing crop-mixes to include tolerant crop varieties and rich nitrogen-crops in the face of approaching or on-going drought will benefit from a functional early warning system that provide relevant but simple information for farmers. On the issue of "pass-on" scheme, an activity under the Baseline (LISP) could benefit from CRLMP by ensuring that adapted livestock species and breeds are used. Adapted breeds are better able to use rougher feed resulting from drought than exotic breeds if considered for the LISP "pass on". Pass-on and restocking schemes that benefit poor people who have lost their livestock due to climate variabilities provide them opportunity to adapt to current and future climate change and variability. The livestock insurance scheme also works to enable livestock farmers who lose their stock assets to replace them so as to better adapt to future climate variabilities. In sum whereas direct mitigation activities will not be promoted under CRLMP activities that enable farmers and families to adapt under LISP activities will be supported through limited incremental support.

A. 5. Component 1

COMMENT : STAP recommended conservation agriculture as a good option for activities. As STAP noted: "it is not clear from the proposal whether farmers manage mixed crop-livestock systems and if so to what extent conservation agriculture is applied given its potential to improve soil health and long-term crop productivity while serving the demands for livestock feed. STAP believes conservation agriculture can serve these joint purposes if the conditions are appropriate."

As STAP recommends, conservation agriculture for better water, land, crop, livestock use, could be beneficial
Good, but again, some on-the-ground activities on conservation farming are needed, not only training.

RESPONSE: Conservation Agriculture and its interphase with Livestock Farming have been extensively dealt under Comments from GEF/STAP. Good Agricultural practices under both domains will be promoted and demonstrated under CRLMP . Collaboration will be sought with National and International Institutions working on Conservation Agriculture in technology transfer in the domain of Conservation Agriculture.

COMMENT: Considering climate change evolves over time, and means changing conditions in one location different from what has normally occurred in the past, will indigenous breeds be able to cope with changing climate patterns? For

example, if the frequency and severity of droughts increase, will indigenous breeds be able to cope in this new context rather than the conditions they are normally able to resist? This too needs analysis

COMMENT: *Need to do an impact assessment for the new breeds, just to make sure there would be no unintended consequences of introducing new breeds in a given area*

RESPONSE: Both phenotypic and genetic characterization of major livestock in the project areas and outlining areas where livestock will be imported from have been identified as a project activity. An *ex-ante* impact assessment of major livestock species/breeds earmarked for transfer into the projects areas has been identified as a project activity.

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS[5]

A. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES FINANCING STATUS IN THE TABLE BELOW:

PPG Grant Approved at PIF:			
Project Preparation Activities Implemented	***GEF/LDCF/SCCF/NPIF Amount ($)***		
	Budgeted Amount	***Amount Spent To date***	***Amount Committed***
Consulting team mobilization	26 696	26 696	
Inception / Stakeholder Workshop and Beneficiary Consultation Meetings	37 718	37 718	
Production of CRLMP CEO Endorsement Document	95 586	35 845	59 741
Agency Fees	17 355	17 355	
Contingency	22 695		22 695
Total	200 050	117 614	82 436

[5] If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities.

ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used**)**

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/NPIF Trust Fund or to your Agency (and/or revolving fund that will be set up)

AFRICAN DEVELOPMENT FUND

ADF/BD/WP/2013/45/TD
3 June 2013
Prepared by: OSAN
English Version only

Probable Date of Board Presentation **Not applicable**	**FOR INFORMATION**

MEMORANDUM

TO : THE BOARD OF DIRECTORS

FROM : Cecilia AKINTOMIDE
Secretary General

SUBJECT : ZAMBIA : LIVESTOCK INFRASTRUCTURE SUPPORT PROJECT

ADF LOAN OF UA 12.00 MILLION

TECHNICAL DOCUMENTS*

Please find attached the **Technical Annexes** of the above-mentioned project.

Attach:

Cc: The President

*** Questions on this document should be referred to:**

Mr. A BEILEH	**Acting Director**	**OSAN**	**Extension 2037**
Mr. C. OJUKWU	**Director**	**ORSB**	**Extension 2042**
Mrs. J. MWANGI	**Division Manager**	**OSAN.3**	**Extension 2375**
M. F. KWESIGA	**Resident Representative**	**ZMFO**	**Extension 6400**
Mr. J. MENG-LIHINAG	**Team Leader**	**OSAN.3**	**Extension 3968**

SCCD: F.S.

AFRICAN DEVELOPMENT FUND

PROJECT : LIVESTOCK INFRASTRUCTURE SUPPORT PROJECT
COUNTRY : ZAMBIA
DATE : MAY 2013

TECHNICAL DOCUMENTS

Appraisal Team	Team Leader: Jean-Marie Meng-Lihinag, Principal Agricultural Economist, OSAN.3 Team Members: Yappy Silungwe, Senior Irrigation Engineer, OSAN.3 Bouchaib Boulanouar, Principal Livestock Officer, OSAN.1 Damian Ihedioha, Principal Agro-Industry Specialist, OSAN.1 Owusu Mensah Agyei, Senior Financial Management Specialist, ORPF.2/SARC Kisa Mfalila, Principal Environmental Specialist, OSAN.4 Lewis Bangwe, Senior Agriculture Officer, ZMFO Natan Jere, Senior Procurement Specialist, ZMFO Everjoyce Muzvondiwa, Gender Specialist (Consultant) Sector Manager: Mrs. J. MWANGI, Division Manager, OSAN.3 Resident Representative: Mr. F. KWESIGA, ZMFO Sector Director: Mr. A. BEILEH, Acting Director, OSAN Regional Director: Mr. C. OJUKWU, Director, ORSB
Peer Reviewers	Mr. Felix Jan Baptist Marttin, Fisheries Expert, OSAN.4 Mr. Vinda Kisyombe, Senior Agricultural Economist, MWFO Mr. Lawal Umar, Principal Livestock Officer, GHFO Mr. Walter Odhiambo, Chief Development Policy Economist, ORPC.1 Mr. Sebastian Okeke, Principal Agricultural Economist, OSAN.1

AFRICAN DEVELOPMENT FUND

PROJECT : LIVESTOCK INFRASTRUCTURE SUPPORT PROJECT

COUNTRY : ZAMBIA

TECHNICAL DOCUMENTS

Appraisal Team	Regional Director : Mr. C. OJUKWU, Director, ORSB
	Sector Director : Mr. A. BEILEH, Acting Director, OSAN
	Division Manager : Mrs. J. MWANGI, Division manager, OSAN.3
	Team Leader : Mr. J MENG-LIHINAG, Principal Agricultural Economist, OSAN.3

OSAN DEPARTMENT

June 2013

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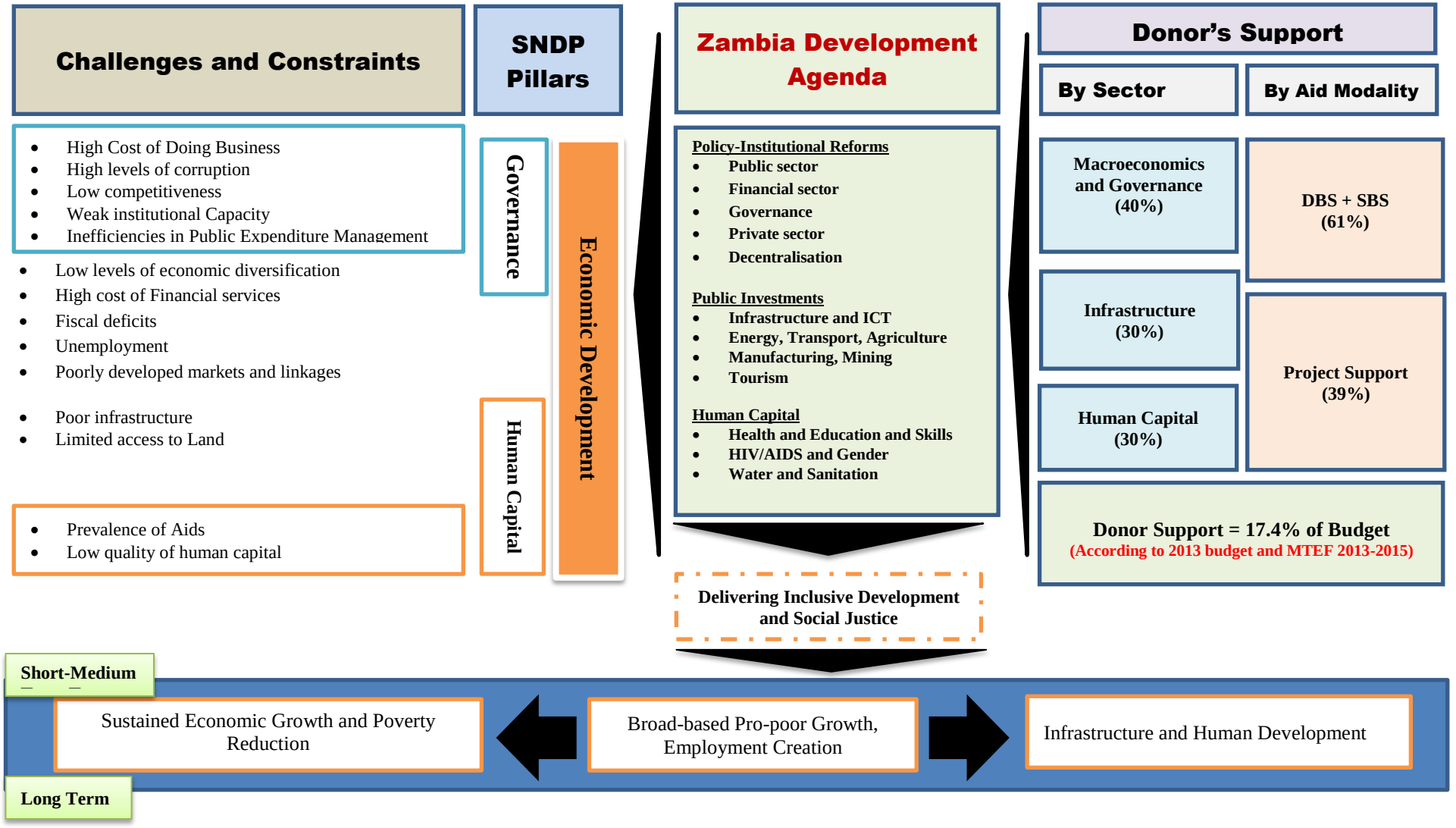
A. ZAMBIA'S DEVELOPMENT AGENDA AND SECTOR BRIEF

Zambia's Development Agenda and Donor Support



A.1 Policy Context

1. The GoZ development agenda are articulated in the National Vision 2030 which reflects the aspirations and determination to attain the status of a prosperous middle-income country. The Sixth National Development Plan (SNDP: 2011-2015), which operationalizes the National Vision 2030, has prioritised agriculture, along with mining, tourism, manufacturing and energy sectors, among the key growth sectors of the economy. With regard to the livestock sub-sector, the SNDP's main focus is to improve livestock production and productivity through infrastructure development, creation of Disease Free Zone (DFZ), enhancement of livestock disease control and surveillance, research and development, development of livestock standards and processing of livestock products. The MAL is refining its sector policies and strategies based on the National Agriculture Policy (NAP: 2004-2015). MAL is also preparing a National Agriculture Investment Plan (NAIP: 2014-2018) within the framework of the Comprehensive Africa Agriculture Development Programme (CAADP) whose overall objective is to facilitate and support the development of a sustainable, dynamic, diversified and a competitive agricultural sector that assures food security at household and national levels and maximizes the sector's contribution to GDP. The GoZ is implementing a Farm Inputs Support Program (FISP) to address the food security problem.

2. The GoZ's Medium Term Expenditure Framework (MTEF: 2013-2015) targets the area of livestock development specifically increasing livestock quality and population, and expand both domestic and international market access. The strategies include development and rehabilitation of livestock infrastructures such as livestock gene banks, livestock service centres and breeding centres, enhancement of supply of breeding stock and disease prevention activities. Efforts are being made to promote quality livestock and fisheries production and crop diversification while improving marketing systems, harnessing the value chain and increasing productivity in farming to ensure national food security, employment creation and increased income from exports. Investments particularly in agriculture infrastructure and rural finance offer effective means to make a significant impact on poverty levels. LISP will support Government's efforts in promoting livestock development for diversified agriculture production, marketing and value addition thus enhancing household food security and increasing farmers' income.

A.2 Development Partner/Donor Support

3. Donor Support and Coordination: The Mid-Term Review of the Bank's Country Strategy Paper conducted in 2012 highlighted the necessity for the Bank to further support economic diversification. As one of Development Partners (DPs), the Bank is supporting the implementation of SNDP and NAIP. Donors Coordination: Public sector external debt remains low, following extensive debt relief in 2005-2006. Debt relief under the Highly Indebted Poor Countries (HIPC) program and Multi-donor Debt Reduction Initiative (MDRI) significantly reduced Zambia's public sector external debt stock to 9% of GDP in 2006 (US$0.5 billion), down from 86% (US$7.2 billion) in 2005. The government's debt policy of borrowing only on concessional terms from multilateral creditors (including the Bank) has resulted in a moderate rise in public sector external debt, at an average of 10.8% of GDP in 2008-2012, and expected to rise to 14% of GDP in 2013.

Table: A.2.1 Donor Support to Agriculture (2012)

	Sector or subsector*	Size			
		GDP	Exports	Labour Force	
	Agriculture	**13**	**20**	**67**	
	Players - Public Annual Expenditure (average) : 2012 Budget				
	Government	**Donors**	AfDB 3.4%	FAO 1.1%	Finland 4.4%
UA m	**UA 229.4 m**	**UA 68.9 m**	WB 36.3%	JICA 3.4%	
%	**70.0%**	**30.0%**	EU 4.7%	WFP 9.3%	
			DFID 5.1%	IFAD 17.4%	
			USAID 7.9%	Norway 7.0%	
	Level of Donor Coordination				
	Existence of Thematic Working Groups (this sector/sub-sector)			**[Y]**	
	Existence of SWAps or Integrated Sector Approaches			**[N]**	
	ADB's Involvement in Donors Coordination			**[M]**	

Key: **L:** Leader. **M:** member but not leader. **None:** no involvement. **Y:** Yes. **N:** No

4. Donor contribution to the agriculture budget is significant and was about 30% in the 2012 fiscal year, with active portfolio, as at end of 2012 totalling USD 68.9 million and the percentage distribution is as indicated in the Table A.2.1. Donor contributions are coordinated by the Ministry of Finance. The biggest contributor is World Bank (36.3%) followed by IFAD (17.4%). The Bank (AfDB) is one of the DPs in the agriculture sector and accounted for about 3.4% of the active portfolio budget in the 2012 fiscal year. The Agriculture Cooperating Partner Group (Ag-CP), whose current chair is USAID, has been coordinating activities in the sector and engaging Government in dialogue on key policy developments. The Ag-CP played a key role in assisting Government to formulate the SNDP and NAIP. The Zambia Field Office (ZMFO) chaired the Ag-CP in 2012 and has played a pivotal role in donor coordination activities and overall portfolio management.

5. The national livestock development programme that Government has embarked on is coordinated with various CPs who are funding different aspects or specific geographic zones. The World Bank is covering Southern Central and Eastern provinces. IFAD is covering livestock disease control throughout the country. EU is providing institutional capacity building within the MAL. AfDB is covering the northern part of the country. The WB and AfDB projects are quite similar in design, focusing on disease control, though WB's project has less infrastructure component. The Government is also funding some livestock development programme from its own resources.

A.3 Trends in Partnership Arrangements

6. Consistent with the principles enshrined in the Paris Declaration (PD) and Accra Agenda for Action (AAA), the Bank has played a very active role in the various coordinating efforts in Zambia. The Cooperating Partners Group (CPG) includes the World Bank, the EU, DFID, Germany, Ireland, Sweden, Finland, Netherlands and Norway - as well as close to 20 other diverse macro and thematic sector advisory groups (SAGs). The Bank convened and chaired six Cooperating Partners Group (CPG) meetings that discussed key issues including post- Busan updates, SNDP developments, conference of Parties 17 outcomes, JASZ II/mutual accountability framework, joint graduated response to corruption, assessment of the annual progress report for

the FNDP, key living conditions monitoring survey 2010, Zambia's preparations for Rio +20 and the trajectory of aid graduation and scaling up nutrition and the 1000 days program.

7. The Bank also convened four key meetings with the Secretary to the Treasury (ST) as a platform of discussion on matters that affected both the GRZ and CPs. The topics discussed bordered on a follow up on the Auditor General's report on the road sector and the status of the Road Development Agency Board; Joint communiqué leading to the Mutual Accountability Framework on Aid and Development Effectiveness; re-instatement of the Abuse of Office Clause, Climate Change mechanisms; and Review of Salaries and Conditions of Services instrument. Key achievements of the Bank as Chair of the CPG was to successfully hold two high level discussions on Government priorities and the CPG-GRZ engagement framework. In addition, the Bank also made significant inputs towards the organization of a High Level Policy Dialogue (HLPD) in November 2012, between the CPs and GRZ focusing on the diversification and transformation of the Zambian economy. As a Chair of the CP Agriculture Sector, the Bank prepared a discussion paper on Agriculture Diversification for Job Creation and this was discussed at a High Level Policy Dialogue Conference organized with the Government and the UNDP. The Chair also organized and led a joint tour of the CPs to Nansanga Farm Block in Serenje District, 400km from Lusaka. This helped the CPs to understand the concept and progress made by Government in implementing the farm blocks. As part of efforts to enhance collaboration and leverage additional resources, the Bank continues to work closely with other development partners on the projects in the portfolio. These Partners include a multitude of Donors in the PRBS IV, Finland (for the Small Scale Irrigation Project), the Governments of Zambia and Botswana and JICA (for the Kazungula Bridge Project), the EU (for the Nacala Corridor Road Project), and Collaboration with, EIB, DBSA and AFD (for the Itezhi Tezhi Hydro Power Generation and Transmission Line Project).

B. BACK-UP OF THE KEY ARGUMENTS OF THE REPORT

B.1 Lessons Learned from Bank-Financed Projects

1. The Bank has built experience on infrastructure development in support to livestock sub-sector and also in enhancing livestock production through capacity building activities. The Bank has learned adequate lessons such as (i) role played by the Implementation Unit in expediting project execution after a delay in start-up when implementation was entrusted to MAL, (ii) lack of drawings at project start-up resulted in delay in implementation, (iii) inadequate consultation with stakeholders in selection of sites, and (iv) poor performance of credit component. In this regard, LISP will be implemented using the Project Coordination Team (PCT) and Government mainstream staff. The pre-appraisal mission adequately consulted the stakeholders. Through the use of Project Preparation Facility (PPF), the detailed designs/drawings and tender documents for livestock infrastructures will be ready when LISP starts-off and also the institutional mechanisms for managing the community infrastructures will be clearly defined. In terms of credit for women and youth livestock farmers, the proposed approach is to implement livestock pass-on scheme for interest groups/cooperatives whose resources will revolve amongst the members.

2. The CSP (2011-2015) MTR found the Government's performance moderately satisfactory. The lessons from the 2012 Country Portfolio Improvement Plan (CPIP) highlighted the (i) weak capacity of project implementation units in the area of procurement, contract management and adherence to implementation schedule, (ii) weak project monitoring and evaluation, (iii) untimely submission of audit reports and non-compliance with fiduciary requirements, and (iv) poor coordination of Bank's interventions. These lessons were also considered during the Project design and some of the measures include provision of Project implementation training workshops in the areas of procurement, contract management, and disbursement management to participating staff. ZMFO shall track the submission of quarterly progress reports, process and provide feedback to GoZ on a timely basis. The GoZ has established a platform for monitoring, evaluation and obtaining feedback from project executing agencies and line ministries. Some of the issues are tabulated below.

Project	Date & Amount	Intervention Areas	Rating[1]	Lessons Learned[2]
Zambia Agriculture Sector Investment Program (ASIP)	April 1999 to June 2008 Amount: UA 24,2 million	Agricultural development	***	The PCR of ASIP informed provided several conclusions and lessons: i) infrastructure development remains very relevant to Zambia's development; ii) the role of communities in programme identification, monitoring and implementation should be built in the programme design to ensure ownership; iii) Agriculture projects should be fully prepared to detailed design before approval to ensure their readiness for implementation; iv) in a programme like ASIP, clear roles, inter-relationship and accountabilities of all institution involved hould be established; v) local contractors should be thoroughly scrutinized for their financial and technical capability to ensure their ability to adequately complete contracted work in a timely manner; vi) a strong Monitoring and Evaluation (M&E) system coupled with quality baseline data is imperative for better monitoring of programme implementation, better performance evaluation and impact assessment; vii) the inability to develop and implement a business management plan for various revolving funds established and Livestock Market Centers which will limit the sustainability of outcomes; viii) the risk that the level of activities and interaction between extension staff and farmers declines if there is no increase in public resource flows to the districts; ix) operating and maintenance cost is required for equipment and civil works established; x) training in the development and implementation of Business Plans for Revolving Funds at Livestock Market Centers and Artificial Insemination Centre is required. xi) beneficiaries should be encouraged to contribute to the maintenance of civil works facilities through maintenance committees; xii) Proper implementation arrangements are important for timely execution of project activities - the implementation of the project improved only after a PMU was set up, but even then, the Programme Manager did not have adequate technical support.
		Livestock development	***	
		Infrastructure development	**	
		Overall	***	

[1] **** (75-100% Benchmarks Met); *** (50-75 % Benchmarks Met); ** (25-50% Benchmarks Met); * (0-25% Benchmarks Met) from PCR or other available rating.

[2] Conclusions from the Project Completion Report (PCR).

Project	Date & Amount	Intervention Areas	Rating[1]	Lessons Learned[2]
				Most of the issues raised above were approached during the preparation and appraisal approach and are reflected in the design of LISP. Additional fine tuning in the design and description of the operation is expected to be provided through the PPF to be conducted prior to the onset of the intervention.
SADC REGION: Strengthening Institutions for risk management of Trans boundary animal diseases (TADs)[3]	UA 13.71 million	Networking and Information Sharing	***	The Multinational SADC "Strengthening Institutions for the Risk Management of Trans-boundary Animal Diseases (TADs) in the SADC region is an ongoing intervention with the objective of enhancing livestock as a tradable commodity through assured animal health. The project covers five countries of the SADC region, namely: Angola, Malawi, Mozambique, Tanzania and Zambia. The project has made so far great contributions in terms of strengthening the capacity of public institutions in charge of animal health in coping with the management of livestock trans-boundary diseases in the five participating countries. These contributions were made through large investments in the development of physical and human capacities in the laboratories, field staff and the surveillance and diagnostics capacity of the public health services. It also contributed to advancing the knowledge on TADs and their management. The main lesson learned from the ongoing implementation are: **i)** Collaboration among participating countries is key to successful delivery of outputs and outcome and to amplifying the effects of the project; ii) care should be taken to ensure that all countries are implementing the project at the a similar speed as countries may have different capacities for implementation. If one country lags behind it impedes project overall performance; iii) Implementation Units must be empowered to fully play its role and not be hindered by bureaucratic processes.
		Capacity Building and Institutional Strengthening at the regional and national levels in the area of laboratories, epidemiological and socioeconomic domains	***	
		Overall	***	

[3] Ratings and lessons learned are derived from last supervision and the project is still ongoing until December 2013.

B.2 Project Costs

3. Estimated Costs and Financing Arrangements: The LISP cost estimates have been presented in Tables B.2a to B.2e in form of summary tables and detailed cost tables. The total project cost, including average 7.0% physical and 6.4% price contingencies, is UA 13.71 million which will be financed by (i) ADF Loan: UA 12.00 million (87.6%) covering all major activities, (ii) the Government contribution: UA 1.69 million (12.3%) through rental value for Government office space, salaries for Government staff and services/utilities such as electricity, water and office telecommunication, and (iii) beneficiaries' contribution: UA 0.02 million (0.1%) in form of operation and maintenance of the LSC tier 1 and 1+, as per the Government's policy to ensure sustainability. The Bank is the lead financier.

4. Justification for Local Cost Financing: The ADF Loan will finance about 80.4% of the total local costs and 100.0% of the total foreign costs. The local cost is 80.4% because the project is oriented towards development of local infrastructures, disease control, poverty reduction and income generation at household level. The GoZ does not have adequate capacity to finance the entire local cost of the project, despite contributing about 19.4% of total local costs. Consequently, all construction and rehabilitation activities' local costs have been factored into the ADF financing in order not to delay the Project implementation.

Table B.2a: Summary of Project Cost by Components

Component Name	(ZMW '000)			(UA million)			
	Local	Foreign	Total	Local	Foreign	Total	% Foreign
1. Livestock Infrastructure Development	34,040.2	31,028.2	65,068.4	4.19	3.82	8.01	48
2. Capacity Building	19,803.0	4,381.0	24,184.0	2.44	0.54	2.98	18
3. Project Management	6,144.0	700.0	6,844.0	0.76	0.08	0.84	10
Total Baseline Cost	**59,987.2**	**36,109.2**	**96,096.4**	**7.39**	**4.44**	**11.83**	**38**
Physical Contingencies	4,121.4	3,135.3	7,256.6	0.50	0.38	0.88	43
Price Contingencies	6,714.3	1,359.0	8,073.3	0.83	0.17	1.00	17
Total Project Cost	**70,822.8**	**40,603.5**	**111,426.3**	**8.72**	**4.99**	**13.71**	**36**

Table B.2b: Sources of Financing, Amount (UA million) and Percentage Contribution (%)

Source of Finance	Amount (UA million) and Percentage Contribution (%)					
	Foreign	%	Local	%	Total	%
ADF Loan	4.99	100	7.01	80.4	**12.00**	**87.6**
Government	0	0	1.69	19.4	**1.69**	**12.3**
Beneficiaries	0	0	0.02	0.2	**0.02**	**0.1**
Total	**4.99**	**36.4**	**8.72**	**63.6**	**13.71**	**100.0**

Table B.2c: Project Cost - Categories of Expenditure (Summary)

Category of Expenditure	(UA million)			% Foreign
	Local	Foreign	Total	
A. Works	**3.64**	**3.34**	**6.98**	48%
B. Goods				
1. Vehicle	-	0.24	0.24	100%
2. Equipment	-	0.35	0.35	100%
B sub-total	-	**0.59**	**0.59**	100%
C. Services				
1. Training	0.76	-	0.76	0%
2. Contractual Services	-	0.14	0.14	100%
3. Project Preparation Facility (PPF)	-	0.30	0.30	100%
4. Audit	-	0.07	0.07	100%
C sub-total	**0.76**	**0.51**	**1.27**	40%
D. Operating Cost				
1. Personnel	0.75	-	0.75	0%
2. Daily Subsistence Allowance	0.81	-	0.81	0%
3. General Operating Costs	1.43	-	1.43	0%
D sub-total	**2.99**	-	**2.99**	0%
Total Baseline Cost	**7.39**	**4.44**	**11.83**	38%
Physical Contingencies	0.50	0.38	0.88	43%
Price Contingencies	0.83	0.17	1.00	17%
Total Project Cost	**8.72**	**4.99**	**13.71**	36%

Table B.2d: ADF Loan - Categories of Expenditure (Summary)

Category of Expenditure	ADF Loan Amount (UA million)		
	Foreign Cost	Local Cost	Total
A. Goods	0.64	-	0.64
B. Works	3.82	4.34	8.16
C. Services	0.23	0.30	0.53
D. Operating Costs	-	2.37	2.37
E. Project Preparation Facility (PPF)	0.30	-	0.30
Total Project Cost	**4.99**	**7.01**	**12.00**

Table B.2e: Expenditure Schedule by Component

Component Name	Amount (UA million) including Contingencies						Percentage
	PY1	PY2	PY3	PY4	PY5	Total	
1. Livestock Infrastructure Development	0.51	5.74	2.66	0.21	0.19	9.31	67.9%
2. Capacity Building	0.98	0.84	0.61	0.50	0.49	3.42	25.0%
3. Project Management	0.26	0.18	0.19	0.17	0.18	0.98	7.1%
Total Project Cost	**1.75**	**6.76**	**3.46**	**0.88**	**0.86**	**13.71**	**100.0%**

5. Detailed Cost Tables (DCTs): the DCTs are indicated in Tables B.2g to B.2k which have been aligned to the LISP's sub-components for ease of implementation and also revision of List of Goods and Services (LOGS), when need arises. It should be noted that each DCT has been presented in two tables, first one with ZMW and UA costs including contingencies and physical contingency rate whilst the second one has ZMW and US costs including other accounts (disbursement account, financing rule, procurement account, and procurement method). The DCT index is indicated in Table B.2f:

Table B.2f: List of Detailed Cost Tables

Table Number	DCT Number	Sub-component Name
Table B.2g	Detailed Cost Table #1	Rural Community Infrastructure Support
Table B.2h	Detailed Cost Table #2	Public Infrastructure Support
Table B.2i	Detailed Cost Table #3	Support to Participating Institutions
Table B.2j	Detailed Cost Table #4	Women/Youth Empowerment
Table B.2k	Detailed Cost Table #5	Project Management

Table B.2g.1 **Detailed Cost Table 1** Sub-Component Name: Rural Community Infrastructure Support

Item Description	Unit	Quantities						Unit Cost	Base Cost (UA '000)						Totals Including Contingencies (UA '000)						Parameters (%)	
		PY1	PY2	PY3	PY4	PY5	Total	(ZMW '000)	PY1	PY2	PY3	PY4	PY5	Total	PY1	PY2	PY3	PY4	PY5	Total	Phy. Cont.	For. Exch.
I. Investment Costs																						
A. WORKS																						
Construction of LSC Tier 1 /a	No	10	70	76	-	-	156	44.00	54.1	378.9	411.4	-	-	844.5	60.1	429.4	475.6	-	-	965.1	10.0	100.0
Construction of LSC Tier 1+	No	-	8	8	-	-	16	206.70	-	203.4	203.4	-	-	406.9	-	230.5	235.2	-	-	465.7	10.0	100.0
Construction of LSC Tier 2	No	-	2	3	-	-	5	1,400.00	-	344.5	516.7	-	-	861.2	-	390.4	597.3	-	-	987.7	10.0	100.0
Construction of Milk Collection Centres /b	No	-	3	-	-	-	3	1,470.00	-	542.6	-	-	-	542.6	-	614.9	-	-	-	614.9	10.0	100.0
Construction of Livestock Market Centres /c	No	-	1	1	-	-	2	918.00	-	112.9	112.9	-	-	225.9	-	128.0	130.5	-	-	258.5	10.0	100.0
Construction of Livestock Slaughter Houses /d	No	-	3	5	-	-	8	470.00	-	173.5	289.1	-	-	462.6	-	196.6	334.2	-	-	530.8	10.0	100.0
Environmental Mitigation Activities	No	1	1	1	1	1	5	120.00	14.8	14.8	14.8	14.8	14.8	73.8	15.9	16.7	17.5	18.4	19.3	87.8	5.0	0.0
Sub-total									**68.9**	**1,770.6**	**1,548.4**	**14.8**	**14.8**	**3,417.5**	**76.0**	**2,006.5**	**1,790.3**	**18.4**	**19.3**	**3,910.5**		
B. GOODS																						
1. Animal Health Start-up Kits /e																						
Start-up Kit LSC Tier 1 /f	No	10	72	79	-	-	161	3.00	3.7	26.6	29.2	-	-	59.4	3.9	28.7	32.2	-	-	64.8	5.0	100.0
Start-up Kit for LSC Tier 2 /g	No	-	2	-	-	-	2	6.00	-	1.5	-	-	-	1.5	-	1.6	-	-	-	1.6	5.0	100.0
AI Kit for LSC Tier 1 & 1+ /h	No	10	85	91	-	-	186	2.00	2.5	20.9	22.4	-	-	45.8	2.6	22.6	24.7	-	-	49.9	5.0	100.0
AI Kit for LSC Tier 2 /i	No	-	2	-	-	-	2	3.00	-	0.7	-	-	-	0.7	-	0.8	-	-	-	0.8	5.0	100.0
Sub-total									**6.2**	**49.7**	**51.6**	**-**	**-**	**107.4**	**6.5**	**53.8**	**56.9**	**-**	**-**	**117.2**		
C. SERVICES																						
1. Consultancy Services																						
Project Preparation Facility (PPF) - Detailed Design/j	LS	1	-	-	-	-	1	2,427.00	298.6	-	-	-	-	298.6	316.7	-	-	-	-	316.7	5.0	100.0
Indiv Consultant: Environmental Training/Workshops /k	LS	1	1	-	-	-	2	60.00	7.4	7.4	-	-	-	14.8	7.7	7.8	-	-	-	15.5	3.0	100.0
Indiv Consultant: Development of Site Specific ESMPS /l	LS	1	1	-	-	-	2	130.00	16.0	16.0	-	-	-	32.0	17.0	17.3	-	-	-	34.3	5.0	100.0
Indiv Consultant: Environmental Monitoring /m	LS	1	1	-	1	-	3	33.00	4.1	4.1	-	4.1	-	12.2	4.3	4.4	-	4.6	-	13.3	5.0	100.0
Indiv Consultant: Environmental Audit /n	No	-	-	1	-	1	2	36.00	-	-	4.4	-	4.4	8.9	-	-	4.9	-	5.1	10.0	5.0	100.0
Sub-total									**326.0**	**27.4**	**4.4**	**4.1**	**4.4**	**366.4**	**345.6**	**29.5**	**4.9**	**4.6**	**5.1**	**389.7**		
Total Investment Costs									**401.1**	**1,847.8**	**1,604.4**	**18.8**	**19.2**	**3,891.3**	**428.2**	**2,089.8**	**1,852.0**	**23.0**	**24.4**	**4,417.3**		
II. Recurrent Costs																						
A. PERSONNEL (Salaries)																						
MAL Senior Staff	P/Month	6	6	6	6	6	30	4.00	3.0	3.0	3.0	3.0	3.0	14.8	3.0	3.2	3.3	3.5	3.7	16.7	0.0	0.0
Middle & Junior Staff	P/Month	12	12	12	12	12	60	3.00	4.4	4.4	4.4	4.4	4.4	22.1	4.5	4.8	5.0	5.3	5.5	25.1	0.0	0.0
MAL Support Staff	P/Month	12	12	12	12	12	60	2.00	3.0	3.0	3.0	3.0	3.0	14.8	3.0	3.2	3.3	3.5	3.7	16.7	0.0	0.0
Sub-total									**10.3**	**10.3**	**10.3**	**10.3**	**10.3**	**51.7**	**10.6**	**11.1**	**11.7**	**12.3**	**12.9**	**58.5**		
B. DAILY SUBSISTENCE ALLOWANCES																						
All Participating Staff	P/Day	300	300	300	300	300	1,500	1.20	**44.3**	**44.3**	**44.3**	**44.3**	**44.3**	**221.5**	**45.4**	**47.7**	**50.1**	**52.6**	**55.2**	**250.9**	0.0	0.0
C. OPERATION AND MAINTENANCE																						
1. Community Infrastructures																						
O&M of Livestock Service Centre Tier 1&1+ /o	No	10	100	172	172	172	626	0.20	**0.2**	**2.5**	**4.2**	**4.2**	**4.2**	**15.4**	**0.3**	**2.6**	**4.8**	**5.0**	**5.3**	**18.0**	0.0	0.0
Total Recurrent Costs									**54.9**	**57.1**	**58.9**	**58.9**	**58.9**	**288.5**	**56.2**	**61.4**	**66.5**	**69.8**	**73.3**	**327.4**		
Total (Investment and Recurrent Costs)									**456.0**	**1,904.9**	**1,663.3**	**77.7**	**78.1**	**4,179.8**	**484.4**	**2,151.2**	**1,918.5**	**92.8**	**97.7**	**4,744.7**		

\a To be done on demand-driven basis. If LSC Tier 1 demand will be low, the remaining funds can be used under LSC Tier 1+ or LSC Tier 2.
\b The cost includes equipment.
\c The cost includes basic equipment.
\d Simple slaughter houses with basic equipment (not high-tech abbattoir). The cost includes basic equipment (supply and installation).
\e This LSC seed-capital is for the cooperatives' revolving fund.
\f Kit composition: drugs & equipment
\g Kit composition: equipment, drugs & arcaricides.
\h Kit composition: equipment & drugs.
\i Kit composition: equipment & drugs.
\j Consulting Firm - Detailed Design using the Project Preparation Facility (PPF), managed separately by the Government (PY1). Not for the Project Coordination Team.
\k Inputs based on training programme. Individual Consultant (Environmentalist): Shortlist, CV and Professionsl Fees only. Minimum 3 candicates.
\l Individual Consultant (Environmentalist): Shortlist, CV and Professional Fees only. Minimum 3 candidates.
\m 2 inputs per year. Individual Consultant (Environmentalist): Shortlist, CV and Professional Fees only. Minimum 3 candidates.
\n 1 input per year. The same consultant who will carry out environmental monitoring.
\o Beneficiary contribution as per Government requirement.

Table B.2g.2 **Detailed Cost Table 1** Sub-Component Name: Rural Community Infrastructure Support (with hidden columns to include Other Accounts)

Item Description	Unit	Quantities						Unit Cost	Totals Including Contingencies (UA '000)						Other Accounts			
		PY1	PY2	PY3	PY4	PY5	Total	(ZMW '000)	PY1	PY2	PY3	PY4	PY5	Total	Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method
I. Investment Costs																		
A. WORKS																		
Construction of LSC Tier 1 /a	No	10	70	76	-	-	156	44.00	60.1	429.4	475.6	-	-	965.1	WORKS_DA	ADF_LOAN (100%)	WORKS_PA	NCB_PM (100%)
Construction of LSC Tier 1+	No	-	8	8	-	-	16	206.70	-	230.5	235.2	-	-	465.7	WORKS_DA	ADF_LOAN (100%)	WORKS_PA	NCB_PM (100%)
Construction of LSC Tier 2	No	-	2	3	-	-	5	1,400.00	-	390.4	597.3	-	-	987.7	WORKS_DA	ADF_LOAN (100%)	WORKS_PA	NCB_PM (100%)
Construction of Milk Collection Centres /b	No	-	3	-	-	-	3	1,470.00	-	614.9	-	-	-	614.9	WORKS_DA	ADF_LOAN (100%)	WORKS_PA	NCB_PM (100%)
Construction of Livestock Market Centres /c	No	-	1	1	-	-	2	918.00	-	128.0	130.5	-	-	258.5	WORKS_DA	ADF_LOAN (100%)	WORKS_PA	NCB_PM (100%)
Construction of Livestock Slaughter Houses /d	No	-	3	5	-	-	8	470.00	-	196.6	334.2	-	-	530.8	WORKS_DA	ADF_LOAN (100%)	WORKS_PA	NCB_PM (100%)
Environmental Mitigation Activities	No	1	1	1	1	1	5	120.00	15.9	16.7	17.5	18.4	19.3	87.8	WORKS_DA	ADF_LOAN (100%)	WORKS_PA	OTHER_PM (100%)
Sub-total									**76.0**	**2,006.5**	**1,790.3**	**18.4**	**19.3**	**3,910.5**				
B. GOODS																		
1. Animal Health Start-up Kits /e																		
Start-up Kit LSC Tier 1 /f	No	10	72	79	-	-	161	3.00	3.9	28.7	32.2	-	-	64.8	GOODS_DA	ADF_LOAN (FE (100%), LC (0%))	EQUIPMENT_PA	LCL_SHOPPING_PM (100%)
Start-up Kit for LSC Tier 2 /g	No	-	2	-	-	-	2	6.00	-	1.6	-	-	-	1.6	GOODS_DA	ADF_LOAN (FE (100%), LC (0%))	EQUIPMENT_PA	LCL_SHOPPING_PM (100%)
AI Kit for LSC Tier 1 & 1+ /h	No	10	85	91	-	-	186	2.00	2.6	22.6	24.7	-	-	49.9	GOODS_DA	ADF_LOAN (FE (100%), LC (0%))	EQUIPMENT_PA	LCL_SHOPPING_PM (100%)
AI Kit for LSC Tier 2 /i	No	-	2	-	-	-	2	3.00	-	0.8	-	-	-	0.8	GOODS_DA	ADF_LOAN (FE (100%), LC (0%))	EQUIPMENT_PA	LCL_SHOPPING_PM (100%)
Sub-total									**6.5**	**53.8**	**56.9**	**-**	**-**	**117.2**				
C. SERVICES																		
1. Consultancy Services																		
Detailed Design	LS	1	-	-	-	-	1	2,427.00	316.7	-	-	-	-	316.7	SERVICES_DA	ADF_LOAN (100%)	CONTRACTUAL_SERVICES_PA	QCBS_PM (100%)
Indiv Consultant: Environmental Training/Workshops /k	LS	1	1	-	-	-	2	60.00	7.7	7.8	-	-	-	15.5	SERVICES_DA	ADF_LOAN (FE (100%), LC (0%))	CONTRACTUAL_SERVICES_PA	QBS_PM (100%)
Indiv Consultant: Development of Site Specific ESMPS /l	LS	1	1	-	-	-	2	130.00	17.0	17.3	-	-	-	34.3	SERVICES_DA	ADF_LOAN (FE (100%), LC (0%))	CONTRACTUAL_SERVICES_PA	QBS_PM (100%)
Indiv Consultant: Environmental Monitoring /m	LS	1	1	-	1	-	3	33.00	4.3	4.4	-	4.6	-	13.3	SERVICES_DA	ADF_LOAN (FE (100%), LC (0%))	CONTRACTUAL_SERVICES_PA	QBS_PM (100%)
Indiv Consultant: Environmental Audit /n	No	-	-	1	-	1	2	36.00	-	-	4.9	-	5.1	10.0	SERVICES_DA	ADF_LOAN (FE (100%), LC (0%))	CONTRACTUAL_SERVICES_PA	QBS_PM (100%)
Sub-total									**345.6**	**29.5**	**4.9**	**4.6**	**5.1**	**389.7**				
Total Investment Costs									**428.2**	**2,089.8**	**1,852.0**	**23.0**	**24.4**	**4,417.3**				
II. Recurrent Costs																		
A. PERSONNEL (Salaries)																		
MAL Senior Staff	P/Month	6	6	6	6	6	30	4.00	3.0	3.2	3.3	3.5	3.7	16.7	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
Middle & Junior Staff	P/Month	12	12	12	12	12	60	3.00	4.5	4.8	5.0	5.3	5.5	25.1	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
MAL Support Staff	P/Month	12	12	12	12	12	60	2.00	3.0	3.2	3.3	3.5	3.7	16.7	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
Sub-total									**10.6**	**11.1**	**11.7**	**12.3**	**12.9**	**58.5**				
B. DAILY SUBSISTENCE ALLOWANCES																		
All Participating Staff	P/Day	300	300	300	300	300	1,500	1.20	**45.4**	**47.7**	**50.1**	**52.6**	**55.2**	**250.9**	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
C. OPERATION AND MAINTENANCE																		
1. Community Infrastructures																		
O&M of Livestock Service Centre Tier 1&1+ /o	No	10	100	172	172	172	626	0.20	**0.3**	**2.6**	**4.8**	**5.0**	**5.3**	**18.0**	OPERATING_COSTS_DA	BENEFICIARIES (100%)	OPERATING_COSTS_PA	NBF_PM (100%)
Total Recurrent Costs									**56.2**	**61.4**	**66.5**	**69.8**	**73.3**	**327.4**				
Total (Investment and Recurrent Costs)									**484.4**	**2,151.2**	**1,918.5**	**92.8**	**97.7**	**4,744.7**				

Table B.2h.1 **Detailed Cost Table 2:** Sub-Component Name: Public Infrastructure Support

Item Description	Unit	Quantities						Unit Cost	Base Cost (UA '000)						Totals Including Contingencies (UA '000)						Parameters (%)	
		PY1	PY2	PY3	PY4	PY5	Total	(ZMW '000)	PY1	PY2	PY3	PY4	PY5	Total	PY1	PY2	PY3	PY4	PY5	Total	Phy. Cont.	For. Exch.
I. Investment Costs																						
A. WORKS																						
Sustainable Pasture and Rangeland Development /a	LS	-	0.3	0.3	0.4	-	1	530.00	-	19.6	19.6	26.1	-	65.2	-	22.1	23.2	32.5	-	77.8	5.0	0.0
Rehabilitation of Feeder Roads	Km	-	40	40	-	-	80	48.00	-	236.2	236.2	-	-	472.4	-	279.7	293.6	-	-	573.3	10.0	0.0
Rehabilitation of Regional Veterinary Laboratory /b	No	-	2	-	-	-	2	1,800.00	-	442.9	-	-	-	442.9	-	524.4	-	-	-	524.4	10.0	0.0
Rehabilitation of District Veterinary Laboratories /c	No	-	4	3	-	-	7	733.00	-	360.7	270.5	-	-	631.3	-	427.1	336.3	-	-	763.4	10.0	0.0
Establishment of Quarantine Stations /d	No	-	2	-	-	-	2	1,095.00	-	269.4	-	-	-	269.4	-	319.0	-	-	-	319.0	10.0	0.0
Construction of LSC Tier 3 /e	No	-	2	-	-	-	2	3,394.50	-	835.3	-	-	-	835.3	-	988.9	-	-	-	988.9	10.0	0.0
Construction of Veterinary Check Points /f	No	-	2	-	-	-	2	2,500.00	-	615.2	-	-	-	615.2	-	728.3	-	-	-	728.3	10.0	0.0
Construction of Veterinary Check Points (Boom Gate)	No	-	3	-	-	-	3	640.00	-	236.2	-	-	-	236.2	-	279.7	-	-	-	279.7	10.0	0.0
Total Investment Costs									**-**	**3,015.5**	**526.3**	**26.1**	**-**	**3,567.9**	**-**	**3,569.0**	**653.2**	**32.5**	**-**	**4,254.6**		
II. Recurrent Costs																						
A. PERSONNEL (Salaries)																						
MAL Senior Staff	P/Month	6	6	6	6	6	30	4.00	3.0	3.0	3.0	3.0	3.0	14.8	3.0	3.2	3.3	3.5	3.7	16.7	0.0	0.0
MAL Middle & Junior Staff	P/Month	7	7	7	7	7	35	3.00	2.6	2.6	2.6	2.6	2.6	12.9	2.6	2.8	2.9	3.1	3.2	14.6	0.0	0.0
MAL Support Staff	P/Month	7	7	7	7	7	35	2.00	1.7	1.7	1.7	1.7	1.7	8.6	1.8	1.9	1.9	2.0	2.1	9.8	0.0	0.0
Sub-total									**7.3**	**7.3**	**7.3**	**7.3**	**7.3**	**36.3**	**7.4**	**7.8**	**8.2**	**8.6**	**9.0**	**41.1**		
B. DAILY SUBSISTENCE ALLOWANCES																						
All Participating Staff	P/Day	100	100	100	100	100	500	1.20	**14.8**	**14.8**	**14.8**	**14.8**	**14.8**	**73.8**	**15.1**	**15.9**	**16.7**	**17.5**	**18.4**	**83.6**	0.0	0.0
C. OPERATION AND MAINTENANCE /g																						
O&M All Public Infrastructures /h	LS	-	-	1	1	1	3	400.00	**-**	**-**	**49.2**	**49.2**	**49.2**	**147.6**	**-**	**-**	**58.4**	**61.3**	**64.4**	**184.1**	5.0	0.0
Total									**22.0**	**3,037.5**	**597.6**	**97.3**	**71.2**	**3,825.7**	**22.6**	**3,592.7**	**736.4**	**119.9**	**91.8**	**4,563.4**		

\a This includes rangeland management either within the existing livestock ranches (tier 3) or in new areas.

\b Kasama and Chinsali Regional Vet Labs including lab equipment. Equipment only for Kasama lab.

\c Cost includes equipment. Supply and instal. Kasama District's lab will include small building and equipment for Misamfu livestock feeds mini-laboratory.

\d Cost includes equipment.

\e To be constructed within Government Livestock Ranches (Mbesuma and Kalungwishi). Unit cost includes equipment (to be supplied and installed by the same contractor)

\f Complete veterinary check point at (i) Kanona (existing ZAWA check point/Chitambo/Mpika District) and (ii) Chitoshi in Mporokoso.

\g Government Contribution

\h Government and Council Annual Budgets

Table B.2h.1 **Detailed Cost Table 2:** Sub-Component Name: Public Infrastructure Support (with Other Accounts)

Item Description	Unit	Quantities						Unit Cost	Totals Including Contingencies (UA '000)						Other Accounts			
		PY1	PY2	PY3	PY4	PY5	Total	(ZMW '000)	PY1	PY2	PY3	PY4	PY5	Total	Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method
I. Investment Costs																		
A. WORKS																		
Sustainable Pasture and Rangeland Development /a	LS	-	0.3	0.3	0.4	-	1	530.00	-	22.1	23.2	32.5	-	77.8	WORKS_DA	ADF_LOAN (100%)	WORKS_PA	OTHER_PM (100%)
Rehabilitation of Feeder Roads	Km	-	40	40	-	-	80	48.00	-	279.7	293.6	-	-	573.3	WORKS_DA	ADF_LOAN (100%)	WORKS_PA	NCB_PM (100%)
Rehabilitation of Regional Veterinary Laboratory /b	No	-	2	-	-	-	2	1,800.00	-	524.4	-	-	-	524.4	WORKS_DA	ADF_LOAN (100%)	WORKS_PA	NCB_PM (100%)
Rehabilitation of District Veterinary Laboratories /c	No	-	4	3	-	-	7	733.00	-	427.1	336.3	-	-	763.4	WORKS_DA	ADF_LOAN (100%)	WORKS_PA	NCB_PM (100%)
Establishment of Quarantine Stations /d	No	-	2	-	-	-	2	1,095.00	-	319.0	-	-	-	319.0	WORKS_DA	ADF_LOAN (100%)	WORKS_PA	NCB_PM (100%)
Construction of LSC Tier 3 /e	No	-	2	-	-	-	2	3,394.50	-	988.9	-	-	-	988.9	WORKS_DA	ADF_LOAN (100%)	WORKS_PA	NCB_PM (100%)
Construction of Veterinary Check Points /f	No	-	2	-	-	-	2	2,500.00	-	728.3	-	-	-	728.3	WORKS_DA	ADF_LOAN (100%)	WORKS_PA	NCB_PM (100%)
Construction of Veterinary Check Points (Boom Gate)	No	-	3	-	-	-	3	640.00	-	279.7	-	-	-	279.7	WORKS_DA	ADF_LOAN (100%)	WORKS_PA	NCB_PM (100%)
Total Investment Costs									**-**	**3,569.0**	**653.2**	**32.5**	**-**	**4,254.6**				
II. Recurrent Costs																		
A. PERSONNEL (Salaries)																		
MAL Senior Staff	P/Month	6	6	6	6	6	30	4.00	3.0	3.2	3.3	3.5	3.7	16.7	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
MAL Middle & Junior Staff	P/Month	7	7	7	7	7	35	3.00	2.6	2.8	2.9	3.1	3.2	14.6	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
MAL Support Staff	P/Month	7	7	7	7	7	35	2.00	1.8	1.9	1.9	2.0	2.1	9.8	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
Sub-total									**7.4**	**7.8**	**8.2**	**8.6**	**9.0**	**41.1**				
B. DAILY SUBSISTENCE ALLOWANCES																		
All Participating Staff	P/Day	100	100	100	100	100	500	1.20	**15.1**	**15.9**	**16.7**	**17.5**	**18.4**	**83.6**	OPERATING_COSTS_DA	ADF_LOAN (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)
C. OPERATION AND MAINTENANCE /g																		
O&M All Public Infrastructures /h	LS	-	-	1	1	1	3	400.00	**-**	**-**	**58.4**	**61.3**	**64.4**	**184.1**	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)
Total									**22.6**	**3,592.7**	**736.4**	**119.9**	**91.8**	**4,563.4**				

Table B.2i.1 **Detailed Cost Table 3:** Sub-Component Name: Support to Participating Institutions

Item Description	Unit	Quantities						Unit Cost	Base Cost (UA '000)						Totals Including Contingencies (UA '000)						Parameters (%) Phy.	Parameters (%) For.
		PY1	PY2	PY3	PY4	PY5	Total	(ZMW '000)	PY1	PY2	PY3	PY4	PY5	Total	PY1	PY2	PY3	PY4	PY5	Total	Cont.	Exch.
I. Investment Costs																						
A. GOODS																						
1. Equipment																						
Desktop Computer Set /a	No	6	-	-	-	-	6	8.00	5.9	-	-	-	-	5.9	6.3	-	-	-	-	6.3	5.0	100.0
Laptop Computer /b	No	3	-	-	-	-	3	7.00	2.6	-	-	-	-	2.6	2.7	-	-	-	-	2.7	5.0	100.0
LIMS Upgrading	No	1	-	-	-	-	1	150.00	18.5	-	-	-	-	18.5	19.6	-	-	-	-	19.6	5.0	100.0
Assorted Office Equipment and Furniture /c	Set	3	-	-	-	-	3	10.00	3.7	-	-	-	-	3.7	3.9	-	-	-	-	3.9	5.0	100.0
Sub-total									**30.6**	**-**	**-**	**-**	**-**	**30.6**	**32.5**	**-**	**-**	**-**	**-**	**32.5**		
2. Vehicles																						
DoubleCab 4x4-drive Motorvehicles /d	No	2	-	-	-	-	2	230.00	56.6	-	-	-	-	56.6	60.0	-	-	-	-	60.0	5.0	100.0
Motorcycles (off-road) /e	No	27	-	-	-	-	27	30.00	99.7	-	-	-	-	99.7	105.7	-	-	-	-	105.7	5.0	100.0
Subtotal									**156.3**	**-**	**-**	**-**	**-**	**156.3**	**165.7**	**-**	**-**	**-**	**-**	**165.7**		
Sub-total									**186.9**	**-**	**-**	**-**	**-**	**186.9**	**198.2**	**-**	**-**	**-**	**-**	**198.2**		
B. SERVICES																						
1. Consultancy Services /f																						
LIMS - Training	No	-	1	-	-	-	1	20.00	-	2.5	-	-	-	2.5	-	2.6	-	-	-	2.6	2.0	100.0
Financial Annual Audit /g	No	1	1	1	1	1	5	106.00	13.0	13.0	13.0	13.0	13.0	65.2	13.4	13.7	14.0	14.3	14.5	69.9	2.0	100.0
Development of Project M&E System	No	-	-	1	-	1	2	15.00	-	-	1.8	-	1.8	3.7	-	-	2.0	-	2.1	4.0	2.0	100.0
Mid-Term Review	No	-	-	1	-	-	1	15.00	-	-	1.8	-	-	1.8	-	-	2.0	-	-	2.0	2.0	100.0
Beneficiary Impact Assessment	No	-	-	-	1	-	1	15.00	-	-	-	1.8	-	1.8	-	-	-	2.0	-	2.0	2.0	100.0
Project Completion Review	No	-	-	-	-	1	1	15.00	-	-	-	-	1.8	1.8	-	-	-	-	2.1	2.1	2.0	100.0
TA-Pasture/Forage Production and Management /h	Per Month	-	6	-	-	-	6	20.00	-	14.8	-	-	-	14.8	-	15.5	-	-	-	15.5	2.0	100.0
Support to NGOs (Biogas Digesters) /i	No	1	1	1	-	-	3	20.00	2.5	2.5	2.5	-	-	7.4	2.5	2.6	2.6	-	-	7.8	2.0	100.0
Sub-total									**15.5**	**32.7**	**19.2**	**14.9**	**16.7**	**99.0**	**16.0**	**34.4**	**20.6**	**16.3**	**18.7**	**105.9**		
2. Training and Meetings																						
TRN: Various Livestock Training (Staff) /j	No	-	3	3	3	-	9	20.00	-	7.4	7.4	7.4	-	22.1	-	7.9	8.3	8.8	-	25.0	0.0	0.0
TRN: Various Livestock Training (Farmers)	No	9	18	18	-	-	45	10.00	11.1	22.1	22.1	-	-	55.4	11.3	23.8	25.0	-	-	60.2	0.0	0.0
Formation of Cooperatives /k	No	20	20	20	-	-	60	20.00	49.2	49.2	49.2	-	-	147.6	50.4	53.0	55.6	-	-	159.0	0.0	0.0
TRN: Value Addition and Agribusiness /l	No	9	9	9	9	-	36	20.00	22.1	22.1	22.1	22.1	-	88.6	22.7	23.8	25.0	26.3	-	97.8	0.0	0.0
Development of M&E System	No	1	-	-	-	-	1	50.00	6.2	-	-	-	-	6.2	6.2	-	-	-	-	6.2	0.0	100.0
Provincial Quarterly Review Meetings	No	4	4	4	4	4	20	8.00	3.9	3.9	3.9	3.9	3.9	19.7	4.0	4.2	4.4	4.7	4.9	22.3	0.0	0.0
Technical Committee Meeting	No	1	1	1	1	1	5	8.00	1.0	1.0	1.0	1.0	1.0	4.9	1.0	1.1	1.1	1.2	1.2	5.6	0.0	0.0
Development of Annual Work Plan and Budget	No	1	1	1	1	1	5	8.00	1.0	1.0	1.0	1.0	1.0	4.9	1.0	1.1	1.1	1.2	1.2	5.6	0.0	0.0
Sub-total									**94.5**	**106.8**	**106.8**	**35.4**	**5.9**	**349.4**	**96.8**	**114.9**	**120.7**	**42.0**	**7.4**	**381.8**		
Sub-total									**110.0**	**139.5**	**126.0**	**50.3**	**22.6**	**448.5**	**112.7**	**149.3**	**141.3**	**58.3**	**26.0**	**487.6**		
Total Investment Costs									**296.9**	**139.5**	**126.0**	**50.3**	**22.6**	**635.3**	**310.9**	**149.3**	**141.3**	**58.3**	**26.0**	**685.8**		

Item Description	Unit	Quantities						Unit Cost	Base Cost (UA '000)						Totals Including Contingencies (UA '000)						Parameters (%) Phy.	For.
		PY1	PY2	PY3	PY4	PY5	Total	(ZMW '000)	PY1	PY2	PY3	PY4	PY5	Total	PY1	PY2	PY3	PY4	PY5	Total	Cont.	Exch.
II. Recurrent Costs																						
A. PERSONNEL (Salaries)																						
MAL Senior Staff	Per Month	6	6	6	6	6	30	4.00	3.0	3.0	3.0	3.0	3.0	14.8	3.2	3.3	3.5	3.7	3.9	17.6	5.0	0.0
MAL Middle and Junior Staff	Per Month	12	12	12	12	12	60	3.00	4.4	4.4	4.4	4.4	4.4	22.1	4.8	5.0	5.3	5.5	5.8	26.3	5.0	0.0
MAL Support Staff	Per Month	12	12	12	12	12	60	2.00	3.0	3.0	3.0	3.0	3.0	14.8	3.2	3.3	3.5	3.7	3.9	17.6	5.0	0.0
Sub-total									**10.3**	**10.3**	**10.3**	**10.3**	**10.3**	**51.7**	**11.1**	**11.7**	**12.3**	**12.9**	**13.5**	**61.5**		
B. DAILY SUBSISTENCE ALLOWANCES																						
All Participating Staff	Per Day	200	200	200	200	200	1,000	1.20	**29.5**	**29.5**	**29.5**	**29.5**	**29.5**	**147.6**	**31.8**	**33.4**	**35.0**	**36.8**	**38.6**	**175.6**	5.0	0.0
C. OPERATION AND MAINTENANCE																						
1. Project and Government Offices																						
Chinsali Govt Office Rent /m	Per Month	12	12	12	12	12	60	6.00	8.9	8.9	8.9	8.9	8.9	44.3	9.5	10.0	10.5	11.0	11.6	52.7	5.0	0.0
Kasama Project and Govt Office Operation	Per Month	12	12	12	12	12	60	6.00	8.9	8.9	8.9	8.9	8.9	44.3	9.5	10.0	10.5	11.0	11.6	52.7	5.0	0.0
Kasama Project and Govt Office Maintenance	No	1	-	1	-	1	3	20.00	2.5	-	2.5	-	2.5	7.4	2.6	-	2.9	-	3.2	8.8	5.0	0.0
Kasama Project and Govt Offices Rent /n	Per Month	12	12	12	12	12	60	30.00	44.3	44.3	44.3	44.3	44.3	221.5	47.7	50.1	52.6	55.2	57.9	263.4	5.0	0.0
Chinsali Govt Office Operation	Per Month	12	12	12	12	12	60	6.00	8.9	8.9	8.9	8.9	8.9	44.3	9.5	10.0	10.5	11.0	11.6	52.7	5.0	0.0
Chinsali Govt Office Maintenance	No	1	-	1	-	1	3	20.00	2.5	-	2.5	-	2.5	7.4	2.6	-	2.9	-	3.2	8.8	5.0	0.0
All GRZ Offices /o	No	12	12	12	12	12	60	100.00	147.6	147.6	147.6	147.6	147.6	738.2	158.9	166.8	175.2	183.9	193.1	878.0	5.0	0.0
Sub-total									**223.4**	**218.5**	**223.4**	**218.5**	**223.4**	**1,107.3**	**240.5**	**246.9**	**265.1**	**272.2**	**292.3**	**1,317.0**		
2. Vehicles																						
DCab 4x4 Motorvehicle Operation	No	2	2	2	2	2	10	12.00	3.0	3.0	3.0	3.0	3.0	14.8	3.2	3.3	3.5	3.7	3.9	17.6	5.0	0.0
DCab 4x4 Motorvehicle Maintenance	No	2	2	2	2	2	10	12.00	3.0	3.0	3.0	3.0	3.0	14.8	3.2	3.3	3.5	3.7	3.9	17.6	5.0	0.0
Motorcycle Operation	No	27	27	27	27	27	135	0.40	1.3	1.3	1.3	1.3	1.3	6.6	1.4	1.5	1.6	1.7	1.7	7.9	5.0	0.0
Motorcycle Maintenance	No	27	27	27	27	27	135	0.40	1.3	1.3	1.3	1.3	1.3	6.6	1.4	1.5	1.6	1.7	1.7	7.9	5.0	0.0
Sub-total									**8.6**	**8.6**	**8.6**	**8.6**	**8.6**	**42.8**	**9.2**	**9.7**	**10.2**	**10.7**	**11.2**	**50.9**		
3. Equipment and Furniture																						
Office Equipment and Furniture Maintenance	No	1	1	1	1	1	5	100.00	12.3	12.3	12.3	12.3	12.3	61.5	13.2	13.9	14.6	15.3	16.1	73.2	5.0	0.0
Sub-total									**244.3**	**239.4**	**244.3**	**239.4**	**244.3**	**1,211.6**	**262.9**	**270.5**	**289.9**	**298.2**	**319.6**	**1,441.1**		
Total Recurrent Costs									**284.2**	**279.2**	**284.2**	**279.2**	**284.2**	**1,410.9**	**305.8**	**315.6**	**337.2**	**347.9**	**371.7**	**1,678.2**		
Total									**581.0**	**418.8**	**410.1**	**329.6**	**306.8**	**2,046.3**	**616.7**	**464.9**	**478.4**	**406.2**	**397.7**	**2,364.0**		

\a Set Computer, UPS and Laserjet Printer. 2 for NALEIC (LIMS)
\b 1 for NALEIC (LIMS)
\c For Project Offices (1 per Province & 3rd for NALEIC)
\d 1 vehicle per Province
\e 3 per participating District.
\f Individual Consultants unless stated. Shortlist, CV and Professional Fees. Minimum 3 candidates.
\g External Audit Firm.
\h International/Regional Individual Consultant. Shortlist, CV and Professional Fees. Minimum 3 candidates.
\i Local NGO.
\j Based on Training Needs Assessment
\k Includes Community Mobilisation and Interest Groups Formation. To be handled by Dept of Cooperatives.
\l Dept of Agribusiness based on the approved training programme.
\m Government contribution, including services (water and electrivity)
\n Government contribution, including services (water and electricity)
\o Government Contribution. O&M of MAL, Muchinga and Northern Provinces and District Offices for Participating Staff.

Table B.2i.2 **Detailed Cost Table 3:** Sub-Component Name: Support to Participating Institutions (with Other Accounts)

Item Description	Unit	Quantities						Unit Cost	Totals Including Contingencies (UA '000)						Other Accounts			
		PY1	PY2	PY3	PY4	PY5	Total	(ZMW '000)	PY1	PY2	PY3	PY4	PY5	Total	Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method
I. Investment Costs																		
A. GOODS																		
1. Equipment																		
Desktop Computer Set /a	No	6	-	-	-	-	6	8.00	6.3	-	-	-	-	6.3	GOODS_DA	ADF_LOAN (100%)	EQUIPMENT_PA	LCL_SHOPPING_PM (100%)
Laptop Computer /b	No	3	-	-	-	-	3	7.00	2.7	-	-	-	-	2.7	GOODS_DA	ADF_LOAN (100%)	EQUIPMENT_PA	LCL_SHOPPING_PM (100%)
LIMS Upgrading	No	1	-	-	-	-	1	150.00	19.6	-	-	-	-	19.6	GOODS_DA	ADF_LOAN (FE (100%), LC (0%))	EQUIPMENT_PA	LCL_SHOPPING_PM (100%)
Assorted Office Equipment and Furniture /c	Set	3	-	-	-	-	3	10.00	3.9	-	-	-	-	3.9	GOODS_DA	ADF_LOAN (100%)	EQUIPMENT_PA	LCL_SHOPPING_PM (100%)
Sub-total									**32.5**	**-**	**-**	**-**	**-**	**32.5**				
2. Vehicles																		
DoubleCab 4x4-drive Motorvehicles /d	No	2	-	-	-	-	2	230.00	60.0	-	-	-	-	60.0	GOODS_DA	ADF_LOAN (FE (100%), LC (0%))	VEHICLES_PA	LCL_SHOPPING_PM (100%)
Motorcycles (off-road) /e	No	27	-	-	-	-	27	30.00	105.7	-	-	-	-	105.7	GOODS_DA	ADF_LOAN (FE (100%), LC (0%))	VEHICLES_PA	LCL_SHOPPING_PM (100%)
Subtotal									**165.7**	**-**	**-**	**-**	**-**	**165.7**				
Sub-total									**198.2**	**-**	**-**	**-**	**-**	**198.2**				
B. SERVICES																		
1. Consultancy Services /f																		
LIMS - Training	No	-	1	-	-	-	1	20.00	-	2.6	-	-	-	2.6	SERVICES_DA	ADF_LOAN (100%)	CONTRACTUAL_SERVICES_PA	QBS_PM (100%)
Financial Annual Audit /g	No	1	1	1	1	1	5	106.00	13.4	13.7	14.0	14.3	14.5	69.9	SERVICES_DA	ADF_LOAN (100%)	AUDIT_PA	LCS_PM (100%)
Development of Project M&E System	No	-	-	1	-	1	2	15.00	-	-	2.0	-	2.1	4.0	SERVICES_DA	ADF_LOAN (100%)	CONTRACTUAL_SERVICES_PA	QBS_PM (100%)
Mid-Term Review	No	-	-	1	-	-	1	15.00	-	-	2.0	-	-	2.0	SERVICES_DA	ADF_LOAN (100%)	CONTRACTUAL_SERVICES_PA	QBS_PM (100%)
Beneficiary Impact Assessment	No	-	-	-	1	-	1	15.00	-	-	-	2.0	-	2.0	SERVICES_DA	ADF_LOAN (100%)	CONTRACTUAL_SERVICES_PA	QBS_PM (100%)
Project Completion Review	No	-	-	-	-	1	1	15.00	-	-	-	-	2.1	2.1	SERVICES_DA	ADF_LOAN (100%)	CONTRACTUAL_SERVICES_PA	QBS_PM (100%)
TA-Pasture/Forage Production and Management /h	Per Month	-	6	-	-	-	6	20.00	-	15.5	-	-	-	15.5	SERVICES_DA	ADF_LOAN (FE (100%), LC (0%))	CONTRACTUAL_SERVICES_PA	QBS_PM (100%)
Support to NGOs (Biogas Digesters) /i	No	1	1	1	-	-	3	20.00	2.5	2.6	2.6	-	-	7.8	SERVICES_DA	ADF_LOAN (100%)	CONTRACTUAL_SERVICES_PA	QBS_PM (100%)
Sub-total									**16.0**	**34.4**	**20.6**	**16.3**	**18.7**	**105.9**				
2. Training and Meetings																		
TRN: Various Livestock Training (Staff) /j	No	-	3	3	3	-	9	20.00	-	7.9	8.3	8.8	-	25.0	SERVICES_DA	ADF_LOAN (FE (0%), LC (100%))	TRAINING_PA	SSS_PM (100%)
TRN: Various Livestock Training (Farmers)	No	9	18	18	-	-	45	10.00	11.3	23.8	25.0	-	-	60.2	SERVICES_DA	ADF_LOAN (FE (0%), LC (100%))	TRAINING_PA	OTHER_PM (100%)
Formation of Cooperatives /k	No	20	20	20	-	-	60	20.00	50.4	53.0	55.6	-	-	159.0	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
TRN: Value Addition and Agribusiness /l	No	9	9	9	9	-	36	20.00	22.7	23.8	25.0	26.3	-	97.8	SERVICES_DA	ADF_LOAN (FE (0%), LC (100%))	CONTRACTUAL_SERVICES_PA	OTHER_PM (100%)
Development of M&E System	No	1	-	-	-	-	1	50.00	6.2	-	-	-	-	6.2	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	CONTRACTUAL_SERVICES_PA	SSS_PM (100%)
Provincial Quarterly Review Meetings	No	4	4	4	4	4	20	8.00	4.0	4.2	4.4	4.7	4.9	22.3	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
Technical Committee Meeting	No	1	1	1	1	1	5	8.00	1.0	1.1	1.1	1.2	1.2	5.6	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
Development of Annual Work Plan and Budget	No	1	1	1	1	1	5	8.00	1.0	1.1	1.1	1.2	1.2	5.6	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
Sub-total									**96.8**	**114.9**	**120.7**	**42.0**	**7.4**	**381.8**				
Sub-total									**112.7**	**149.3**	**141.3**	**58.3**	**26.0**	**487.6**				
Total Investment Costs									**310.9**	**149.3**	**141.3**	**58.3**	**26.0**	**685.8**				

Item Description	Unit	Quantities						Unit Cost	Totals Including Contingencies (UA '000)						Other Accounts			
		PY1	PY2	PY3	PY4	PY5	Total	(ZMW '000)	PY1	PY2	PY3	PY4	PY5	Total	Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method
II. Recurrent Costs																		
A. PERSONNEL (Salaries)																		
MAL Senior Staff	Per Month	6	6	6	6	6	30	4.00	3.2	3.3	3.5	3.7	3.9	17.6	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
MAL Middle and Junior Staff	Per Month	12	12	12	12	12	60	3.00	4.8	5.0	5.3	5.5	5.8	26.3	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
MAL Support Staff	Per Month	12	12	12	12	12	60	2.00	3.2	3.3	3.5	3.7	3.9	17.6	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
Sub-total									**11.1**	**11.7**	**12.3**	**12.9**	**13.5**	**61.5**				
B. DAILY SUBSISTENCE ALLOWANCES																		
All Participating Staff	Per Day	200	200	200	200	200	1,000	1.20	**31.8**	**33.4**	**35.0**	**36.8**	**38.6**	**175.6**	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
C. OPERATION AND MAINTENANCE																		
1. Project and Government Offices																		
Chinsali Govt Office Rent /m	Per Month	12	12	12	12	12	60	6.00	9.5	10.0	10.5	11.0	11.6	52.7	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)
Kasama Project and Govt Office Operation	Per Month	12	12	12	12	12	60	6.00	9.5	10.0	10.5	11.0	11.6	52.7	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
Kasama Project and Govt Office Maintenance	No	1	-	1	-	1	3	20.00	2.6	-	2.9	-	3.2	8.8	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
Kasama Project and Govt Offices Rent /n	Per Month	12	12	12	12	12	60	30.00	47.7	50.1	52.6	55.2	57.9	263.4	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)
Chinsali Govt Office Operation	Per Month	12	12	12	12	12	60	6.00	9.5	10.0	10.5	11.0	11.6	52.7	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
Chinsali Govt Office Maintenance	No	1	-	1	-	1	3	20.00	2.6	-	2.9	-	3.2	8.8	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
All GRZ Offices /o	No	12	12	12	12	12	60	100.00	158.9	166.8	175.2	183.9	193.1	878.0	OPERATING_COSTS_DA	GOVT	OPERATING_COSTS_PA	NBF_PM (100%)
Sub-total									**240.5**	**246.9**	**265.1**	**272.2**	**292.3**	**1,317.0**				
2. Vehicles																		
DCab 4x4 Motorvehicle Operation	No	2	2	2	2	2	10	12.00	3.2	3.3	3.5	3.7	3.9	17.6	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
DCab 4x4 Motorvehicle Maintenance	No	2	2	2	2	2	10	12.00	3.2	3.3	3.5	3.7	3.9	17.6	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
Motorcycle Operation	No	27	27	27	27	27	135	0.40	1.4	1.5	1.6	1.7	1.7	7.9	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
Motorcycle Maintenance	No	27	27	27	27	27	135	0.40	1.4	1.5	1.6	1.7	1.7	7.9	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
Sub-total									**9.2**	**9.7**	**10.2**	**10.7**	**11.2**	**50.9**				
3. Equipment and Furniture																		
Office Equipment and Furniture Maintenance	No	1	1	1	1	1	5	100.00	13.2	13.9	14.6	15.3	16.1	73.2	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
Sub-total									**262.9**	**270.5**	**289.9**	**298.2**	**319.6**	**1,441.1**				
Total Recurrent Costs									**305.8**	**315.6**	**337.2**	**347.9**	**371.7**	**1,678.2**				
Total									**616.7**	**464.9**	**478.4**	**406.2**	**397.7**	**2,364.0**				

Table B.2j.1 **Detailed Cost Table 4** Sub-Component Name: Women/Youth Empowerment

Item Description	Unit	Quantities						Unit Cost	Base Cost (UA '000)						Totals Including Contingencies (UA '000)						Parameters (%) Phy.	Parameters (%) For.
		PY1	PY2	PY3	PY4	PY5	Total	(ZMW '000)	PY1	PY2	PY3	PY4	PY5	Total	PY1	PY2	PY3	PY4	PY5	Total	Cont.	Exch.
I. Investment Costs																						
A. GOODS																						
1. Equipment																						
Hides/Skins Processing Equipment /a	Set	27	-	-	-	-	27	9.00	29.9	-	-	-	-	29.9	31.7	-	-	-	-	31.7	5.0	100.0
Pilot Small-stock for Pass-on Scheme /b	No	9	9	-	-	-	18	80.00	88.6	88.6	-	-	-	177.2	93.9	95.8	-	-	-	189.8	5.0	100.0
LSC Tier 1 Construction Equipment /c	Set	27	-	-	-	-	27	2.00	6.6	-	-	-	-	6.6	7.0	-	-	-	-	7.0	5.0	100.0
Pilot Livestock Stocking Tier 3 /d	LS	1	1	-	-	-	2	15.00	1.8	1.8	-	-	-	3.7	2.0	2.0	-	-	-	4.0	5.0	100.0
Sub-total									**127.0**	**90.4**	**-**	**-**	**-**	**217.4**	**134.7**	**97.8**	**-**	**-**	**-**	**232.5**		
B. SERVICES																						
1. Training																						
Assorted Women/Youth Training Session /e	No	9	9	9	9	9	45	10.00	11.1	11.1	11.1	11.1	11.1	55.4	11.9	12.5	13.1	13.8	14.5	65.9	5.0	0.0
Skins/Hides Processing Sessions /f	No	9	9	-	-	-	18	20.00	22.1	22.1	-	-	-	44.3	23.8	25.0	-	-	-	48.9	5.0	0.0
Sub-total									**33.2**	**33.2**	**11.1**	**11.1**	**11.1**	**99.7**	**35.8**	**37.5**	**13.1**	**13.8**	**14.5**	**114.7**		
2. Consultancy Services /g																						
NGO-Pilot Livestock Stocking /h	No	1	1	1	-	-	3	80.00	9.8	9.8	9.8	-	-	29.5	10.4	10.6	10.9	-	-	31.9	5.0	100.0
3. Community Empowerment																						
Pilot School/Youth Livestock Clubs /i	No	-	5	5	-	-	10	50.00	-	30.8	30.8	-	-	61.5	-	34.8	36.5	-	-	71.3	5.0	0.0
IGAs for Women/Youth Groups	No	9	9	-	-	-	18	100.00	110.7	110.7	-	-	-	221.5	119.2	125.1	-	-	-	244.3	5.0	0.0
Nutrition, HIV/AIDS and Malaria Campaigns	LS	1	1	1	1	-	4	60.00	7.4	7.4	7.4	7.4	-	29.5	7.9	8.3	8.8	9.2	-	34.2	5.0	0.0
Sub-total									**118.1**	**148.9**	**38.1**	**7.4**	**-**	**312.5**	**127.1**	**168.2**	**45.3**	**9.2**	**-**	**349.8**		
Sub-total									**161.2**	**191.9**	**59.1**	**18.5**	**11.1**	**441.7**	**173.3**	**216.4**	**69.3**	**23.0**	**14.5**	**496.5**		
Total Investment Costs									**288.1**	**282.4**	**59.1**	**18.5**	**11.1**	**659.1**	**308.0**	**314.2**	**69.3**	**23.0**	**14.5**	**728.9**		
II. Recurrent Costs																						
A. PERSONNEL (Salaries)																						
MAL Senior Staff	Per Month	9	9	9	9	9	45	4.00	4.4	4.4	4.4	4.4	4.4	22.1	4.8	5.0	5.3	5.5	5.8	26.3	5.0	0.0
MAL Middle and Junior Staff	Per Month	9	9	9	9	9	45	3.00	3.3	3.3	3.3	3.3	3.3	16.6	3.6	3.8	3.9	4.1	4.3	19.8	5.0	0.0
MAL Support Staff	Per Month	8	8	8	8	8	40	2.00	2.0	2.0	2.0	2.0	2.0	9.8	2.1	2.2	2.3	2.5	2.6	11.7	5.0	0.0
Sub-total									**9.7**	**9.7**	**9.7**	**9.7**	**9.7**	**48.6**	**10.5**	**11.0**	**11.5**	**12.1**	**12.7**	**57.8**		
B. DAILY SUBSISTENCE ALLOWANCES																						
All Participating Staff	Per Day	300	300	300	300	300	1,500	1.20	**44.3**	**44.3**	**44.3**	**44.3**	**44.3**	**221.5**	**47.7**	**50.1**	**52.6**	**55.2**	**57.9**	**263.4**	5.0	0.0
Total Recurrent Costs									**54.0**	**54.0**	**54.0**	**54.0**	**54.0**	**270.1**	**58.1**	**61.0**	**64.1**	**67.3**	**70.7**	**321.2**		
Total									**342.2**	**336.4**	**113.1**	**72.5**	**65.1**	**929.1**	**366.1**	**375.3**	**133.3**	**90.3**	**85.1**	**1,050.1**		

\a For 27 women & youth groups

\b To be managed by NGO. Target # = 18 women and youth groups - IGA/pilot pass-on scheme of small-stock.

\c For 27 women & youth groups

\d Procurement of assorted livestock.

\e Training Institution - Based on Training Needs Assessment.

\f Individual Consultant. Skins/hides processing (vegetable). 3 women/youth groups per participating District. Start up equipment.

\g Local NGO or Firm

\h For Pilot Livestock Stocking

\i Pilot livestock-activity to empower students/youth to venture into livestock management.

Table B.2j.2 **Detailed Cost Table 4** Sub-Component Name: Women/Youth Empowerment (with Other Accounts)

Item Description	Unit	Quantities						Unit Cost	Totals Including Contingencies (UA '000)						Other Accounts			
		PY1	PY2	PY3	PY4	PY5	Total	(ZMW '000)	PY1	PY2	PY3	PY4	PY5	Total	Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method
I. Investment Costs																		
A. GOODS																		
1. Equipment																		
Hides/Skins Processing Equipment /a	Set	27	-	-	-	-	27	9.00	31.7	-	-	-	-	31.7	GOODS_DA	ADF_LOAN (100%)	EQUIPMENT_PA	LCL_SHOPPING_PM (100%)
Pilot Small-stock for Pass-on Scheme /b	No	9	9	-	-	-	18	80.00	93.9	95.8	-	-	-	189.8	GOODS_DA	ADF_LOAN (100%)	EQUIPMENT_PA	LCL_SHOPPING_PM (100%)
LSC Tier 1 Construction Equipment /c	Set	27	-	-	-	-	27	2.00	7.0	-	-	-	-	7.0	GOODS_DA	ADF_LOAN (100%)	EQUIPMENT_PA	LCL_SHOPPING_PM (100%)
Pilot Livestock Stocking Tier 3 /d	LS	1	1	-	-	-	2	15.00	2.0	2.0	-	-	-	4.0	GOODS_DA	ADF_LOAN (100%)	EQUIPMENT_PA	LCL_SHOPPING_PM (100%)
Sub-total									**134.7**	**97.8**	**-**	**-**	**-**	**232.5**				
B. SERVICES																		
1. Training																		
Assorted Women/Youth Training Session /e	No	9	9	9	9	9	45	10.00	11.9	12.5	13.1	13.8	14.5	65.9	SERVICES_DA	ADF_LOAN (100%)	CONTRACTUAL_SERVICES_PA	SSS_PM (100%)
Skins/Hides Processing Sessions /f	No	9	9	-	-	-	18	20.00	23.8	25.0	-	-	-	48.9	SERVICES_DA	ADF_LOAN (100%)	CONTRACTUAL_SERVICES_PA	QBS_PM (100%)
Sub-total									**35.8**	**37.5**	**13.1**	**13.8**	**14.5**	**114.7**				
2. Consultancy Services /g																		
NGO-Pilot Livestock Stocking /h	No	1	1	1	-	-	3	80.00	10.4	10.6	10.9	-	-	31.9	SERVICES_DA	ADF_LOAN (100%)	CONTRACTUAL_SERVICES_PA	QBS_PM (100%)
3. Community Empowerment																		
Pilot School/Youth Livestock Clubs /i	No	-	5	5	-	-	10	50.00	-	34.8	36.5	-	-	71.3	OPERATING_COSTS_DA	ADF_LOAN (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)
IGAs for Women/Youth Groups	No	9	9	-	-	-	18	100.00	119.2	125.1	-	-	-	244.3	OPERATING_COSTS_DA	ADF_LOAN (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)
Nutrition, HIV/AIDS and Malaria Campaigns	LS	1	1	1	1	-	4	60.00	7.9	8.3	8.8	9.2	-	34.2	OPERATING_COSTS_DA	ADF_LOAN (100%)	OPERATING_COSTS_PA	OTHER_PM (100%)
Sub-total									**127.1**	**168.2**	**45.3**	**9.2**	**-**	**349.8**				
Sub-total									**173.3**	**216.4**	**69.3**	**23.0**	**14.5**	**496.5**				
Total Investment Costs									**308.0**	**314.2**	**69.3**	**23.0**	**14.5**	**728.9**				
II. Recurrent Costs																		
A. PERSONNEL (Salaries)																		
MAL Senior Staff	Per Month	9	9	9	9	9	45	4.00	4.8	5.0	5.3	5.5	5.8	26.3	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
MAL Middle and Junior Staff	Per Month	9	9	9	9	9	45	3.00	3.6	3.8	3.9	4.1	4.3	19.8	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
MAL Support Staff	Per Month	8	8	8	8	8	40	2.00	2.1	2.2	2.3	2.5	2.6	11.7	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
Sub-total									**10.5**	**11.0**	**11.5**	**12.1**	**12.7**	**57.8**				
B. DAILY SUBSISTENCE ALLOWANCES																		
All Participating Staff	Per Day	300	300	300	300	300	1,500	1.20	**47.7**	**50.1**	**52.6**	**55.2**	**57.9**	**263.4**	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
Total Recurrent Costs									**58.1**	**61.0**	**64.1**	**67.3**	**70.7**	**321.2**				
Total									**366.1**	**375.3**	**133.3**	**90.3**	**85.1**	**1,050.1**				

Table B.2k.1 **Detailed Cost Table 5** Component Name: Project Management

Item Description	Unit	Quantities						Unit Cost	Base Cost (UA '000)						Totals Including Contingencies (UA '000)						Parameters (%) Phy. Cont.	Parameters (%) For. Exch.
		PY1	PY2	PY3	PY4	PY5	Total	(ZMW '000)	PY1	PY2	PY3	PY4	PY5	Total	PY1	PY2	PY3	PY4	PY5	Total		
I. Investment Costs																						
A. GOODS																						
1. Vehicles																						
9-Seater 4x4 Motorvehicles	No	2	-	-	-	-	2	350.00	86.1	-	-	-	-	86.1	91.3	-	-	-	-	91.3	5.0	100.0
Total Investment Costs									86.1	-	-	-	-	86.1	91.3	-	-	-	-	91.3		
II. Recurrent Costs																						
A. PERSONNEL (Salaries)																						
GRZ Director MAL /a	Per Month	3	3	3	3	3	15	4.00	1.5	1.5	1.5	1.5	1.5	7.4	1.6	1.7	1.8	1.8	1.9	8.8	5.0	0.0
GRZ Chief Accountant - MAL /b	Per Month	3	3	3	3	3	15	4.00	1.5	1.5	1.5	1.5	1.5	7.4	1.6	1.7	1.8	1.8	1.9	8.8	5.0	0.0
GRZ Procurement Officer - MAL /c	Per Month	3	3	3	3	3	15	4.00	1.5	1.5	1.5	1.5	1.5	7.4	1.6	1.7	1.8	1.8	1.9	8.8	5.0	0.0
GRZ Civil Engineer - MoW /d	Per Month	4	4	4	4	4	20	4.00	2.0	2.0	2.0	2.0	2.0	9.8	2.1	2.2	2.3	2.5	2.6	11.7	5.0	0.0
GRZ 2 Focal Points /e	Per Month	8	8	8	8	8	40	3.00	3.0	3.0	3.0	3.0	3.0	14.8	3.2	3.3	3.5	3.7	3.9	17.6	5.0	0.0
GRZ 2 Gender Specialists /f	Per Month	4	4	4	4	4	20	3.00	1.5	1.5	1.5	1.5	1.5	7.4	1.6	1.7	1.8	1.8	1.9	8.8	5.0	0.0
GRZ 2 Accountants /g	Per Month	8	8	8	8	8	40	4.00	3.9	3.9	3.9	3.9	3.9	19.7	4.2	4.4	4.7	4.9	5.2	23.4	5.0	0.0
Project Coordinator /h	Per Month	12	12	12	12	12	60	17.00	25.1	25.1	25.1	25.1	25.1	125.5	27.0	28.4	29.8	31.3	32.8	149.3	5.0	0.0
Project Procurement Specialist /i	Per Month	12	12	12	-	-	36	14.00	20.7	20.7	20.7	-	-	62.0	22.2	23.4	24.5	-	-	70.1	5.0	0.0
Project M&E Specialist /j	Per Month	12	12	12	12	12	60	14.00	20.7	20.7	20.7	20.7	20.7	103.3	22.2	23.4	24.5	25.8	27.0	122.9	5.0	0.0
Project Accountant /k	Per Month	12	12	12	12	12	60	14.00	20.7	20.7	20.7	20.7	20.7	103.3	22.2	23.4	24.5	25.8	27.0	122.9	5.0	0.0
Drivers /l	Per Month	24	24	24	24	24	120	4.00	11.8	11.8	11.8	11.8	11.8	59.1	12.7	13.3	14.0	14.7	15.5	70.2	5.0	0.0
Administrative Assistant /m	Per Month	12	12	12	12	12	60	4.00	5.9	5.9	5.9	5.9	5.9	29.5	6.4	6.7	7.0	7.4	7.7	35.1	5.0	0.0
Sub-total									119.6	119.6	119.6	98.9	98.9	556.6	128.7	135.1	141.9	123.2	129.4	658.4		
B. DAILY SUBSISTENCE ALLOWANCES																						
All Participating Staff /n	Per Day	200	200	200	200	200	1,000	1.20	29.5	29.5	29.5	29.5	29.5	147.6	31.8	33.4	35.0	36.8	38.6	175.6	5.0	0.0
C. OPERATION AND MAINTENANCE																						
1. Vehicles																						
9-seater 4x4 Motorvehicles Operation	No	2	2	2	2	2	10	30.00	7.4	7.4	7.4	7.4	7.4	36.9	7.9	8.3	8.8	9.2	9.7	43.9	5.0	0.0
9-seater 4x4 Vehicle Maintenance	No	2	2	2	2	2	10	12.00	3.0	3.0	3.0	3.0	3.0	14.8	3.2	3.3	3.5	3.7	3.9	17.6	5.0	0.0
Sub-total									**10.3**	**10.3**	**10.3**	**10.3**	**10.3**	**51.7**	**11.1**	**11.7**	**12.3**	**12.9**	**13.5**	**61.5**		
Total Recurrent Costs									**159.4**	**159.4**	**159.4**	**138.8**	**138.8**	**755.9**	**171.6**	**180.2**	**189.2**	**172.9**	**181.6**	**895.5**		
Total									**245.6**	**159.4**	**159.4**	**138.8**	**138.8**	**842.0**	**262.9**	**180.2**	**189.2**	**172.9**	**181.6**	**986.8**		

\a Government Contribution
\b Government Contribution.
\c Government Contribution.
\d Government Contribution. Civil Engineer from Ministry of Works to supervise the civil works.
\e Government Contribution. 1 from Muchinga Province and 1 from Northern Province.
\f Government Contribution - 1 from Muchinga Province and 1 from Northern Province.
\g Government Contribution. 1 from Muchinga Province and 1 from Northern Province.
\h Recruited under the Project. To be based in Kasama District.
\i Recruited under the Project for 3 years only. To be based in Kasama District.
\j Recruited under the Project. To be based in Kasama District.
\k Recruited under the Project. To be based in Kasama District.
\l Recruited under the Project. To be based in Kasama District.
\m Recruited under the Project. To be based in Kasama District.
\n Using Government Rates.

Table B.2k.2 **Detailed Cost Table 5** Component Name: Project Management (with Other Accounts)

Item Description	Unit	Quantities						Unit Cost	Totals Including Contingencies (UA '000)						Other Accounts			
		PY1	PY2	PY3	PY4	PY5	Total	(ZMW '000)	PY1	PY2	PY3	PY4	PY5	Total	Disb. Acct.	Fin. Rule	Proc. Acct.	Proc. Method
I. Investment Costs																		
A. GOODS																		
1. Vehicles																		
9-Seater 4x4 Motorvehicles	No	2	-	-	-	-	2	350.00	91.3	-	-	-	-	91.3	GOODS_DA	ADF_LOAN (FE (100%), LC (0%))	VEHICLES_PA	LCL_SHOPPING_PM (100%)
Total Investment Costs									91.3	-	-	-	-	91.3				
II. Recurrent Costs																		
A. PERSONNEL (Salaries)																		
GRZ Director MAL /a	Per Month	3	3	3	3	3	15	4.00	1.6	1.7	1.8	1.8	1.9	8.8	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
GRZ Chief Accountant - MAL /b	Per Month	3	3	3	3	3	15	4.00	1.6	1.7	1.8	1.8	1.9	8.8	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
GRZ Procurement Officer - MAL /c	Per Month	3	3	3	3	3	15	4.00	1.6	1.7	1.8	1.8	1.9	8.8	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
GRZ Civil Engineer - MoW /d	Per Month	4	4	4	4	4	20	4.00	2.1	2.2	2.3	2.5	2.6	11.7	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
GRZ 2 Focal Points /e	Per Month	8	8	8	8	8	40	3.00	3.2	3.3	3.5	3.7	3.9	17.6	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
GRZ 2 Gender Specialists /f	Per Month	4	4	4	4	4	20	3.00	1.6	1.7	1.8	1.8	1.9	8.8	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
GRZ 2 Accountants /g	Per Month	8	8	8	8	8	40	4.00	4.2	4.4	4.7	4.9	5.2	23.4	OPERATING_COSTS_DA	GOVT	PERSONNEL_WAGES_PA	NBF_PM (100%)
Project Coordinator /h	Per Month	12	12	12	12	12	60	17.00	27.0	28.4	29.8	31.3	32.8	149.3	OPERATING_COSTS_DA	ADF_LOAN (100%)	PERSONNEL_WAGES_PA	OTHER_PM (100%)
Project Procurement Specialist /i	Per Month	12	12	12	-	-	36	14.00	22.2	23.4	24.5	-	-	70.1	OPERATING_COSTS_DA	ADF_LOAN (100%)	PERSONNEL_WAGES_PA	OTHER_PM (100%)
Project M&E Specialist /j	Per Month	12	12	12	12	12	60	14.00	22.2	23.4	24.5	25.8	27.0	122.9	OPERATING_COSTS_DA	ADF_LOAN (100%)	PERSONNEL_WAGES_PA	OTHER_PM (100%)
Project Accountant /k	Per Month	12	12	12	12	12	60	14.00	22.2	23.4	24.5	25.8	27.0	122.9	OPERATING_COSTS_DA	ADF_LOAN (100%)	PERSONNEL_WAGES_PA	OTHER_PM (100%)
Drivers /l	Per Month	24	24	24	24	24	120	4.00	12.7	13.3	14.0	14.7	15.5	70.2	OPERATING_COSTS_DA	ADF_LOAN (100%)	PERSONNEL_WAGES_PA	OTHER_PM (100%)
Administrative Assistant /m	Per Month	12	12	12	12	12	60	4.00	6.4	6.7	7.0	7.4	7.7	35.1	OPERATING_COSTS_DA	ADF_LOAN (100%)	PERSONNEL_WAGES_PA	OTHER_PM (100%)
Sub-total									128.7	135.1	141.9	123.2	129.4	658.4				
B. DAILY SUBSISTENCE ALLOWANCES																		
All Participating Staff /n	Per Day	200	200	200	200	200	1,000	1.20	31.8	33.4	35.0	36.8	38.6	175.6	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
C. OPERATION AND MAINTENANCE																		
1. Vehicles																		
9-seater 4x4 Motorvehicles Operation	No	2	2	2	2	2	10	30.00	7.9	8.3	8.8	9.2	9.7	43.9	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
9-seater 4x4 Vehicle Maintenance	No	2	2	2	2	2	10	12.00	3.2	3.3	3.5	3.7	3.9	17.6	OPERATING_COSTS_DA	ADF_LOAN (FE (0%), LC (100%))	OPERATING_COSTS_PA	OTHER_PM (100%)
Sub-total									**11.1**	**11.7**	**12.3**	**12.9**	**13.5**	**61.5**				
Total Recurrent Costs									**171.6**	**180.2**	**189.2**	**172.9**	**181.6**	**895.5**				
Total									**262.9**	**180.2**	**189.2**	**172.9**	**181.6**	**986.8**				

B.3 Implementation Arrangements

6. Executing and Implementing Agencies: Based on past experiences, the Project will be implemented under the Project Coordination Team (PCT) using the existing MAL structures. The PCT will be established for day to day management of LISP, comprising a Project Coordinator (PC), a Procurement Specialist, an M&E Specialist, a Project Accountant, a Civil Engineer, 2 Focal Points (1 from Northern Province and 1 from Muchinga Province), 2 Gender Specialists (1 from Northern Province and 1 from Muchinga Province), and 2 Accountants (1 from Northern Province and 1 from Muchinga Province). The PC, Procurement Specialist, Project Accountant and M&E Specialist will be national experts recruited competitively and will be based in Kasama District (provincial headquarters of the Northern Province, except for the Project Accountant who will be based in Lusaka - MAL Hq). The GoZ will appoint, within the existing structures, the rest of the PCT members who will be seconded to the Project. The assigned Civil Engineer from Ministry of Works (MoW) will supervise the construction of livestock infrastructures. The Provincial Focal Points will submit progress reports to the PC. The PCT will be under the MAL's Director of Livestock Development (DLD). The MAL Chief Accountant and Procurement Officer will also facilitate the LISP implementation. A Project Steering Committee (PSC) will be set-up by GoZ with a maximum of ten members who will have oversight responsibility and oversee project compliance with sub-sector National Policies and Strategies. The PSC will consist of (1) Secretary to Treasury (Ministry of Finance) - Chairperson, (2) Permanent Secretary (PS) - MAL, (3) PS - Northern Province, (4) PS - Muchinga Province, (5) PS - Ministry of Works, (6) representative from Zambia Environment Management Authority, (7) 2 livestock farmers' representatives from Muchinga and Northern Provinces, and (8) 2 representatives from the private sector (beef and dairy industries). The PC shall be the Secretary of PSC. The GoZ and Bank will review and approve the LISP's annual work plan and budget, at least 3 months before the beginning of the fiscal year. At the Provincial level, the responsibility for delivery rests with the existing institutional structures of MAL under coordination of the PACO. ZMFO will support LISP through regular supervision missions, informal meetings, and processing of all fiduciary documents.

7. At the Provincial level, the responsibility for delivery rests with the existing institutional structures of MAL under coordination of the Provincial Agriculture Coordinator. The Provincial and District Offices have technical officers who will spearhead Project implementation. To fill the technical capacity gaps, the Project will strengthen the capacity of the GoZ by engaging the services of a local NGO for the livestock pass-on scheme, for women and youth, and the biogas digesters pilot programme. ZMFO will support the LISP through regular supervision missions, close follow up, informal meetings, and processing of all fiduciary documents. The Coordinating Committees at Province (PDCC) and District (DDCC) will supervise and monitor the project.

8. Monitoring: Monitoring and Evaluation (M&E) will enable the PCT, MAL and key stakeholders to track project implementation indicators as presented in the Result Based Logical Framework (RBLF). Monitoring of the Project activities will be done at community (beneficiary), District, Provincial and PCT levels. To obtain a national picture on the performance of the Project, similar performance indicators will be measured at the different monitoring levels and by different institutions. M&E Specialist will facilitate the establishment of a Management Information System (MIS), during PY1. MIS will include the participatory monitoring and evaluation, data collection techniques, analysis and reporting tools. The short term consultancy will provide intermittent backstopping to ensure alignment with the Project's RBLF. The MIS data base will assist the PCT and various participating institutions to record, store and report data on financial and physical progress of implementation. MIS will also help bring reporting uniformity on the type of financial and physical information being collected from the various project sites thus easing the process of consolidating information into quarterly and annual LISP progress reports. MIS will focus on three broad areas of impact, namely, (i) procurement, (ii) physical and financial management, and (iii) outcomes and performance monitoring. Lessons learnt will be compiled for future reference.

9. The Government has set up, within the Livestock and Epidemiological Information Centre (NALEIC), the LIMS in animal health, animal production, livestock and livestock products marketing and trade, with the objective of creating a livestock database. LIMS aims at serving as an effective tool for monitoring progress towards the livestock policy objectives. The Project will provide financial resources to facilitate the required training, proper data gathering and processing. The generated LIMS reports will be an annex to the LISP reports.

10. The Project will provide funds for mid-term review, beneficiary impact assessment, completion review and annual financial audit whose final reports/key milestones will be prepared during the time-frame, indicated below:

Time-Frame	Milestones	Monitoring Process (Feedback Loop)
Year 1	Environmental and Social Baseline Survey	PCT, MAL, Provinces, Districts, NALEIC and Short Term Consultant.
Years 1 to 5	Project Implementation	Communities, Districts, Provinces and PCT.
Years 1 to 5	Progress and Financial Audit Reports	PCT, External Audit Firm (Annually).
Year 3	Mid-Term Review	Communities, Districts, Provinces, PIU, NALEIC and Short Term Consultant.
Year 5	Beneficiary Impact Assessment	Beneficiaries, PCT, NALEIC and Short Term Consultant.
Year 5	Project Completion Review	Communities, Districts, Provinces, PCT and Short Term Consultant.

11. The M&E of LISP activities, including implementation progress and expenditure will be an integral part of the Executing Agency, as a regular management function through the PCT's M&E Specialist. The PCT will submit to the Bank, on a quarterly and annual basis, progress reports, annual work plans and budgets, and annual procurement plans using Bank's format. The quarterly progress report will be submitted to the Bank within two months after the end of the reporting period, whilst the annual progress report will be submitted within three months after the end of reporting period. The Bank will closely monitor the implementation of the Project through regular follow-up, review and Supervision Missions. The Supervision Missions will be undertaken at least twice a year, and will include, at least once a year, an environmentalist and sociologist. These Missions will verify implementation progress to ensure that key verifiable

indicators, including gender specific indicators, related to the project outputs, outcomes and people-level impact are being monitored.

12. Sustainability: The Bank adopted a participatory approach in identification and preparation of LISP which is an important step towards ensuring the relevance of the investments made and the laying of an institutional capacity at the community level for the sustainability of the planned activities. The use of the Provincial and District decentralized implementation system will ensure full community participation guided by District authorities. The Project will put much emphasis on developing the capacity of beneficiaries and strengthening their institutions like interest groups and cooperatives. The beneficiaries will be mobilised, organised into viable self-reliant entities, trained and empowered to view their activities as business rather than subsistence activity. Gender sensitisation training at the community and local administration levels will ensure that women continue to participate and benefit equally from all rural livestock development activities. Project sustainability will also be ensured by the proactive involvement of the beneficiaries, District/Provincial staff in participatory M&E of activities.

13. The Project beneficiaries will contribute towards the cost of developing the physical infrastructure under LSC Tier 1 and 1+ which will show their commitment and cultivate sense of ownership. This approach is currently being used by the Government in similar activities which induces beneficiaries to fully operate and maintain the said infrastructure. The agribusiness skills training modules will include operations and management of the infrastructures. The LSC tier 2 and MCCs will be wholly managed by the beneficiaries through either the registered cooperatives or leased out to private sector which will also take care of operational and maintenance costs based on generated revenues from the services. To ensure sustainability, public infrastructures will be managed by District Councils which will be put in place mechanisms to generate revenue from the services for use during operation and maintenance.

14. Risk Management: Incompetent Contractors: LISP will (i) pre-qualify contractors based on past performance, (ii) use stringent evaluation methods and, apart from the technical details which the contractors and suppliers will submit, before signing the contract, the contractors will be scrutinised through contacting the previous employers and physical verifications, (iii) strictly follow-up contract execution, and (iv) provide contract management training will be provided to Project staff to ensure adequate capacity to execute signed contracts. Low Livestock Population resulting in underutilisation of infrastructures: MAL is facilitating restocking programme to assist beneficiaries to increase livestock numbers and performance. LISP would enhance this programme through (i) support to capacity building of livestock breeding centres to scale-up livestock production (ii) strategic siting, design and prioritisation of proposed infrastructure to ensure their relevance and optimal use by the beneficiaries and (iii) building capacity of livestock owners in improved animal husbandry practices. PCT base in Lusaka other than the Project Area: Lusaka is about 800 km from the Project area consequently PCT (core team) will be based in Kasama District (headquarters of Northern Province) for proper follow up on planned activities, on daily basis.

15. Knowledge Building: The Project is expected to generate considerable knowledge which will add value to the overall design and management of similar future interventions. Lessons and experiences will be shared within the Bank and other institutions interested in implementing projects. The Project will promote the community participation and management of the livestock infrastructures. For sustainability reasons, the rural community infrastructure will be constructed rehabilitated by the community, either using their own workforce (cooperatives) or recruiting an artisan, with full support from the project. The Project will demonstrate that the livestock

infrastructure can be ably managed by the community if given the necessary support including seed money which will revolve with time. The process of community engagement and participation will be a learning pilot intervention point for the success and sustainability of LISP and also useful database for other potential development projects being planned by GoZ. LISP will also focus on capacity building for key staff and farmers (beneficiaries) who will be fully involved in the planned activities based on the training needs assessment. Such activities will be conducted throughout the Project period and is aimed at enhancing the knowledge transfer. At LSC tier 3, the Project will construct a training centre mainly for farmer-courses. The Project will also mount demonstrations on the use of biogas digesters, pasture development and rangeland management. LISP has made adequate provision for periodic meetings of technical staff and other livestock stakeholders to jointly review progress of implementation. This will provide a good learning opportunity to the implementing communities. Scheduled PSC annual meetings and also the quarterly meetings between PCT and Provincial/District staff will be conducted. DPs and NGOs that plan to establish similar livestock infrastructures will benefit from the quarterly and annual progress reports which will be produced and distributed by the PCT as these will form part of the knowledge transfer and dissemination tools. A series of process and beneficiary impact and outcome papers will be published to highlight successful case studies.

B.4 Financial Management, Disbursement and Audit Arrangements

16. Introduction: A financial management assessment of the Ministry of Agriculture and Livestock (MAL), the executing agency was carried out in accordance with the Bank's Guidelines for the Financial Management and Financial Analysis of Projects (2007) and ORPF FMS Tool Kit (Provisional, June 2010).

17. The objective of the assessment was to determine whether the Ministry of Agriculture and Livestock (MAL) as the executing agency and as the Project Coordinating Team (PCT) has acceptable financial management arrangements, which will ensure that: (a) project funds are used only for the intended purposes, in an efficient and economical way; (b) the project's financial reports will be prepared in an accurate, reliable, and timely manner; (c) internal controls exist which allow early detection of errors, unusual practices as a deterrent to fraud and corruption; (d) project assets are safeguarded; and (e) the project is subject to external audit oversight. The results of the assessment and the agreed financial management, disbursement and auditing arrangements for the proposed Livestock Infrastructure Support Project (LISP) are documented below. The FM assessment was done during the month of March 2013 as part of the LISP appraisal. The overall financial management residual risk for the project is assessed as moderate. An assessment of MAL's financial management capacity for the implementation of the project indicates that they satisfy Bank minimum requirements.

18. Country Issues: The Bank fully subscribes to the Paris Declaration (2005) and Accra Agenda for Action (2008) with respect to the use of country systems to the maximum extent possible. Various PFM diagnostics (including the 2012 Public Expenditure and Financial Accountability (PEFA) have revealed significant improvement in Zambia's public financial management system following continued efforts and commitment by Government of Zambia (GoZ) to reforms aimed at strengthening public financial management both at central government level as well as at the level of its institutions, and agencies. Notable areas of improvements as highlighted in the 2012 PEFA includes; legislative framework for public financial management, predictability and control in budget execution, recording and management of cash balances, comprehensiveness of budget due to improved reporting of extra-budgetary operations, accounting, recording and reporting with the roll-out of IFMIS, and improved quality in both internal and external audit reporting by Office of Auditor General (OAG). The assessment however reported that regardless of progress being made, weaknesses remain in ensuring budget credibility, non-fully compliance of internal control regulations, timely follow-up and implementation of both internal and external audit recommendations. The appraisal mission also identified challenges associated with timely generation of financial reports by IFMIS resulting from the need for system reconfiguration due to rebasing of the Kwacha, low accounting staffing levels, delays in preparation and submission of audited financial statements to the Bank for on-going Bank-supported project being implemented by MAL.

19. Notwithstanding the weaknesses identified, the Bank will use the Country financial management systems for managing the LISP under the MAL. The following aspects of the system or part thereof will be used: Budgeting - the project will be reflected in the National Budget; Accounting and Financial Reporting - the project transactions will be accounted for and reported on through the existing Government's Integrated Financial Management Information System (IFMIS); Treasury Management/Funds Flow - the project will use the Government's banking arrangements and treasury procedures at the Bank of Zambia (the Country's central bank), to access the funds; Internal Controls and Internal Audit - using the existing national rules and financial control procedures when implementing the project; and External Audit oversight - using the Country's supreme audit institution, the Auditor General (OAG), to audit the project financial statements as per their mandate.

20. Consequently, a number of risk mitigation measures have been considered which will be recommended for implementation as part of the financial management improvement plan. These measures will include: (i) A tailor-made financial management procedures manual that will provide guidance to staff on all aspects including expenditures that are ineligible under the project; (ii) Using the MAL Internal Audit to undertake pre-audit of project transactions; and (iii) Procurement of an Off-the-Shelf accounting software (where necessary) to record and process transactions and interface it with IFMIS to facilitate timely project financial reporting given the operational challenges with IFMIS (iv) Assigning a dedicated accounting staff with adequate qualifications and experience, reporting to the Chief Accountant, with overall responsibility for the accounting functions of the project; and (v) Enforcing a system of submitting interim quarterly progress report (IQPR) not later than 30 days after end of each quarter.

21. The financial management and disbursement arrangements for LISP satisfy the Bank's minimum requirements when the above measures are fully implemented.

22. Risk Assessment and Mitigation: The FM risk is assessed in order to ensure that appropriate risk mitigating measures are incorporated into design of the operation. The Table B.4.1 summarizes the risk identified, the risk rating, and mitigation measures if any.

Table B.4.1: Detailed FM Risk Assessment

Risk Type	Rating Risk	Risk Mitigation Measures Incorporated into the Project Design	Risk after Mitigation	Conditionality (Yes/ No)
Inherent Risk				
Country Level Weak accountability, lack of follow up and implementation of audit findings, poor enforcement and compliance with existing regulations and procedures etc.	**S**	▪ There is on-going PFM reform supported by cooperating partners. ▪ IFMIS has been rolled out to most government ministries (including MAL), and when fully operational will improve the accountability and control environment in government.	**S**[4]	**No**
Entity Level The MAL FM assessment revealed	**S**	▪ There is on-going recruitment to fill all accounting vacancies; and the project will also have a	**S**	**No**

[4] There is no change in the rating despite the mitigation measures since LISP's contribution is very small (negligible) as compared to the country level risk, so is the entity level.

Risk Type	Rating Risk	Risk Mitigation Measures Incorporated into the Project Design	Risk after Mitigation	Conditionality (Yes/ No)
some weaknesses particularly at the district and provincial resulting from shortage of staff. There is also delay in submitting required financial reports to the Bank under the on-going Bank-financed projects within the MAL resulting from challenges in IFMIS.		dedicated accountant with acceptable qualification and experience to the Bank. ▪ Off-the-Shelf accounting software will be procured (where necessary) to help process project transaction to ensure timely preparation of financial statements in readiness for audit; and also interface to IFMIS for central government's own accounts.		
<u>Project Level</u> Inadequate staffing in MAL to handle project transactions. Weak FM capacity at the decentralized levels.	**S**	▪ The project will have a dedicated Accounts Officer with the requisite qualification and experience recruited through competitive process. ▪ Periodic training of dedicated FM staffs will be undertaken during Bank's Fiduciary Clinics and Supervision missions.	**M**	**Yes**
Overall Inherent Risk	**S**		**S**	
Control Risk				
Budgeting Weak budget preparation might result in inadequate resources for project.	**M**	▪ Budget will be prepared based on approved Annual Work Plans and by the Steering Committee and the Bank. ▪ The MAL Finance Unit which will be responsible for overall financial management in support of the PCT, has prior experience in Budgeting from on-going Bank and other DP projects being implemented by MAL. ▪ The Financial budgets will be linked to physical outputs through an operating plan. The IQPRs will be used to monitor variance analysis with budget in accordance with funding requirements, and all variations in budget will require prior approval by the Bank.	**L**	**No**
<u>Accounting</u> Inadequate staffing in MAL to handle project transactions.	**M**	▪ The project will have a dedicated Accountant whose qualification and experience will be acceptable to the Bank; and who will be supported by	**L**	**No**

Risk Type	Rating Risk	Risk Mitigation Measures Incorporated into the Project Design	Risk after Mitigation	Conditionality (Yes/ No)
Problems associated with smooth functioning of IFMIS could affect timely project transaction processing.		other accounting staff at the provincial and district level where necessary. ▪ An Off-the-Shelf accounting software will be procured (where necessary) to help process project transaction to ensure timely preparation of financial statements in readiness for audit; and also interface to IFMIS for central government's own accounts.		
Internal Control Weak control environment as a result of weak enforcement of existing financial regulations and ineffective internal audit function.	**H**	▪ The Project Implementation Manual to be developed will provide guidance to project staff. ▪ The project would be covered by the work program developed by the Internal Audit Unit within MAL as part of Government Internal Audit function who is being capacitated under the on-going PEMFA project. ▪ Bank's FM Supervision and SOE reviews would also highlight weaknesses and make appropriate recommendations for addressing them.	**S**	
Funds Flow Delays in release of funds resulting from delays in preparation of payment request to the Bank could affect timely project implementation. Untimely Government and beneficiary contribution could also affect project implementation.	**S**	▪ The Bank will provide disbursement training and guidance to project team in completing withdrawal applications; and most of the contracts would be made through direct payment method. ▪ All Government and beneficiary contribution would be in-kind in a form of office space, counterpart staff salaries, office supplies etc.	**S**	**No**
Reporting and Monitoring Quality and timeliness of IQPRs and other reports, due to challenges with IFMIS operation	**S**	▪ Format for IQPR will be agreed with MAL/PCT during negotiation to ensure timely submissions to the Bank and other stakeholders. ▪ Incentives to provide timely information by the decentralized implementing units will include refusal to advance additional funds if	**M**	**No**

Risk Type	Rating Risk	Risk Mitigation Measures Incorporated into the Project Design	Risk after Mitigation	Conditionality (Yes/ No)
		fund justification statements have not been received.		
External Audit and Public Oversight Delays in auditor recruitment could affect submission of annual audit reports.	**S**	▪ The Auditor General will audit the project and where necessary, appoint a private external auditor based on acceptable terms of reference acceptable to the Bank. MAL will ensure that OAG include the project in their annual audit program.	**M**	**No**
Overall Control Risk	**S**		**M**	
Overall Project Risk Rating	**S**		**M**	

H – High ***S - Substantial*** ***M – Moderate*** ***L – Low***

23. Strengths: The main strengths includes, use of existing government financial management systems within the MAL with prior experience in implementing Bank-funded projects (including the on-going Lake Tangayika Integrated Management Project), the existence of an experienced Chief Accountant with many years prior experience in implementing donor-funded projects to provide oversight, existing of comprehensive financial regulations and guidelines which guide financial management within the MAL, and the commitment by the OAG to undertake timely auditing of all project within the Bank's mandatory deadlines.

24. Weaknesses: The weaknesses identified are: (i) inadequate numbers of appropriately qualified and experienced accounting staff especially at the provincial and district levels; (ii) non-fully operational IFMIS, even though the system has been rolled out to the MAL and not at the provincial and district level; (iii) weak control environment at all levels, Ministry headquarters, provincial and district, arising from non-compliance and weak enforcement of existing financial rules and regulations; weak internal audit function that focuses on pre-audit of expenditure instead of systems and risk-based audit; and delays in preparation of project financial reports in readiness for audit; and weak or none follow-up of audit findings and recommendations.

25. FM Action Plan: To further strengthen the FM systems within the PCT/MAL and mitigate the identified risks, the following actions were discussed and agreed with MAL to be undertaken.

#	Required Actions	By Whom	By When	Comment
1.	Submit a financial management procedures manual as part of the Project Implementation Manual (PIM)	Chief Accountant, MAL	Effectiveness	The adoption of the PIM is an effectiveness condition
2	Recruit a dedicated accountant for the project whose qualification and experienced is acceptable to the Bank.	Chief Accountant, MAL	Effectiveness	The borrower has undertaking to assign the required staff required. This will be an effectiveness condition.

#	Required Actions	By Whom	By When	Comment
3	Procure (where necessary) an off-the-shelf accounting Software to help process project transactions to facilitate financial reporting.	Chief Accountant, MAL	Effectiveness	Procurement of the software is subject to Bank's approval; and dependent on reporting capability of IFMIS at Effectiveness.
4	Provide training in the Bank's financial management and disbursement procedures to the dedicated project accountant and MAL accounting support staff.	Financial Management Specialist, AfDB	Within 3 months after effectiveness.	The first training will be done as part of project launching, and further on-the-job coaching will be provided during Bank FM Supervisions.
5	Ensure that the project will be included as part of the Ministry's Central Internal Audit Unit work program.	Chief Accountant, MAL	Effectiveness	
6	Ensure that project is covered by the OAG annual audit work program; or Private external auditor recruited with OAG's involvement using the Bank's audit terms of reference (TOR) where necessary.	MAL / OAG	Within 6 months after project effectiveness	The OAG confirmed covering the project once timely request is received from MAL.

26. Implementing Entity: The project's financial management will be managed by PCT using the existing set-up in the MAL. The PCT would be headed by a Project Coordinator. The dedicated Project Accountant who would have a dual reporting responsibility, reporting technically directly to the Chief Accountant MAL, and administratively to the Project Coordinator will be supported by respective provincial and district accountants in Kasama and Muchinga as prescribed within the government financial structures. An assessment of MAL's financial management capacity for the implementation of the project indicates that they satisfy Bank requirements to handle and coordinate the financial management aspect under the project.

27. Planning and Budgeting: The Government's budgeting system within MAL is quite comprehensive. Consequently, the operation will follow government principles for budgeting as issued by Ministry of Finance. The PCT/MAL will prepare an annual work plan and budget for implementing project activities taking into account the specific project components of this project, and link it to the IFMIS Chart of Accounts with LISP separately identified for financial reporting purposes. These plans and budgets will be submitted to the Project Steering Committee for approval and thereafter to the Bank.

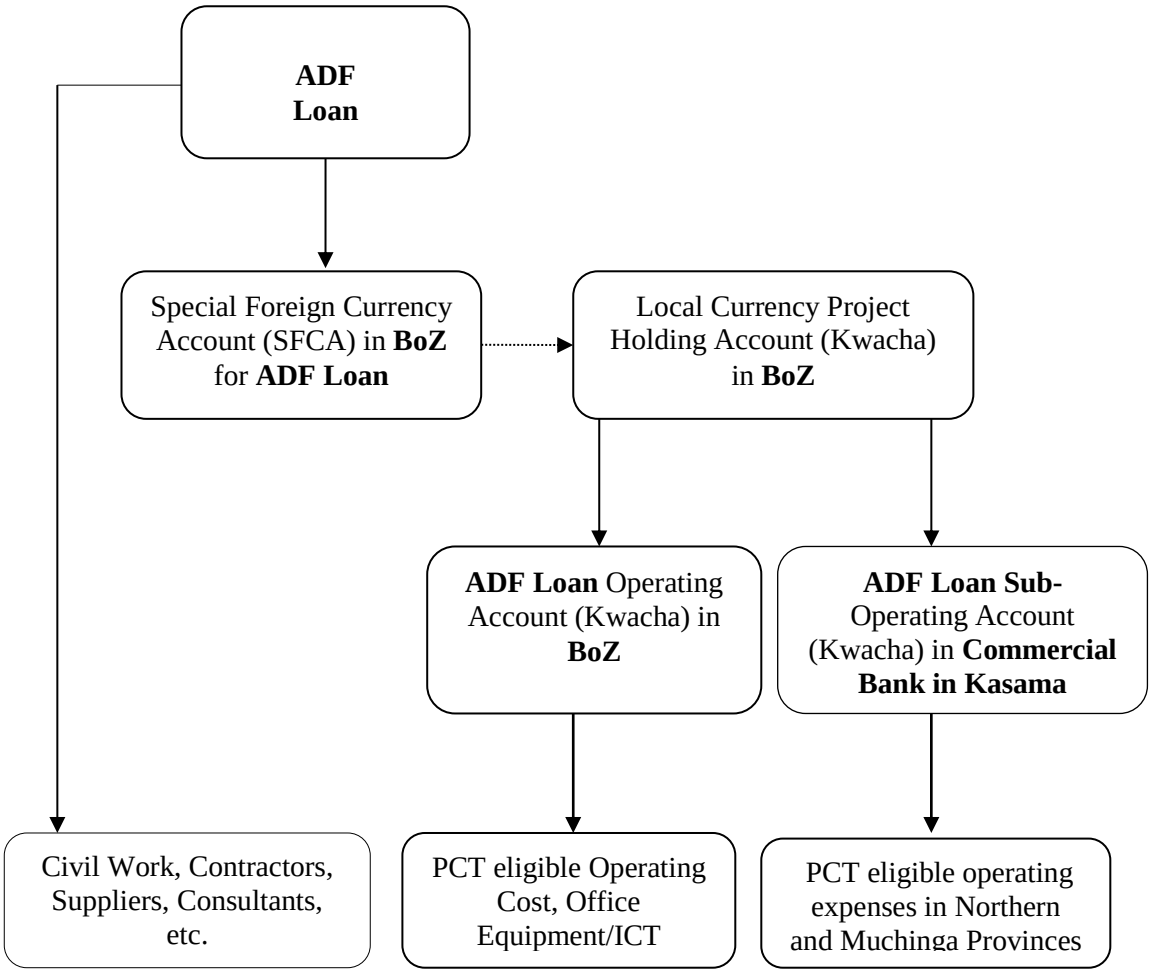
28. Accounting Policies, Procedures and Information Systems: Project transactions will be processed using the government's integrated IFMIS system which is rolled out to most government ministries, including MAL. The IFMIS is currently being upgraded following the re-basing of the Kwacha, as well as addressing some identified system reporting deficiencies, and expected to be fully operational before project effectiveness. However, stand-alone of-the-shelf accounting software could be procured (where necessary) to process project financial transactions. All accounting and supporting documentation will be retained by the PCT within MAL. The project accountant, who will be part of the PCT within the MAL and reporting to the Chief Accountant, will produce interim quarterly progress report (IQPR) not later than 30 days after end of each quarter. The IQPR format will be agreed during negotiations and copies made available to the project team during project launching. Where funds are transferred to the provincial levels to finance project local activities, the provincial and district accountants would coordinate the accounting functions at the decentralized levels in line with government existing systems and submit copies of all appropriate documents and reports to the project accountants at the PCT for consolidation and reporting purposes.

29. Internal Control and Audit. The project would be covered by the existing internal control rules and regulations under the existing Finance Act (2004) and Financial Regulations (2006). The Project Implementation Manual which will include accounting and administrative procedural manual to be produced by the PCT and approved by the Bank would guide day to day implementation of the project with clearly defined roles and responsibilities allowing for segregation of duties. The procedures manual as well as detailed project costing table would also highlight expenditures eligible for financing under the project. A significant amount of LISP funds would be used for civil works projects and procurement of equipment; and this would require additional effort to control. It is therefore expected that all assets constructed and bought under LISP must be covered by MAL's asset protection and maintenance policy. Finally, the project will make use of MAL's internal audit department; and their annual work program of the department would be expected to cover LISP activities.

30. Funds Flow and Disbursements Arrangements: The project would make use of the Bank's various disbursement methods including (i) Direct Payment, (ii) Special Account (SA) and (iii) Reimbursement methods in accordance with Bank rules and procedures as laid out in the Disbursement handbook as applicable that can be accessed from the Bank's website. A Special Account in foreign currency and a local Kwacha Accounts would be opened at the Bank of Zambia (BoZ) to be operated by MAL and used for financing eligible operating and other recurring costs under the project. To facilitate payment of eligible operating costs of the project team to be based in the Provinces, a sub-account in local currency to be managed by MAL as per the existing financial rules and regulations will be opened at a local commercial bank in Kasama and acceptable to the Bank. In terms of operational procedures for the local sub-account, MAL will issue instructions to BoZ requesting funds to be transferred from the Kwacha Holding Account at BoZ into the sub-account based on quarterly approved eligible operational expenditure cash flow projections prepared from the project's approved annual work programme and budget. Consequently, the Chief Accountant MAL will ensure that no excessive or idle funds remain in the sub-account at the local level; but will effectively manage the cash flow cycle to ensure availability of funds at the local level (where necessary) to facilitate project implementation. The Principal Accountant at the Northern Province, Kasama will ensure processing of all transactions (including Cash book, bank reconciliations, payment vouchers) relating to the local sub-account and submit monthly returns on all expenditures paid within the month to the dedicated project accountant in MAL for consolidation into the PCT's accounting ledgers to facilitate timely quarterly progress reporting and annual financial statements for audit purposes. Original copies of documentations for all financial transactions at the provincial level will be submitted together with the monthly returns to MAL and photocopies kept at the provincial office in Kasama for audit verification purposes. Preparation of documentation for all direct payments would be under the overall responsibility of the Chief Accountant, who would be assisted by the dedicated Project Accountant as part of the PCT within MAL. The GRZ through the Ministry of Finance and National Planning (MoFNP) will be required to submit to the Bank, details of all Bank Accounts as well as specimen signatures of authorized signatories for signing withdrawal applications and direct payments.

31. Financial Reporting: The overall responsibility for financial management (including preparation and submission of withdrawal applications and payment requests to the Bank) will rest with the Chief Accountant, as the head of MAL's finance department, and a dedicated accounting staff with adequate qualifications and experience accepted to the Bank, reporting to the Chief Accountant. Provincial and District Accountants will provide the necessary backstopping at the local levels. The Provincial Accountant at Kasama will be responsible for coordinating all transactions at the provincial level and submit original copies of documentations (payment vouchers etc.) for all financial transactions at the provincial level together with the monthly returns to MAL, on monthly basis for consolidation into the project's general ledger at MAL. Photocopies of all documents would be kept at the provincial office in Kasama for audit verification purposes. All project transactions will be accounted for by MAL and reported on using the IFMIS, which is expected to be fully functional by effectiveness date. Where necessary, an off-the-shelf accounting software will be procured to record and process financial transactions to ensure timely submission of financial reports. The project will be required to prepare and submit to the Bank, Interim Quarterly Progress report (IQPR) not later than 30 days after the end of each calendar quarter.

Funds Flow Diagram (ADF Resources)



32. External Audit: In accordance with the Bank's requirements, a separate annual audit report will be prepared for the project with the involvement of the Office of the Auditor General, Zambia as per their mandate. The annual audited financial statements including the auditor's opinion and management letter will be submitted to the Bank not later than six months after the end of each fiscal year. The audit of the project can be subcontracted as may be necessary to a firm of private auditors to be procured through short-lists (with the involvement of OAG) using the Bank's rules and procedures for procurement and the cost of audit will be financed from the loan if carried out by a private firm; and a meeting was held with the OAG in this regard. In addition to the financial audit, a technical and performance audit will be undertaken annually based on terms of reference agreed with the GRZ and the Bank. This will include a procurement audit. Emphasis will be placed on assessment of proper use and accountability of funds, procurement, physical implementation of the civil works, and social and environmental monitoring. The technical audit would be conducted by an independent firm having expertise in similar work. MAL should therefore inform the OAG of project effectiveness to enable them plan for the audit accordingly.

33. FM Supervision: The LISP would be implemented in a "Moderate" risk environment. Despite the "Moderate" risk rating, there would be two supervision missions in the first year to ensure adequate start-up of project activities. Financial Management (FM) training as well as the required reporting templates would be provided to the FM staff as part of capacity strengthening by the Bank FM team. Other supervision activities would be desk reviews of the IQPRs, annual audit reports, and management letters for follow-up actions. The outcome of these reviews would inform the intensity of subsequent FM supervisions.

B.5 Procurement Arrangements

B.5.1 National Procedures and Regulations - Use of Country Procurement System

34. The Bank has undertaken an assessment of the country's National Public Procurement Procedures in a report dated June 2011 which has been shared with the Government of Zambia and the identified areas of weakness are being addressed by the government. The country's NCB procedures cannot be used until the concerns identified in the report are addressed to the Bank's satisfaction. The National Procurement Procedures (NPP) for NCB in Zambia are generally consistent with the Bank's Rules and procedures. Zambia enacted its Public Procurement Act in 2008. The Act is applicable for procurement of goods, works and consulting services by procuring entities using Zambian Government financing. The Act describes open competitive bidding as the default method of procurement of goods, works and non-consulting services, provides detailed procedures for national and international competitive bidding as well as other procurement methods.

35. d
According to the Bank's NCB assessment the Act has five key deviations; (i) the dual role of the Zambia Public Procurement Authority (ZPPA); (ii) Not allowing foreign bidders to bid under NCB; (iii) provision for mandatory joint ventures between foreign and local bidders; (iv) limited conditions for application of margin of domestic preference; and (v) no independent complaint review mechanism as the ZPPA is mandated under the Act to deal with complaints and appeals from bidders. These deviations need to be addressed to make the Act fully compliant with the Bank's requirements. The National SBDS have been prepared based on the template of

Multilateral Development Banks. However they have been adapted to suit the national procurement legal framework. They are generally acceptable for use but would require to be modified to take into account the Bank's NCB requirements considering the deviations stated above.

36. The internal control of procurement processing is considerably effective; however, there is need for termination of the dual responsibilities of the Public Procurement Authority and establishing an independent review panel (mechanism). The ZPPA is mandated to oversee public procurement to ensure Procuring Entities (PEs) comply with the Act. Procurement activities are subject to regular auditing by the office of the Auditor General. Furthermore, Zambia has recently put in place a new anti-corruption policy and the institutional arrangement for investigations. Under the Act, suppliers, contractors, and consultants are suspended or barred from participating in procurement for any fraudulent and corrupt activities. Sections 72-74 of the Act provide for code of conduct by public officials, bidders and suppliers (including contractors and consultants). Essentially, therefore, the necessary institutions and mechanisms are in place for internal controls of the public procurement environment.

37. The Bank has been engaging in dialogue with the Government on the identified deviations as outlined in the Global Action Plan (GAP) (as part of this Annex), which affect the basic principles underlying the Bank's fiduciary obligations. The deviations relating to the Bank's "fiduciary obligations" will constitute the basis for the dialogue between the Bank and the Government during preparation of the Country Strategy Papers (CSPs) and during preparation of any policy based operations. The objective would be to reach agreement on conditions for implementing the recommendations in the short to medium term The Bank has been in dialogue with the relevant government bodies and pointed out provisions of the national procurement law which the country may wish to consider amending in future including advancing open competition without exclusion of international bidders in NCB and avoiding requiring mandatory joint ventures by foreign firms wishing to participate in ICB and international selection of consultants. Further the bank has highlighted the need to remove application of margins of preference under NCB procedures.

B.5.2 Procurement Arrangements

38. All procurement of goods, works and acquisition of consulting services financed by the Bank will be in accordance with the Bank's Rules and Procedures: "Rules and Procedures for Procurement of Goods and Works", dated May 2008, revised July 2012; and "Rules and Procedures for the Use of Consultants", dated May 2008, revised July 2012, using the relevant Bank Standard Bidding Documents, and the provisions stipulated in the Loan Agreement.

39. The various items under different expenditure categories and related procurement arrangements are summarized in Table B.5.1a and B.5.1b. Each contract to be financed by the Loan, the different procurement methods or consultant selection methods, estimated costs, prior-review requirements, and time frame are agreed between the Borrower and the Bank project team and are provided in the Procurement Plan (see Table B.5.2).

Table B.5.1a: Procurement Arrangements ('000 UA)

No	Project Categories	['000 UA]				
		NCB	Shortlist*	Other**	Non-Bank Funded	Total
1	**Civil Works**					
1.1	Construction of Rural Community Infrastructure	3,834.0 (3,834.0)				3,834.0 (3,834.0)
1.2	Construction of Public Veterinary Laboratories, Check points and Quarantine Stations	3,583.0 (3,583.0)				3,583.0 (3,583.0)
1.3	Rehabilitation of Feeder Roads	573.3 (573.3)				573.3 (573.3)
1.4	Office Renovation			170.3 (170.3)		170.3 (170.3)
Sub-total		**7,990 (7,990)**		**170.3 (170.3)**		**8,160.3 (8,160.3)**
2	**Goods**					
2.1	Vehicles and Motor Cycles			262.5 (262.5)		262.5 (262.5)
2.2	Equipment			381.6 (381.6)		381.6 (381.6)
Sub-total				**644.1 (644.1)**		**644.1 (644.1)**
3	**Consulting Services**		**300.0 (300.0)**	**380 (380)**		**680 (680)**
3.1	Development of M and E System and Plan			6.3 (6.3)		6.3 (6.3)
3.2	Environmental Audit			4.0 (4.0)		4.0 (4.0)
3.3	Beneficiary Impact Assessment			2.0 (2.0)		2.0 (2.0)
3.4	Support to NGOs Biogas			7.8 (7.8)		7.8(7.8)
3.5	Technical Assistance			45.9 (45.9)		45.9 (45.9)
3.6	Project Preparation Facility – (PPF) – Detailed Designs		300.0 (300.0)			300.0 (300.0)
3.7	Mid Term Review			2.0 (2.0)		2.0 (2.0)
3.8	Project Completion Report			2.1 (2.1)		2.1 (2.1)
3.9	Support to Agribusiness Activities			97.8 (97.8)		97.8 (97.8)
3.10	Support to formation of Cooperatives			159.0 (159.0)		159.0 (159.0)
3.11	**Financial Audit**			**69.9 (69.9)**		**69.9 (69.9)**
	Training			**80 (80)**		**80 (80)**
3.11	LIMS Training			2.6 (2.6)		2.6 (2.6)
3.12	Staff Training			25.0 (25.0)		25.0 (25.0)
3.13	Livestock Farmers Training			52.4 (52.4)		52.4 (52.4)

No	Project Categories	['000 UA]				
		NCB	Shortlist*	Other**	Non-Bank Funded	Total
Sub-total			**300.0 (300.0)**	**529.9 (529.9)**		**829.9 (829.9)**
4	**Operating Costs**					
4.1	Personnel			569 (569)	305	874 (569)
4.2	Other Operating Costs			1,801.6 (1,801.6)	1,401.1	3,202.7 (1,801.6)
Sub-total				**2,370.6 (2,370.6)**	**1,706.1**	**4,076.7 (2,360.6)**
Total		**7,990 (7,990)**	**300.0 (300.0)**	**3,714.9 (3,714.9)**	**1,706.1**	**13,711.0 (12,004.9)**

** Applies to shortlist procedure in compliance with para 2.6 of the Bank Rules*
*** Applies to shortlist of National firms and Individual Consultants, Shopping, Approved Work Programme and Existing EA Operational Systems. (Detailed methods for "other" are provided in the table below.*

Table B.5.1b: Other Methods of Procurement ('000 UA)

Item	Amount (In UA '000)	Method
Vehicles	6.3	Shopping
Equipment	4.0	Shopping
Development of M and E System and Plan	6.3	Individual Consultant
Environmental Audit	4.0	Individual Consultant
Beneficiary Impact Assessment	2.0	Individual consultant
Support to NGOs Biogas	7.8	CQS – Firm
Project Completion Report	2.1	Individual Consultant
LIMS Training	2.6	Individual Consultant
Staff Training	25.0	Based on Bank Approved Training Programme
Livestock Farmers Training	60.2	National Consultants /Firm or Approved Institution
Support to Agribusiness Activities	97.8	Based on approved Training Programme
Support to formation of Cooperatives	159.0	Internal Operational Systems of Executing Agency
Personnel	518.0	Internal Operational Systems of Executing Agency. Staff to be recruited as Individual Consultants
Other Operating Costs	2,123.7	Internal Operational Systems of Executing Agency

Table B.5.2: Procurement Plan

PROCUREMENT PLAN **GOODS**

1 *General*

Country/Organisation:	ZAMBIA
Project/Programme Name:	LIVESTOCK INFRASTRACTURE SUPPORT PROJECT
Project/Programme SAP Identification #:	
Loan Number:	N/A
Executing Agency:	MINISTRY OF AGRICULTURE AND LIVESTOCK
Approval Date of Procurement Plan :	TBA
Date of General Procurement Notice:	TBA
Period Covered by this Procurement Plan:	18 MONTHS

2 *Goods and Non-Consulting Services: Prior/Post review Thresholds*

Procurement Method	Prior review Threshold (UA)	Post review Threshold (UA)	Frequency of Review
1. SHOPPING	Above 50,000	Below UA 50,000	ALL
2.			
3.			
4.			
5.			
6.			

3. *Procurement Packages Methods and Time Schedule for 18 months*

Package description	Lot Number	Lot Description	Estimated Amount in UA (000)	Procurement Method	Pre-or Post-Qualification	Dom. or Regional Preference	Prior or Post Review	SPN Publication Date	Contract Start Date	Comments
4 x 4 Motor Vehicles	1	Supply and Delivery of 4 motor vehicles	225.7	Shopping	Post	N/A	Prior Review	7-Oct 13	18 -Nov 13	Shopping is more effective for such goods
Motor Cycles	2	Supply and Delivery of 27 Motor Cycles	105.7	Shopping	Post	N/A	Prior Review	7-Oct 13	18 -Nov 13	To be procured concurently with the
Computer Equipment	3	Supply and delivery nputers and Related Acces	10.0	Shopping	Post	N/A	Post Review	21-Oct 13	29 Nov 13	
Office Furniture	4	Supply and Delivery of Office Furniture	2.9	Shopping	Post	N/A	Post Review	21-Oct 13	29 Nov 13	
LIMS Upgrading	5	Supply and Install Equipment for the Upgrading of LIMS	26.1	Shopping	Post	N/A	Post Review	21-Oct 13	29 Nov 13	
Total Cost			**370.40**							

PROCUREMENT PLAN **WORKS**

1 General

Country/Organisation:	x	ZAMBIA
Project/Programme Name:	x	LIVESTOCK INFRASTRACTURE SUPPORT PROJECT
Project/Programme SAP Identification #:	x	TBA
Loan Number:	x	TBA
Executing Agency:	x	MINISTRY OF AGRICULTURE AND LIVESTOCK
Approval Date of Procurement Plan:	x	TBA
Date of General Procurement Notice:		July 2013 - December 2014
Period Covered by this Proc. Plan:		

2 Works: Prior/Post review Threshold

Procurement Method	Prior review Threshold (UA equiv.)	Post review Threshold (UA equiv.)	Frequency of Review
1. NCB	More than 300,000	Less Than 300,000	All
2.			
3.			
4.			
5.			
6.			

3. Procurement Packages: Methods and Time Schedule for 18 months

Package Description	Lot Number	Lot Description	Estimated Amount in UA (000)	Lump sum or Unit rate	Procurement Method	Pre- or Post-Qualification	Dom. or Regional Preference	Prior or Post Review	SPN Publication Date	Contract Start Date	Comments
Construction of Livestock Service Centres Tiers 1, 1+ and 2	Lot 1	NCB/CW/01	2,406.0	Unit Rate	NCB	Post	N/A	Prior	14-Oct 13	15 Jan 14	These will be deman driven and will be repackaged as
Construction of 3 Milk Collection Centres inclusive of Intallation of Equipment	Lot 2	NCB/CW/02	665.0	Unit Rate	NCB	Post	N/A	Prior	14-Oct 13	15 Jan 14	
Construction of 2 Livestock Market Centres including installation of Basic equipment	Lot 3	NCB/CW/O3	258.5	Unit Rate	NCB	Post	N/A	Post	14- Oct 13	15 Jan 14	
Construction of 8 Livestock Slaughter Houses including installation of equipment	Lot 4	NCB/CW/04	55.4	Unit Rate	NCB	Post	N/A	Post	14-Oct 13	15 Jan 14	
Sustainable Pasture Development	Lot 5	NCB/CW/05	77.8		NCB	Post	N/A	Post	18-Nov 13	26 Feb 14	
Rehabilitation of Fedder Roads	Lot 6	NCB/CW/06	573.3	Unit Rate	NCB	Post	N/A	Prior	18-Nov 13	26 Feb 14	
Rehabilitaion of Regional Veterinary Laboratories in Kasama and Chinsali	Lot 7	NCB/CW/07	524.3	Unite Rate	NCB	Post	N/A	Prior	18-Nov 13	26 Feb 14	
Rehabilitaion of 7 District Veterinary Laboratories	Lot 8	NCB/CW/08	798.1	Unit Rate	NCB	Post	N/A	Prior	18-Nov 13	26 Feb 14	
Construction of 2 Quarantine Stations	Lot 9	NCB/CW/09	319.0	Unit Rate	NCB	Post	N/A	Prior	18 -Nov 13	26 Feb 14	
Const. of 2 Livestock Serv. Centres Tier 3	Lot 10	NCB/CW/10	815.7	Unit Rate	NCB	Post	N/A	Prior	18- Nov 13	26 Feb 14	
Construction of 2 Veterinary Check Points /+ 3 Boom Gates	Lot 11	NCB/CW/11	1,212.0	Unit Rate	NCB	Post	N/A	Prior	18- Nov 1326	26 Feb 14	
Total Cost			**6570.40**								

PROCUREMENT PLAN **CONSULTANTS**

1 General

Country/Organisation:	x	ZAMBIA
Project/Programme Name:	x	LIVESTOCK INFRASTRACTURE SUPPORT PROJECT
Project/Programme SAP Identification #:	x	TBA
Loan Number:	x	TBA
Executing Agency:	x	MINISTRY OF AGRICULTURE AND LIVESTOCK
Approval Date of Procurement Plan:	x	TBA
Date of General Procurement Notice:		TBA AFTER BOARD APPROVAL
Period Covered by these Proc. Plans:		JULY 2013 - DECEMBER 2014

2 Consulting Services: Prior/Post review Threshold

Selection Method	Prior review Threshold (UA equiv.)	Post review Threshold (UA equiv.)	Frequency of Review
1. Selection Based on Consultants' Qualifications (CQS)	Above 100,000	Below 100,000	All
2. Individual Consultants	Above 20,000	Below 20,000	All
3. Single Sourcing	All	All	All
4.			
5.			
6.			

3 Consulting Services: Selection Method and Time schedule for 18 Months

Description	Selection Method	Lump sum or Time-Based	Estimated Amount in UA (000)	Prior/Post Review	EOI Publication Date	Contract Start Date	Comments
Project Preparation Consultancy (PPF)	CBQS	Lumpsum	298.6	Prior	15 May 13	30 August 13	
Development of M and E System	Individual Consultant	Lumpsum	6.3	Post	15 Jan 14	24 March 14	
Environmental Audit	Individual Consult.	Lump Sum	4.0	Post	15 Nov 14	14- Jan 15	
Beneficiary Impact Assessment	Individual Consult.	Lump Sum	2.0	Post	15 June 15	30 Aug. 15	
Support to Biogas Digesters	CQS	Lump Sum	7.8	Post	15 Jan 14	24 March 14	
Technical Assistance	CQS	Lump Sum	45.9	Post	15 July 13	30 Sept 13	
Mid Term Review	Individual Consult.	Lump sum	2.0	Post	May 2015	June 2015	
Financial Audit	LCS		69.9	Post	28 Feb 14	15 March 14	
Project Completion Report	Individual Consult.	Lump Sum	2.1	Post	TBA	TBA	
Total Cost			**360.30**				

40. Civil Works: Contracts of works valued at less than UA 3 million will be carried out under National Competitive Bidding (NCB) procedures, and using the Bank Standard Bidding Documents. Civil Works procured under this method, estimated in aggregate at UA 8.18 million would include: rural community infrastructure contracts for the construction of livestock service centres tier 1, 1+ and 2 (valued at UA 2.40 million), milk collection centres (UA 665,000), Livestock market centres (UA 258,500) and small-stock slaughter facilities (UA 530,800). Other civil works which fall under public infrastructure include, rehabilitation of regional veterinary laboratories (UA 524,400) and District Laboratories (UA 798,100), construction of veterinary check points (UA 1.21 million) construction of livestock service centres tier 3 (UA 815,700), establishment of veterinary quarantine stations (UA 319,000), pasture development (UA 77,800) and feeder roads (UA 573,300). The use of NCB is justified as the works are scattered over a wide area and the size of the works involved are small in financial value and scope and are unlikely to attract bids from outside Zambia. In addition, there are many local contractors sufficiently qualified to ensure competitive bidding through NCB and have adequate capacity to carry out such works in distant locations. Although the capacity of contractors based in rural Zambia is low the works will be packaged in lots depending on the nature of the works and location and advertised at national level in order to ensure a wider participation of bidders.

41. Goods: Contracts for goods valued below UA 300,000 will be procured under shopping procedures. Goods procured under this method, would include: Motor vehicles (UA 120,000) motorcycles (UA 105,700), various equipment totaling (UA 388,600). The shopping method has been selected because most of the established motor vehicle manufacturers and equipment suppliers have strong representatives in Zambia and past experience has shown that equipment and vehicle procurement notices advertised in the press using NCB have not yielded the desired result due to poor or no responses from bidders. In most, procurements of similar items on other Bank financed projects the Bank has had to change the NCB procurement method to shopping following requests from executing agencies after failed attempts with NCB.

42. Consulting Services: Procurement of consulting services valued in total at UA 563,100 will include a Project Preparation Consultancy (UA 298,600) to be procured competitively through shortlisting as outlined in paragraph 2.6 of the Bank rules using the QCBS method. Technical Assistance for (UA 45,900) and support to NGOs for Biogas digesters (UA 7,800) will be procured using Selection Based on Consultants' Qualifications (CQS) while Financial Audit (UA 69,900) will be procured using the Least Cost Selection (LCS) method. Other consulting services which include development of M and E System and Plan (UA 6,300), Environmental Audit (UA 4,000), Beneficiary Impact Assessment (UA 2,000), Project completion Report (UA 2,100), Technical Assistance (pasture development and Management (UA 15,500) and Mid Term Review (UA 2,000) will be procured using Bank procedures for the selection of Individual consultants as provided for in Section V of the Bank Rules. Staff and farmers training amounting to (UA 125,300) will be carried out on the basis of approved annual training programmes and work plan that will specify the training needs and nature of activities. The training programme and work plan will be prior reviewed and approved by the Bank. When the amount of the contract is less than UA 200,000, the Borrower may limit the publication of a Specific Procurement Notice (SPN) requesting for expressions of interest to national or regional newspapers. However, any eligible consultant, being regional or not, may express his desire to be short-listed.

43. Operation Costs: Operating expenses amounting to UA 4.363 million will be undertaken using existing GRZ operational systems to cover office space, staff salaries and allowances and maintenance of equipment and motor vehicles.

44. Assessment of the Executing Agency: The Ministry of Agriculture and Livestock will be responsible for the procurement of goods/works/consulting services/training services (*as appropriate*). An assessment of the capacity of the Executing Agency to implement procurement actions for the project has been carried out by the Bank. The assessment reviewed the organizational structure for implementing the project and the interaction between the project's staff responsible for procurement activities and the Executing Agency's relevant support for administration and finance. The resources, capacity, expertise and experience of the Ministry of Agriculture are adequate though shall require additional support with project specific staff to carry out the day to day management of the project including procurement activities. Most of the issues/ risks concerning the procurement component for implementation of the project have been identified and include from past experience poor and delayed procurement processing leading to low disbursements. This has been one of the key factors accounting for the unsatisfactory project performance among the majority of Bank financed projects in the country especially where a government ministry was the designated executing agency. The corrective measures which have been agreed include putting in place implementation arrangements designed such that procurement processing is not hindered through institutional bottlenecks while ensuring accountability and transparency in the execution of the project. Additionally project specific staff will be competitively recruited including a Procurement Specialist to support project implementation.

45. The agency practices adequate procurement and financial record keeping and has been handling similar projects efficiently. The agency has adequate control mechanism in procurement processing. The project staff shall prepare all procurement requisitions which shall be approved by superiors in conformity with project requirements. The Specific procurement notices shall be approved and advertised where necessary while a minimum of three quotations shall be obtained for the approval of one supplier or service provider where internal systems shall apply based on prior approved work plans. All tenders are evaluated by an appointed evaluation committee whose recommendations are submitted to the Ministry's tender committee for approval before contract award. Internal audit arrangements are in place.

46. The appointment of a fully qualified Procurement Specialist and other project management staff with a provision of an allocation of UA 2 million shared between the Project and GRZ financing has been included in the procurement arrangements to finance these services. The Bank will also continue carrying out procurement training in Bank's procedures for relevant staff (procurement, technical and financial experts) involved in procurement activities in the overall country portfolio. Selection and appointment of the Procurement Specialist will be undertaken in accordance with the Bank's Rules and Procedures for the Use of Consultants. The project will also benefit from a Project Preparation Facility (PPF) which will support pre-implementation activities which will include preparation of the SBDs to be used for each procurement method, as well as model contracts for works and goods to be procured.

47. General Procurement Notice: The GPN text will be discussed and agreed with the GRZ at negotiations and this will be issued for publication in "United Nations Development Business Journal" upon approval by the Board of Directors of the Loan proposal.

48. Procurement Plan: The Borrower has developed a Procurement Plan for project implementation for an initial period of 18 Months which provides the basis for the procurement methods. This Procurement Plan will be updated by the Borrower's Project Team quarterly or as required to reflect the actual project implementation needs and improvements in institutional capacity. Any revisions proposed to the Procurement Plan shall be submitted to the Bank for no objection. The Borrower shall implement the Procurement Plan in the manner in which it has been agreed with the Bank.

49. Review Thresholds - Procurement of Goods, Works and Services: For all activities requiring Prior Review, the following documents are subject to review and approval by the Bank before promulgation (except where post-procurement rules apply): Specific Procurement Notices; Tender documents/Requests for Proposals; Tender evaluation/Evaluation of Proposals' reports, including recommendations for contract award; and Draft Contracts, if these have been amended from drafts included in tender documents:

Table B.5.3: Prior-Review Thresholds – Goods and Works

N°	Procurement Method	Prior-Review Thresholds UA	Post-Review Threshold UA	Frequency of Review
1	NCB (Works)	Above 300,000	Below UA 300,000	First 5 Contracts
2	Shopping (Goods)	Below 300,000 and Above 50,000	Below 50,000	First 4 Contracts

50. Selection of Consultants: Prior Review Threshold: Selection decisions subject to Prior Review by Bank as stated in Appendix 1 to the Rules and Procedures for the Use of Consultants, dated May 2008, revised July 2012.

Table B.5.4: Prior-Review Thresholds – Consultants

No	Selection Method	Prior-Review Thresholds (UA)	Post-Review Threshold UA	Frequency of Review
1.	Competitive Methods (Firms)	Above 100,000	Below 100,000	All
2.	Competitive Method (Individual)	Above 20,000	Below 20,000	All
3.	Single Source (Firms/Individual)	-	-	All Regardless of value

51. Short list comprising entirely of national consultants: Short list of consultants for services, estimated to cost less than UA 200,000 equivalent per contract, may comprise entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Rules and Procedures for the Use of Consultants.

52. Frequency of Procurement Post Review mission: In addition to the prior review supervision bi-annual procurement post review missions will be conducted by the Bank.

53. Global Action Plan for improvement to National Procurement Procedures: The following discrepancies with the Bank's Rules and Procedures have been identified in the national procurement law (ZPPA ACT) and regulations and hence the National Procurement Procedures shall not be used for procurement activities financed by the Bank (Table B.5.5).

Table B.5.5: Global Action Plan for Improvement of National Procurement Procedures

Concerns	Required Changes
Discrepancies identified in the National Procurement Act and its Regulations – Zambia	
Principle of Eligibility: Eligibility of foreign bidders	Revise the Act to include provisions for Eligibility of foreign bidders (Bank Rules Clauses 1.6)
Principle of Fairness: Independent Complaints Review and Appeals Mechanisms: No independent complaint and appeals review mechanism	Revise the Act to include provisions independent complaint and appeals review mechanism (Rules Clause 1.2).
Principle of Fairness: Application of margin of domestic preference: Unclear margin of domestic preference	Revise the Act to include provision margin of domestic preference (Bank Rules Clause 2.55),
Principle of Fairness: Dual role of ZPPA in procurement decisions and oversight.	Revise the Act to remove provision on the dual role of ZPPA in procurement decisions and oversight (Bank Rules Clause 1.2).
Discrepancies identified in the National Standard Bidding Documents	
The SBDs for Goods and Works do not meet Bank requirements due various deviations reflected in the Act	Revise the Act and subsequently the SBDs for Goods and Works taking into account all Bank's Rules and/or based on Bank's SBDs and issue them for use by Procuring entities.

B.6 Economic and Financial Analysis

54. The development of the livestock in the project area is hampered by the prevalence of animal diseases and the poor delivery of animal related health services leading to high mortality and morbidity and, poor performance in terms of milk production, carcass weight and inventory growth. Though the region has a relatively good endowment in natural grazing and pasture, the low carcass weight is also an indication of poor feeding conditions and pasture management. The project will focus on the development of livestock infrastructure, mainly, health related, and on capacity building on the delivery of animal health services to address those issues. In addition the pasture and rangeland management activities envisioned within Livestock service center Tier 3, will contribute to improve the quality of pasture and forage. Capacity building in farm management practice, mainly the use of supplemental feed will improve animal feeding status. Improvement in animal feeding and in the delivery of animal health related services, mainly, increase in vaccination coverage, improvement in diseases control and management is expected to reduce animal mortality and morbidity leading to an increase in calving rates, carcass weight, milk and meat production. Globally the expected output of the project investment is a significant improvement of the livestock performance. In all, the Project will, through infrastructure for disease control, reduce livestock mortality resulting in higher livestock numbers. Improved animal growth rate through better feeding practices and breed improvement for growth and milk production will improve carcass weight and also milk yields. All these aspects will, in the final analysis increase livestock production and productivity.

55. The economic and financial analysis was based in the incremental net benefit arising from the project investment. Rather than the situation "before" and "after" the project, whose comparison fails to account for changes in production that would occur without the project and thus leads to an erroneous statement of the benefit attributable to the project investments. Main assumption underlying the economic and financial analysis is an anticipated increase in the main livestock parameters induced by the combination of the improvement of animal health, feeding and the supply of other livestock related services. The table below gives the expected changes:

Parameters	Without Project			With Project		
	Cattle	Goat	Poultry	Cattle	Goat	Poultry
Average weight (kg)	180	31		250	60	
Carcass weight (kg)	126	13.02		168	27.6	
Average inventory increase rate (%)	6.3%	12%	15%	10%	15%	22%
Milk production (litres per year)	1,500	NA		2,500	NA	
Off-take rate (% of population) (including domestic-consumption)	12%	31%		16%	38%	

56. A minimalist approach was applied to define hypothesis for analysis. It is also assumed that the infrastructures, including public ones, to be built will be demand driven and justified by the current or potential existence of a critical livestock mass, to guarantee their economic utility. The calculation of Economic and Financial Internal Rates of Return was based on the existing livestock endowment. It is conservatively estimated that 65¨% of the livestock in the project area will directly benefit from the project. The livestock data in the project area is as follows:

Type	Muchinga				Northern				Total
	Mpika	Chinsali	Isoka	Nakonde	Mbala	Mporokoso	Mungwi	Kasama	
Cattle	19,171	13,339	20,094	16,411	21,931	2,567	8,583	3,752	105,848
Sheep	11,620	1,535	450	123	608	356	670	258	15,620
Goats	31,442	12,164	7,602	11,794	18,115	11,648	4,673	673	98,111

57. Market prices were used for the costing of the different inputs (drugs, feed, etc) after adjustment to better reflect economic values and the gain arising from the improvement of the service delivery. Labour including family labour was valued at the shadow price. Boundary price were used to estimate the economic value for cattle and local market price for goats which are not internationally traded in the country.

58. The EIRR is 22% and is sensitive to price and cost changes. For a 10% price increase, the EIRR is 25% and 19% with a 10% increase in the project costs. The net present value is USD 4.38 million at 12%. For financial analysis, the market prices were used. The FIRR is 20% and the NPV at 12% is USD 4.02 million. The project is also expected to generate a number of indirect benefits. The rehabilitation of feeder roads will improve access to services and markets. Productivity improvement is expected to generate additional income for the beneficiary livestock farmers from the increased sales of milk, meat or live animals. It is anticipated that the induced average annual household income will rise from USD 364 to USD 512. Specific programmes designed for youth and women will enhance self-employment and empowerment. Other economic benefits will include overall increase in the supply of good livestock products, increased demands for livestock related services accruing to service providers.

	ECONOMIC ANALYSIS							
	2013	**1**	**2**	**3**	**4**	**5**	**6**	**7 to 20**
Inventory growth rate without project	1,063	1,063	1,063	1,063	1,063	1,063	1,063	1,063
Inventory without project	68801,2	73 136	77 743	82 641	87 847	93 382	99 265	105 519
Offtake without project	0,12	8 776	9 329	9 917	10 542	11 206	11 912	12 662
Inventory growth rate withproject	0,1	1,06	1,06	1,06	1,10	1,10	1,10	1,10
Inventory with project	68801,2	73 136	77 743	82 641	90 905	99 996	109 995	120 995
Offtake with project	0,16	8 776	9 329	9 917	14 545	15 999	17 599	19 359
Incremental offtake		-	-	-	4 003	4 793	5 687	6 697
Incrmental carcasse weight (kg)	168	-	-	-	640 501	766 958	909 992	1 071 509
Economic Price	50	50	50	50	50	50	50	50
Economic value		-	-	-	**16 012 529**	**28 760 929**	**45 499 618**	**53 575 468**
Inventory growth rate without project	1,12	1,12	1,12	1,12	1,12	1,12	1,12	1,12
Inventory without project	63772,15	71 425	79 996	89 595	100 347	112 388	125 875	140 980
Offtake without project	0,31	22 142	24 799	27 775	31 107	34 840	39 021	43 704
Inventory growth rate withproject	1,15	1,12	1,12	1,12	1,15	1,30	1,30	1,30
Inventory with project	63772,15	71 425	79 996	89 595	150 541	195 703	254 414	330 738
Offtake with project	0,38	22 142	24 799	27 775	57 205	74 367	96 677	125 680
Incremental offtake		-	-	-	26 098	39 527	57 656	81 977
Incrmental carcasse weight (kg)	23	-	-	-	600 254	909 115	1 326 088	1 885 462
Economic Price	45	35	35	35	35	35	35	35
Economic value		-	-	-	**21 008 875**	**31 819 012**	**46 413 086**	**65 991 187**
Additional poultry production		-	-	-	20 408 621	30 909 897	45 086 998	64 105 724
Economic value		-	-	-	**6 897 106**	**16 208 199**	**28 571 261**	**44 775 149**
Incremental heifers	0	-	-	-	1 835	3 968	6 438	9 286
Additional milk production (l)	2500	-	-	-	4 586 578	9 920 768	16 095 536	23 214 290
milk cash flow	**4,5**	-	-	-	**20 639 601**	**44 643 458**	**72 429 913**	**104 464 307**
Total incrimental cash flow		-	-	-	64 558 111	121 431 596	192 913 877	268 806 110
Production costs								
catlle	0,45	-	-	-	7 205 638	12 942 418	20 474 828	24 108 960
goats	0,65	-	-	-	13 655 769	20 682 357	30 168 506	42 894 272
poultry	0,6	-	-	-	4 138 263	9 724 919	17 142 756	26 865 089
Milk	0,6	-	-	-	15 479 701	62 248 530	105 295 861	158 489 052
Total incrimental costs		-	-	-	40 479 371	105 598 224	173 081 951	252 357 373
Investment costs		13 910 969	56 719 204	27 355 395	7 163 966	6 824 218		
Recurrent cost								-
Total costs		13 910 969	56 719 204	27 355 395	47 643 338	112 422 443	173 081 951	252 357 373
Project cash flow		- 13 910 969	- 56 719 204	- 27 355 395	16 914 774	9 009 154	19 831 926	16 448 737
NVP (12%)	**4.38 million**							
EIRR	**22%**							

			FINANCIAL INTERNAL RATE OF RETURN						
		2 013	**1**	**2**	**3**	**4**	**5**	**6**	**7 to 20**
Catlle	Inventory grow th rate w ithout proje	1,06	1,06	1,06	1,06	1,06	1,06	1,06	1,06
	Inventory w ithout project	68 801	73 136	77 743	82 641	87 847	93 382	99 265	105 519
	Offtake w ithout project	0,12	8 776	9 329	9 917	10 542	11 206	11 912	12 662
	Inventory grow th rate w ithproject	0,10	1,06	1,06	1,06	1,10	1,10	1,10	1,10
	Inventory w ith project	68 801	73 136	77 743	82 641	90 905	99 996	109 995	120 995
	Offtake w ith project	0,16	8 776	9 329	9 917	10 909	15 999	17 599	19 359
	Incremental offtake		**-**	**-**	**-**	***367***	***4 793***	***5 687***	***6 697***
	Incrmental carcasse w eight (kg)	168	-	-	-	61 644	805 306	955 492	1 125 085
	market Price	30	30	30	30	30	30	30	30
	gross income		**-**	**-**	**-**	***924 654***	***18 119 385***	***28 664 759***	***33 752 545***
Goats	Inventory grow th rate w ithout proje	1,12	1,12	1,12	1,12	1,12	1,12	1,12	1,12
	Inventory w ithout project	63 772	71 425	79 996	89 595	100 347	112 388	125 875	140 980
	Offtake w ithout project	0,31	22 142	24 799	27 775	31 107	34 840	39 021	43 704
	Inventory grow th rate w ithproject	1,15	1,15	1,15	1,15	1,15	1,15	1,15	1,15
	Inventory w ith project	63 772	71 425	79 996	89 595	103 035	118 490	136 263	156 703
	Offtake w ith project	0,38	22 142	24 799	27 775	29 365	45 026	51 780	59 547
	Incremental offtake		-	-	-	- 1 743	10 186	12 759	15 843
	Incrmental carcasse w eight (kg)	23	-	-	-	- 40 080	234 272	293 452	364 395
	Price	35	35	35	35	35	35	35	35
	gross income		-	-	-	- *1 402 816*	*8 199 512*	*10 270 834*	*12 753 821*
Poultry	Additional poultry production		-	-	-	- 1 362 735	7 965 240	9 977 381	12 389 426
	gross income		**-**	**-**	**-**	**6 897 106**	**16 208 199**	**28 571 261**	**44 775 149**
Milk	Incremental heifers	-	-	-	-	1 835	3 968	6 438	9 286
	Additional milk production (l)	2 500		-	-	2 981 276	6 448 499	10 462 099	15 089 289
	milk cash flow	***4,50***	**-**	**-**	**-**	***13 415 741***	***29 018 247***	***47 079 443***	***67 901 799***
	Total incrimental cash flow		**-**	**-**	**-**	**19 834 685**	**71 545 343**	**114 586 297**	**159 183 314**
	Production costs								
	catlle	0,65	-	-	-	601 025	11 777 600	18 632 093	21 939 154
	goats	0,55	-	-	-	- 771 549	4 509 731	5 648 959	7 014 602
	poultry		-	-	-	4 138 263	9 724 919	17 142 756	26 865 089
	Milk	0,60	-	-	-	8 049 445	17 410 948	28 247 666	40 741 080
	Total incrimental costs		**-**	**-**	**-**	***12 017 185***	***43 423 199***	***69 671 474***	***96 559 925***
	Investment costs		13 910 969	56 719 204	27 355 395	7 163 966	6 824 218		
	Recurrent cost								**23 143 400**
	Total costs		**13 910 969**	**56 719 204**	**27 355 395**	**19 181 151**	**50 247 418**	**69 671 474**	**119 703 325**
	Project cash flow		**- 13 910 969**	**- 56 719 204**	**- 27 355 395**	**653 534**	**21 297 925**	**44 914 822**	**39 479 989**
	NVP (US$ 12%)	**4.02 million**							
	EIRR	**20%**							

B.7 Environmental and Social Analysis

59. The National Conservation Strategy (NCS) was adopted as a policy document by the Government of the Republic of Zambia in 1985 which led to the establishment of environmental legislation and institutional set up in the country. The Environmental Impact Assessment (EIA) process in Zambia is governed by the provisions of the Environmental Protection and Pollution Control Act (EPPCA) No. 12 of 1990, Statutory Instrument No. 28 of 1997–the Environmental Impact Assessment Regulations. Under EPPCA, it is mandatory that all development plans, policies and projects undergo a process of environmental impact assessment and the administrative clearance by the Zambia Environmental Management Agency (ZEMA) in conformity with the provision of the Act. ZEMA is a statutory body created under an EPPCA in 1992 with the mandate of environmental protection, pollution control, and monitoring implementation of mitigation measures highlighted in environmental and social management plans. LISP is covered by a Strategic Environmental and Social Assessment (SESA) which was prepared by the MAL in accordance with the Zambia environmental regulations and the AfDB's Environmental and Social Assessment Procedures (ESAP).

60. The Project is classified as Environment Category 2. The infrastructure investments supported by the Project (Livestock Service Centres, Livestock Market Centres, Milk Collection Centres, Slaughter Houses and rural feeder roads) will generate localized and short-term negative environmental impacts which will largely occur during the construction/rehabilitation phase of the project. The negative impacts will include: (a) *increase in soil erosion* related to construction and rehabilitation activities particularly in degraded lands with loose soils, (b) *Increased turbidity in water sources* from effluent or runoff containing high content of suspended solids from construction sites. In addition, accidental spillage of fuel, lubricants and other chemicals used in the construction process and wastewater from workers' camp would likely be a source of water contamination, (c) *Clearance of vegetation covers* during the construction phase. Limited vegetation clearance may occur at the construction sites, and at borrow pits. Removal of vegetation cover would increase erosion potentials and dusts generation into the air. The level of impacts depends on: land area to be cleared and density of existing vegetation cover, which associated with the amount of waste to be generated and physical characteristics of the soil, (d) *Increased localized noise levels and vibration due to earthmoving equipment and machinery*, construction plants and construction activities such as piling, excavation or installation of equipment, loading of construction materials, concrete pouring, drilling. Increased localized noise levels usually occur in short term. The scope of impacts would depend on (i) number, frequency and working durations of noise sources, and (ii) time of the day (night time), (e) *Reduced localized air quality due to dust from construction sites* and surrounding areas, include the areas along materials transportation route affect localized air quality. Increased dust level along the road used for transportation of as granular construction materials drop, dust from temporary loading of granular construction materials such as sand or stockpile from excavation works, dusts from construction waste dumping sites. The impacts usually last in a relative short time, are of low magnitude but can causes nuisances to local people, and disturb local daily life. The scope of impacts depends on, (i) the number and frequency of vehicles in use, (ii) the quantity of granular materials to be temporarily loaded at a time, (iii) the size of the granular materials, and (iv) weather conditions, and dust emissions, (f) *During the operational phase* the likely impacts would include *solid waste and effluent* from the slaughter houses, milk collection centers, livestock Service Centers and the markets, bio-medical waste from veterinary activities and general health and safety of workers, and Greenhouse Gas (GHG) emissions from increased number of livestock in the project area.

61. The Project is likely to generate positive social and economic impacts that could lead to reduced poverty levels, improved food security through increased livestock and diary production, creation of jobs for the local population and youth especially during the construction phase of the Project, diversified agricultural resource base and improved household income. The project will also generate positive environmental impacts which will include: (i) reduced overgrazing and land/soil degradation from adoption of sustainable livestock production technologies, (ii) reduced water pollution from adoption of proper effluent and solid waste management systems, and (iii) reduced emissions from methane through the use of bio-digesters for reuse of manure generated from livestock. The potential to installing bio-digesters to capture gas that can be used for energy will reduce the potential of greenhouse gas emissions and reduce the impact of livestock manure on the soil and water bodies.

62. In order to mitigate the potential negative impacts the MAL will implement the following mitigation measures: (a) re-vegetating cleared land, (b) restoration of borrow-pits, use of gabions and appropriate drainage systems to control erosion, (c) installation of systems for solid waste and effluent management. Effluent from slaughter houses, milk collection centres, and livestock service centres which tend to have high BOD and COD, will be collected in closed on-site drainage systems and discharged to on-site simple receiving ponds to ensure that the surface and ground water are protected from potential contaminants. The slaughter houses will have isolated drainage systems in which the treated wastewater will be discharged to receiving ponds. Environmental officers will monitor the quality of effluents discharged to ensure they meet the Zambia wastewater discharge standards, and (d) installation of bio-digesters to capture gas that can be used for energy will reduce the potential of greenhouse gas emissions and reduce the impact of livestock manure on the soil and water bodies.

63. Climate Change: The Project area is experiencing increased frequency and intensity of droughts, resulting in reduced livestock production, increased animal diseases, and land/soil degradation. The project activities will promote climate change adaptation and foster livelihoods diversification which will ultimately enhance the climate change adaptive capacity of the pastoralists and the livestock production systems. The Project will support (i) sustainable management of rangeland and pasture, and (ii) adoption of biogas digesters that will promote the reuse of livestock manure. In building the adaptive capacity of the livestock farmers and the livestock production systems, a complementary GEF project support breeds that are resilient to climate change and develop models for community management of endemic livestock and habitat (pasture and grazing management techniques), strentghen adaptive capacity of communities through training and develp skills and demonstration sites for feed conservation during the dry seasons, restoration of degraded pasture and increased vegetation cover with different drought tolerant perennials.

64. Instititional Arrangements: The MAL has a robust capacity for both environmental and social safeguards implementation. In addition, ZEMA as a regulatory agency is professionally staffed with demonstrated effective enforcement of environmental regulations. ZEMA works closely with the Environmental Officers at the line Ministries who are responsible for site level environmental management of project activities. MAL as the executing agency will be required to prepare site-specific design stage ESIA studies during implementation of the Project in compliance with the Zambia EIA Law and the Bank's Environmental and Social Assessment Procedures. Annual Audits on the implementation of ESMPs will be prepared by the MAL and submitted to ZEMA. The Project Implementation Unit bears the full responsibility of preparing the studies. During project implementation, supervision and monitoring will be very crucial to ensure that the proposed mitigation measures are implemented. The PIU together with ZEMA will responsible for monitoring of the environmental and social aspects of the Project. Indicators for monitoring changes in the physical, biological and socio-economic environments should be developed during the preparation of the design stage site specific ESIA and ESMPs, and the monitoring component fully elaborated as part of the detailed site specific assessments.

65. The cost of environmental activities including mitigation measures is UA 165,300 (from the ADF resources) in addition to amounts incorporated in the civil works and reflected in bidding documents. Environmental monitoring is one of the LISP activities.

Table 1: Summary of Environmental and Social Management Plan

TEXT REF.	IMPACT	MITIGATION/ENHANCEMENT	RESPONSIBILITY	CAPACITY BUILDING
5.2	**ENVIRONMENTAL IMPACTS**			
(i)	**Clearing of Vegetation**			
	• Limited Vegetation clearing may occur during rehabilitation/construction of Livestock infrastructure. • Over abstraction of resources may occur for construction purposes. • Sensitive habitats may be affected as materials are sought, e.g. Grass from wetlands. • Overgrazing from the increased stocks of animals	• Sensitive habitats should be avoided. • Clearing should be limited to working areas only. • Revegetation and reforestation must be prioritized. • Over abstraction of construction materials should be avoided. • Habitat restoration must be done where effects have been caused. • Sustainable range management must be practiced	MAL, PCU and Contractor	Environmental awareness training
(ii)	**Soil and land degradation**			
	• Point source contamination from diesel, lubricants etc around working areas. • Increased soil erosion due to vegetation clearing, soil trampling and compaction. • Increased rapid runoff due to vegetation clearing and soil compaction diminishing infiltration capacity. • Deterioration of soil characteristics due to increased erosion.	• Appropriate containment measures for all operational areas and proper disposal of used lubricants. • Soil erosion control measures (e.g. re-vegetation, reseeding of grasses, land preparation, terracing, use of gabions, etc) • Restoration of borrow pits, sand and quarry stone abstraction sites and brick molding sites.	MAL, PCU and Contractor	Environmental awareness training
(III)	**Wildlife Disturbances**	•		
	• Noise and vibrations cause wild animals to migrate, • contamination of the rivers may cause fish kills and destruction of other aquatic life, • Migration routes for wildlife may be affected by establishment of new sites.	• conduct feasibility studies, • Minimize vibrations and strong noise, • enforcement of parks and wildlife law, • Avoid contamination of soil and water.	PCU, District Agric. Officer NGOs	Requirement of the Parks and Wildlife Act.
(iv)	**Disturbance of marginal areas**			
	Establishing the projects in such areas poses serious threats to their further degradation.	• Avoid extraction of raw materials from marginal areas, • No construction of structures in marginal areas.	PCU, NGOs and beneficiaries	
(v)	**Exposure to Agro-chemicals**			
	• Use of pesticides may increase better yields, control pests and diseases. • This can then expose the farmers to these toxic chemicals	• Encourage limit and proper use and handling of chemicals. • Conduct awareness training & workshops on safe handling of chemicals.	MAL, PCU, Scheme Management Committee	
(vii)	**Effluent and Solid Waste**			

TEXT REF.	IMPACT	MITIGATION/ENHANCEMENT	RESPONSIBILITY	CAPACITY BUILDING
	• Most agricultural, livestock, agro-industries, packaging and marketing operations produce solid waste. - Steam and hot water boilers produce ash - Fresh food and processed food markets, waste from canning - Livestock production units produce manure, dairy waste, waste from slaughter houses	• Seek guidance of local environmental officers to identify acceptable disposal sites. • Waste from agricultural activities can be further processed into other uses, e.g. organic manure. • Reuse and recycling must be preferred over disposal of the waste.	PCU; Local Environmental Officer.	Likely hazardous and non-hazardous construction waste
(viii)	**Ambient air quality**			
	• Air Quality will be impacted by emission waste from piggery, chicken manure, cattle manure, processing waste etc. • Air Quality will be impacted by emissions from vehicles, earthmoving equipment and released particulate matters. • Demolition to modify the built environment will lead to considerable levels of cement dust which can affect workers and the public.	• Animal waste must be handled properly to avoid smell. • Contractors should use dust screens or nets in windows, doorways and ventilators of rooms where demolition or other dusty construction activities are occurring. • Dust suppression measures must be instituted at all sites.	PCU and Contractor	None
(ix)	**Ambient Water Quality**			
	• Water quality will be impacted by wastewater discharges from construction activities including onsite sewage and rainwater run-off. • Soil and water pollution resulting from the accumulation of solid and liquid waste. • Soil and water pollution from chemicals, pesticides & vaccines meant for production. • Water quality may be impacted by waste streams from piggery or processing plants.	• Contractors to erect proper sanitary facilities. • Pollution from lubricants and other wastes to be avoided. • Controlled disposal of wastes and effluent by use of appropriate disposal facilities, use of appropriate drainage structures, use of cleaner technologies, proper storage of materials, awareness campaigns • Waste must be recycled and reused to avoid dumping in waterways.	PCU and Contractor, District Agric. Officer	None
(x)	**Temporary Visual Intrusions**			
	rehabilitation/construction of Livestock infrastructure like diptanks, crush pens, Farmer training centres, slaughter houses, milk processing plants and other possible facilities will change the characteristics of the area and leave a marred landscape.	• Contractor should ensure minimum footprint of construction activities and provide decent accommodation for workers. • All altered landscapes (Sand pits, borrow pits, brick molding sites etc) should be rehabilitated by the contractor.	Contractor and DACO.	none
5.3	**SOCIAL AND HEALTH IMPACTS**			
(i)	**Anxiety and Anticipation**			
	• Project planning lacks transparency and may take rather long. • stakeholders anxious as they do not know exactly what will happen and when it will happen	The planning stage must be shortened and on commencement the implementation must be within schedule.	MAL,PCU and Contractor	None
(ii)	**Poor Stakeholder Participation**			
	Poor participation of communities, staff members and other stakeholders in the planning and designing of the project.	All relevant stakeholders should be continuously involved and attend meetings from planning to construction	MAL, PCU	None
(iii)	**Loss of assets or access to assets**			
	Interference with the normal access to assets like grazing or hunting grounds especially in the creation of large rangelands.	• Where ever possible avoid impacting on people. • Create alternative access routes. • Preparation and implementation of a Resettlement Policy Framework which will include compensation plans.	MAL, PCU, Min. of Local Govt.	
(iv)	**Loss of natural and cultural heritage**			
	natural features, antics and relics destroyed in the project area e.g. during excavations.	• Conduct feasibility studies, fencing, introduce proper antiquity education programmes. • Come up with a Physical cultural resources management plan • Establish procedure for chance finds.	MAL, PCU, District Agric. Officer, NGOs National Heritage Conservation Commission.	Requirement of the National Heritage and Conservation Act.
(vi)	**Disruption of footpaths**			
	Establishment of Livestock infrastructure cutting off usual footpaths or routes.	Engage in good Livestock infrastructure designs Relocate the footpaths and construct foot bridges.	PCU Association Management	
(vii)	**Occupational Health Safety risks**			
	• The movement of trucks to and from the site, the operation of various equipment and machinery and the actual agricultural activities will expose workers to work-related accidents and injuries.	• All safety precautions must be enforced. • Provide PPE to all workers. • Institute dust and noise suppression measures.	MAL, PCU and Contractor	Application of various types of PPE and their proper use.

TEXT REF.	IMPACT	MITIGATION/ENHANCEMENT	RESPONSIBILITY	CAPACITY BUILDING
	• Pollutants such as dust and noise could also have negative implications for the health of workers.			
(ix)	**Noise**			
	• Noise and vibration caused by machines, site vehicles, pneumatic drills etc • Noise from the chicken, pigs or whatever animals which are being raised. • Noise from the processing of agricultural produce.	• Contractor to avoid old equipment. • Heavy duty equipment to be minimized. • Noisy operations to be limited to certain times. • Noise levels to be limited to within acceptable levels. • Animal raising to be in designated areas to avoid being a nuisance to the general public. • Processing plants should be sited away from residential areas.	MAL, PCU and Contractor	None
(x)	**Social misdemeanour by construction workers**			
	Impacts associated with the contractor's camp include: • Disposal of liquid and solid wastes. • Theft, alcoholism and sexually transmitted diseases (especially HIV/AIDS).	• As a contractual obligation, contractors should be required to have an HIV/AIDS policy and a framework (responsible staff, action plan, etc) to implement it during project execution. • Contractor to curb thefts and misbehaviour through a code of conduct. • Contractor to manage any of its waste properly.	MAL, PCU and Contractor	None
(xi)	**Income to equipment and material suppliers**			
	Project will promote local procurement where technically or commercially reasonable and feasible.	• For building materials, procure from legitimate sources to avoid encouraging environmental degradation. • Environmentally friendly processes should be encouraged.	MAL, PCU and Contractor	None
(xii)	**Employment Opportunities**			
	Expanded Agricultural facilities and programmes will result in the creation of more long-term job opportunities.	Offer appropriate training for staff to manage the improved facilities.	MAL, PCU and Association Managers	Staff training in operation of improved facilities
(xiii)	**Improvement in livelihoods and local economies**			
	• Improved agricultural outputs will enhance the livelihoods of the communities, raising their incomes and hence further improve productivity and lifestyles. • Social conflicts may arise due to increased wealth differentials among the population.	• Leadership should promote viable economic activities. • Awareness on replication by others should be a continuous process	MAL and local leadership	Stake holder training in entrepreneurship.
(xiv)	**Improved aesthetics and life of agricultural facilities**			
	rehabilitation/construction of Livestock infrastructure will improve their aesthetics and this should be maintained.	• Maintenance teams to be stationed at readily accessible places for the agricultural facilities. • Planned maintenance of machines and buildings to be instituted.	MAL, PCU and Agricultural facility management	Maintenance Staff training in the maintenance of newly installed agricultural equipment
(xvi)	**Conflicts over natural resources. (water and grazing lands)**			
	• Over-abstraction of water may trigger conflicts in the project areas. • Over grazing may trigger conflicts in the areas	• Provide water management training to farmers. • Introduce alternative sources of water such as boreholes. • Introduce good rangeland management programmes	District Agricultural Coordinating Officer	

Table 2: Environmental and Social Monitoring Plan

ISSUE	*METHOD OF MONITORING*	AREAS OF CONCERN	POSITIVE INDICATOR	FREQUENCY	RESPONSIBLE AUTHORITIES
Soils	The Developer should make a daily inspection of earth works, and ensure that slopes are suitably graded. Once earthworks are complete the PCU should monitor the restoration measures implemented by the Contractor, such as re-vegetation	• Soil erosion • Conservation activities • Rangelands management	an absence of rills, gullies or other erosion features occurs	Regularly and ongoing as project is implemented	Department of Forestry
Vegetation	The farmers must clear area to be used and site works only.	• Clearing of the project site and disturbance of animals. • flora and fauna	No unnecessary vegetation cleared	Regularly and ongoing as project is implemented	• Department of Forestry • Zambia Environmental Management Agency (ZEMA).

ISSUE	*METHOD OF MONITORING*	AREAS OF CONCERN	POSITIVE INDICATOR	FREQUENCY	RESPONSIBLE AUTHORITIES
Animals (Game corridors)	The farmers and the Environment Department staff should carry out regular inspections of the area and check that usual animal access routes are maintained.	• Game corridors •	Usual animal access routes are maintained /not disrupted. Reduced, human, animal conflict.	Regularly and ongoing as project is implemented	• Zambia Environmental Management Agency (ZEMA). • Zambia Wildlife Authority
Birds	Interference with nesting sites	• Nesting sites • Migratory routes	Reproductive patterns of birds undisturbed	Regularly and ongoing as project is implemented	• Zambia Environmental Management Agency (ZEMA). • Zambia Wildlife Authority
Small mammals habitat loss	Ensure that no unnecessary habitat loss occurs.	• Animal habitats	No Mammals are displaced from their habitats.	Regularly and ongoing as project is implemented	• Zambia Environmental Management Agency (ZEMA). • Zambia Wildlife Authority
Poaching	Monitoring is the responsibility of the Zambia Wildlife Authority and the Police Departments.	• Poaching	Number of poaching incidences reduced or eliminated.	Regularly and ongoing as project is implemented	• Zambia Environmental Management Agency (ZEMA). • Zambia Wildlife Authority • Police department
Crime	The PCU should Liaise with police department if crime/theft becomes a problem.	• Criminal activities in the area	Crime theft kept to a minimum. Incidences of stock theft and house breaking minimized.	Regularly and ongoing as project is implemented	• Zambia Wildlife Authority • Police department • District Administrator
Noise	Noise monitoring should be carried out on an ad-hoc basis by the Environmental Monitor or the PCU to establish noise levels in the work areas.	• Noise Levels	Noise levels at the nearest sensitive receiver would be kept to a minimum.	Regularly and ongoing as project is implemented.	• Ministry Of Health • Zambia Environmental Management Agency (ZEMA).
Health	The PCU must ensure that education and awareness campaigns are implemented. The Ministry of Health, local authority should carry out awareness campaigns on animal related diseases, water-borne diseases and carry out vector control methods such as regular spraying of potential breeding sites (ponds)	• Public health • Ensure that stagnant water is sprayed to destroy mosquito larvae. • Waste management at Sub-project sites. • Disease outbreak due to concentration of people at the Sub-project sites. • Disease outbreak due to dust and water pollution. • Control and management of various animal diseases	Reduction in number of cases of such diseases as Avian flu, foot and mouth, AIDS/STD related diseases recorded at hospital and medical clinic Reduction in number of diseases such as malaria and cholera	Regularly and ongoing as project is implemented	• Health ministry • Project PCU • MAL
Archaeology	Provision should be made to allow archaeologists to be present on site during the excavation periods if they so wish. The PCU should inspect all excavations, and where archaeological remains are found work must stop until the PCU has given the all clear to proceed. The PCU should contact the Museums Authorities in the event of a significant archaeological find.	• Archaeological Findings	Archaeological remains not excavated, disturbed or destroyed.	• Regularly and ongoing as project is implemented • Room for chance finds	• National Heritage Conservation Commission
Energy	The Developer must inspect the provisions made by the Contractor to supply energy to the workforce, and ensure that fuel wood is not being collected. The Environmental Department should enforce legislation which prohibits cutting down of trees. The Environmental Department, PCU and local leadership (cultural and political) should sensitize the workers against cutting down of trees.	• Types of energy sources used in the project	Energy supplied by electric generator or other suitable source. Deforestation and resultant erosion controlled and reduced	Regularly	• Department of Forestry. • Zambia Environmental Management Agency (ZEMA).

ISSUE	*METHOD OF MONITORING*	AREAS OF CONCERN	POSITIVE INDICATOR	FREQUENCY	RESPONSIBLE AUTHORITIES
Air Pollution	Observations should be made on the level of dust generated during the Agricultural Activity implementation by the Environmental Monitor or PCU. Dampening should be carried out if levels are unacceptable.	• Levels of dust emissions	Deposition of dust on surfaces should decrease with increased dampening	Regularly	• Health ministry • Project PCU • MAL
Water resources	• Water resources should be managed well • The Ministry of Health should test borehole water quality in the area to ascertain the suitability for human consumption.	• Watercourses and impoundments. • Surface water quality • Ground Water Quality • Recommended distances from watercourses. • Possible dam construction sites.	• Water made available for environmental concerns. • Pollution of water resources monitored/detected early and remedial measures taken on time	Tests for water pollution to be done regularly	• Health ministry • Project PCU • MAL • Department of Water Development, (DWD) • Zambia Environmental Management Agency (ZEMA).
Landscape	The PCU should make visual inspection of earth works to ensure that excessive excavation is not being carried out. Temporary screening may be appropriate in some cases.	• Visual intrusions • Aesthetics	Landscape alteration reduced to a minimum	Monthly	• National Heritage Conservation Commission • Zambia Environmental Management Agency (ZEMA).
Complaints	The PCU should inspect the record of complaints made by local residents, to be kept by the farmers, and should check that action is taken quickly and that the number of complaints do not rise significantly.	• Complaints	Number of complaints decreases.	Regularly	• Project PCU • MAL • Zambia Environmental Management Agency (ZEMA).
Local governance	MLGC to ensure the following • compliancy to designs • Employment opportunities and recruitment are transparent. • Allocation of land is overboard • Cultural values are respected.	• Land management • Land allocations • Socio cultural issues • Local governance • Social Aspects, • Land rights	• Disputes over land reduced • Cooperation of local leadership is secured • Locals employed in the projects	Regularly	• Ministry of Local Government • District Councils • Project PCU • MAL
Agricultural Activities	• Ensure that Agricultural Activities follow designs and recommendations given for proper agricultural practices. • Ensure overall management of the Programme. • Appropriate land use downstream is done and no pollution of crops from contaminated water from spillages occur.	• Siting of works, plan	Land degradation curbed Program running smoothly	Regularly	• PCU • MAL

Table 3: Total Cost for the ESMP (in USD/US dollars) and disbursement schedule

Item Description	Year 1	Year 2	Year 3	Year 4	Year 5	Total
1. Training and Workshops	14,400	14,400	0	0	0	**28,800**
2. Site-specific ESMPs	30,000	30,000	0	0	0	**60,000**
3. Mitigation measures	15,000	30,000	30,000	30,000	10,000	**115,000**
4. Monitoring (to alternate with Audit)	10,000	10,000	0	10,000	0	**30,000**
5. Environmental Audit	0	0	10,000	0	10,000	**20,000**
Total (in USD)	**69,400**	**84,400**	**40,000**	**40,000**	**20,000**	**253,800**

USD 253,800, approx UA 165,342.02

66. Social Analysis: Poverty rates have remained high in Zambia and recent statistics indicate that about 60% of the population is still living below the poverty datum line. Other social challenges include high levels of unemployment especially among the youth and rural areas are characterised by high illiteracy rates, high incidence of HIV/AIDS, limited access to infrastructure and services. In the education sector, rural\urban and female\male gaps in literacy continue to remain wide. Poor school infrastructure in rural areas affects enrolment and completion rates. Unemployment especially among the youth has increased from 22% in 2008 to 28% in 2010[5]. The prevalence and incidence of HIV/AIDS is estimated at 16% among adult ages 15 – 49. Although the epidemic is showing signs of stabilization in urban areas, the rates continue to rise in some rural areas. The risk posed by HIV/AIDS pandemic will be mitigated by awareness campaigns and incorporation of HIV/AIDS messages in training. The project will use MAL's HIV/AIDS extension tools in disseminating HIV/AIDS prevention, treatment and care information for staff and farmers. The project will also improve the nutritional status of affected rural households and communities through consumption of meat and milk products which are rich in proteins.

67. The broader stakeholder participation and partnerships in project activities will enhance social coherence and stability which are key ingredients for inclusive growth and development. This will be achieved through improved access to employment opportunities and decreasing social exclusion of certain groups (women and youth). The project will offer opportunities for transfer of skills (value addition training and training of artisans) which directly lead to a greater accumulation of human capital. The project will also contribute to poverty reduction through the provision of income and better livelihoods to participating communities.

68. Involuntary resettlement: There is no involuntary resettlement or land acquisition envisioned within the implementation of the Project activities. The livestock service centres will be constructed on sites identified by communities in agreement with the government.

[5] Combined 2011-2015 Zambia Strategy Paper and Country Portfolio Performance Review, Afdb, January 2013.

69. Gender Analysis: Women in Zambia account for 51% of the total population. Women are mainly involved in agriculture and micro-enterprise as well as household tasks while men dominate the mining sector and small/medium/large enterprises. At least 78% of the women are engaged in agriculture. Although agriculture remains the main opportunity for employment and income for rural women, they continue to have limited access to credit, extension services and markets. They are also affected by various factors such as high incidence of HIV/AIDS, discrimination and marginalisation, poverty and gender inequality. In the Project area, male headed households account for 78.4% while female headed households account for 21.6% of agricultural households. Men own more livestock than women. Over 80 percent of the rural population in Zambia depend on agriculture related activities for their livelihood[6]. Agriculture is the main source of income and employment especially for rural women. Rural women participate in both production and post-production activities and constitute more than 50% of the total rural workforce[7]. The livestock subsector is economically important in Zambia accounting for about 35% of total agricultural production[8]. The subsector generates employment and incomes for rural people and contributes to crop production by supplying manure and draught power. In the project area, men own more livestock than women. Cattle are predominantly owned by men and women own small livestock (chicken, goats). Generally all household members are involved in livestock production in one way or another. Livestock rearing (especially cattle) is the domain for men and boys. Livestock meant for fattening at home are taken care of by women and girls. Thus, the responsibility of labour for activities such as feeding, milking, health care, processing and marketing differs between men and women.

70. A gender analysis carried out also shows that generally women do not own land in their own right but through members of the family. However, in the event of divorce or being widowed, women are permitted to continue to use the land. Access to credit is a major constraint for female farmers because they lack collateral security. Most cattle related decisions rest with men. Women are consulted on decisions to sell or slaughter an animal. Women do make decisions regarding smaller stock which they can easily sell and get income to meet small household expenses. There are few women in local leadership/management positions in village and district committees and commodity associations. The other major constraints faced by women in the livestock sector include livestock diseases, low productivity and slow growth rates as well as poor access to livestock services.

71. Taking into account the gender differences between men and women in the project area and the specific constraints that women face in the livestock sector, the gender mainstreaming strategy in LISP will focus on increasing access to project activities for women as well as increasing their participation in project implementation, community representation and decision making. The project will have the following specific interventions.

6 Central Statistics Office (2006). Living Conditions Survey

7 Census, 2010.

8 Cited in SNV (2012). Feasibility Study on Domestic Biogas Programme in Zambia

72. Access to training and knowledge transfer: The project will offer training in modern livestock management for both male and female farmers. The training will be based on a thorough needs assessment to be conducted at the start of the project. Training will be oriented towards the specific needs of both men and women. This will take into account the different livestock ownership patterns for men and women and the different roles they play in relation to livestock. For example, control of diseases which affect poultry (e.g. newcastle) will be pursued as it is a pertinent area for women involvement. LISP will support gender sensitization and awareness training of farmers and local community leaders. The training will assist to increase gender awareness and develop capacities of women and men to address gender inequality issues in livestock. Women will have at least 50% participation in mixed training sessions.

73. Cattle are predominantly owned by men whilst women own small livestock (goats and chickens). The major constraints faced by women in the livestock sub-sector include livestock diseases, low productivity and slow growth rates, poor access to livestock services and credit. The Project will address many of the challenges through specific interventions targeted at women include access to livestock services, information and training in modern livestock management. Immediate benefits to women will be reduction in livestock losses, increased livestock production and improved productivity which will lead to increased household incomes. Access to draught power has important potential benefits to women in rural Zambia in terms of reducing their workload in productive tasks.

74. LISP will also encourage farmers' cooperatives to include a larger quota for women in decision making positions. The Project will support at least 50% involvement of women in management of livestock infrastructures. The Project will support a youth and women empowerment programme aimed at training women and youth in value addition skills (such as skins/hides processing) and skills training to run Income Generating Activities (IGAs). Women will comprise at least 50% of the envisaged beneficiaries of the programme. MAL is implementing the Performance Enhancement Programme (PEP) aimed at strengthening the capacity for gender mainstreaming within the Ministry. MAL and Provincial Gender Officers will support the Project activities.

75. Access to Livestock Infrastructure: To ensure that the livestock infrastructure will also be accessible to women, the Livestock Service Centres will be constructed on sites identified by both men and women in agreement with GRZ officials. The infrastructure, for example market centres and training facilities will be constructed to cater for both men and women's needs. The project will also support at least 30% involvement of women in the management of livestock infrastructure and milk processing units.

76. Women and Youth Empowerment: The project will support a youth and women empowerment programme aimed at training women and youth in value addition skills (such as leather processing) and skills training to run Income Generating Activities (IGAs). Women will comprise at least 50% of the envisaged beneficiaries of the programme. The component has significant potential in reducing poverty among women by increasing their access to new employment opportunities and developing women as contributors to economic growth.

77. Project Impact Monitoring: The socio–economic impact of the project components on women are increased household incomes, food security and well-being. The project will put in place a monitoring and results tracking system to track the impact of the project on women. Key indicators will include (i) availability of food for female headed households; (ii) income for female headed households; (iii) number of women in group and community based decision making bodies; (iv) changes in household and community perception of women and their capabilities.

78. Alignment with National Development Plan: In the short term, the expected outcome of the project is improved and equal access by both men and women to modern livestock production and management techniques and to livestock infrastructure. The project outcome is aligned with the gender specific agenda outlined in Zambia's Sixth National Development Plan (2011 – 2015). The Sixth National Development Plan (SNDP) entrenches gender as one of the cross – cutting issues and prioritizes the need to mainstream gender in the development process. The main objectives of the SNDP (as far as gender is concerned) are to develop gender responsive policies and legal framework, to enhance capacity of women to participate in national development and to strengthen institutional capacities for effective gender mainstreaming. Specific gender mainstreaming activities include capacity building, gender audit, gender analysis and legislative and policy reviews.

79. Key gender issues in Zambia: Key gender issues in Zambia relate to the feminization of poverty, culture and tradition, the legal framework, participation in decision making and HIV/AIDS. Poverty remains high in Zambia (affecting more than 60% of the population). Women continue to be more vulnerable to severe consequences of poverty. Statistics show that of the 68% of the population who are poor, 80% of these are women and children[9]. Cultural and traditional practices systematically subject women to male domination and make them dependent on men. Other factors that lead to gender inequality are lower education and literacy level, patriarchal structures and stereotypes. The resulting gender disparities have economic implications in that they lead to inequalities in access, ownership and control of productive resources and of time and labour.

80. The legal framework is biased against women. Freedoms provided under the constitution are undermined by customary and cultural factors. The dual legal system limits women's rights of access and control over productive resources. Women also continue to be marginally represented at all levels of decision making. Low participation in decision making has implications for women's empowerment and poverty reduction. The incidence and prevalence of HIV/AIDS continues to affect women more than men. There are gender differences in impact where women shoulder the burden of caring for the sick, but both men and women suffer the social and economic effects of the disease. Gender based violence has continued to increase and it is both fuelled by and fuels the spread of HIV/AIDS[10].

[9] Cited in Paper on Gender Equality in Zambia presented by NGOCC during the Civil Society/Patriotic Front Dialogue on 12 – 13 April, 2012 at Crest Golf View Hotel, Lusaka, Zambia.

[10] World Bank 2004, Zambia Strategic Gender Assessment.

81. Policy and Institutional Framework for Gender Mainstreaming: The national Gender Policy was launched in 2000. The policy recognizes the need for equal and full participation of women and men at all levels of national development. The national gender policy outlines priority areas for the agriculture sector and these include (i.) facilitating the strengthening of the provision of agricultural services (credit, extension, research) to smallholders particularly women farmers, (ii) construction of rural infrastructure to assist smallholder farmers especially women to acquire inputs and market their produce on time, (iii) facilitating and promoting research and dissemination of information on agriculture targeted at women, (iv) facilitating the formation of women farmer groups so that they can benefit from agricultural programmes, and (v) encouraging the development of agro-industries in rural areas where most rural women live.

82. The National Agricultural Policy (2004 – 2015) highlights that women and young farmers have in the past not benefitted much from agriculture services such as credit, extension and labour saving technologies despite the vital role they play in agriculture. In order to address this situation, the policy promotes gender equity in resource allocation and access to agricultural services focusing more on women and young farmers. The strategy among other things focuses on (i) creating gender awareness among policy makers and farmers, (ii) building capacity of MAL staff at national and field levels in gender analytical skills and techniques, and (iii) facilitating the mainstreaming of gender in curricula of agricultural training institutions.

83. The Ministry of Gender and Child Development which was upgraded in 2012 from the Gender in Development Division (GIID), is the lead national gender machinery. The ministry is responsible for implementing, coordinating and evaluating the national gender policy with a mandate to achieve gender responsive development. It works with Gender focal points (GFPs) in line ministries in promoting gender issues in sectoral policies and programme interventions. Within the NGO sector the Non-Governmental Organisation Coordinating Council (NGOCC) plays a "watchdog" role in the ratification, implementation of national, regional and international instruments on gender in the country[11].

84. Status and Capacity of Gender Mainstreaming in MAL: MAL has the mandate to coordinate and ensure gender mainstreaming in the agricultural sector. To discharge this responsibility, a gender focal point is assigned (within the policy and planning department) to work with a gender committee composed of technical staff from various departments. However, the gender committee in MAL is still not established. The responsibility for gender mainstreaming has not been incorporated into the job description of the gender focal point and therefore the GFPs performance cannot be measured on gender mainstreaming. The monitoring and evaluation framework of MAL does not contain gender sensitive indicators to ensure the availability of gender disaggregated data for gender responsive planning, monitoring and reporting. In addition, there is no specific budget allocation for gender activities within MAL. Most members of MAL staff are gender aware but do not have gender technical skills needed for effective mainstreaming. Factors limiting capacity include lack of training. Where training has been attended, it is too generic and has only improved gender awareness rather than specific technical skills. At the beneficiary level, there is a general lack of understanding of gender issues and there is need for gender sensitization and awareness.

[11] African Development Bank, 2006. Zambia multi-sector gender profile.

85. Gender Issues in the Livestock Sub-sector and LISP: The livestock sector contributes 3.2 percent of the national GDP and accounts for about 35% of the total agricultural production[12]. The sector contributes significantly to the agriculture sector in Zambia through provision of milk, meat, eggs, hides, skins, manure and draught power. In the project area, male headed households account for 78.4% while female headed households account for 21.6% of agricultural households[13]. Gender is an important factor to consider when examining the livestock industry among traditional and small-scale farmers. The smallholder farmers account for about 80 % of the total livestock. The livestock sub sector mainly depends on traditional approaches for management and this has implications on gender issues within the framework of division of labour. Access and control of livestock resources are also key gender issues.

86. Men own more livestock than women. Women are responsible for small livestock (chicken, goats, sheep and pigs) because they are easy to keep and acquisition is normally through gift, purchase, exchange for labour or care taking. Chickens are the most common livestock kept by women in the project area. Generally all household members are involved in livestock production in one way or another. Cattle rearing is primarily the domain of men and boys. Livestock meant for fattening at home are taken care of by women and girls. Women also take care of sick animals. The responsibility of labour for activities such as feeding, milking, health care, processing and marketing differs between men and women. Women also have additional household and family responsibilities which usually include fuel and water collection, food preparation, child care and caring for the sick.

87. Generally women do not own land in their own right but through members of the family. In the event of divorce or being widowed, women are permitted to continue to use the land. Access to credit is a major constraint for female farmers because they lack collateral security. Most cattle related decisions rest with men. Women are consulted in some cases with respect to the decisions to sell or slaughter an animal. Women do make decisions regarding smaller stock which they can easily sell and get income to meet small household expenses. There are fewer women in local leadership/management positions in village and district committees and commodity associations.

88. Gender Mainstreaming in LISP: A document review of on-going and closed projects implemented by MAL with regard to gender impact was carried out. The project design has benefitted from the lessons learnt and these include; (i) a detailed engendered log frame with a robust set of gender sensitive indicators is critical for monitoring gender impact (ii) the need to promote gender friendly technologies in particular labour saving technologies; (iii) empowerment programmes directed at women and youth for example access to resources (e.g. credit, land, livestock, good quality seed) improve their economic status. The lessons have been incorporated into the project design by (i) reviewing and updating the LISP log frame objectives performance indicators to accommodate gender issues; (ii) promoting labour saving technologies for example biogas digesters and also draught power which have the benefit of reducing workload for women; (iii) incorporating a youth and women empowerment programme aimed at training women and youth in value addition skills and skills training to run Income Generating Activities (IGAs).

89. Entry Points for Mainstreaming Gender in LISP: The project will support gender capacity building activities for LISP stakeholders as shown in the table below.

[12] Cited in SNV (2012). Feasibility Study on Domestic Biogas Programme in Zambia.

[13] Central Statistics Office.(2010) Zambia Post Harvest Survey.

Target Group	Type of Training
Farmers & Community Leaders	Gender awareness & sensitization.
Field & extension staff	Gender awareness & sensitization. Gender mainstreaming.
MAL technical staff & programming staff	Gender awareness & sensitization. Gender mainstreaming. Gender analysis tools and techniques.
LISP Project staff & Implementing partners	Gender awareness & sensitization. Gender mainstreaming. Gender analysis tools and techniques. Gender based Monitoring, Evaluation and Reporting. Learning on the job with support from Gender Specialist.

90. Gender Audit Study: A gender audit study will be carried out (during the third year) to assess the status and progress made in achieving gender equality within LISP. The study will identify achievements made, gender gaps, challenges and constraints in mainstreaming gender in LISP and also make recommendations of how the project can improve on delivery during the remaining period.

91. Documentation and Dissemination of Gender Information: The project will work closely with gender related organisations (NGOs, national institutions, donors) for purposes of sharing information on gender and women's empowerment in relation to livestock development. The project will document and share learning material on women's empowerment and gender equality with all the relevant stakeholders at district and national level. A stakeholder workshop will also be held to share lessons learnt and disseminate information on gender. A budget for the proposed gender activities is shown in table below.

Activity	Target Number	Estimated Cost (USD)
Gender awareness & Sensitization for MAL staff	150	75,000
TOT on Gender Analysis Techniques and Gender Mainstreaming	100	50,000
Gender Awareness & gender mainstreaming for staff	150	75,000
Gender awareness & gender mainstreaming for LISP staff, implementing partners & NGOs	50	25,000
Gender Analysis Techniques and Gender based monitoring, evaluation & reporting for LISP staff, implementing partners & NGOs	50	25,000
Gender Awareness/Sensitization for Farmers and Community Leaders	2,500	200,000
Gender Audit Study	1	10,000
Documentation & Dissemination of Information(including workshop)	1	40,000
Total	**NA**	**500,000**

92. Women and Youth Empowerment: The Project will support a youth and women empowerment programme aimed at training women and youth in value addition skills (skin and hides processing). The Project will train 27 women and youth groups in hides and skin tanning. This would involve soaking, de-haring, liming, fleshing (mechanical scrapping off the excessive organic material) and splitting. The hides and skins are then pickled and tanned. The tanned hides and skins are tradable as intermediate products (wet blue leather) or can be further processed into leather which is used to manufacture consumer products (shoes, hand bags e.tc). The women and youth groups will be able to sell tanned leather to footwear, upholstery and garment manufacturers. The component has significant potential in reducing poverty among women by increasing their access to new employment opportunities and developing women as contributors to economic growth.

93. The project will also support skills training to run Income Generating Activities (IGAs) for women and youth. Twenty seven women and youth groups will participate in the "small stock pass-on scheme". The program integrates training in primary production and marketing and also links farmers to viable markets. Selected members of the groups will each be provided/loaned with three female goats and five chickens (four hens and one cock). Male goats will be provided for breeding purposes and will be shared among four neighbouring households. The first female offspring of each "loaned" animal will be given to the next family in the group. The program will promote livestock development in the project area and will also improve incomes and nutritional status of households. This will enhance women's social image and empower them in decision making at the household and community level.

94. Project Gender Impact Monitoring: The project will put in place a monitoring and results tracking system to track the impact of the project on women. Key indicators that will be monitored and suggested data analysis and collection methods are shown in the Table B.8.3.

Table B.8.3: Key Indicators to Track the Gender Impact of the Project

Indicator	**Data Collection Methods**
Availability of food for female headed households	Household Surveys
Change in income for female headed households	Household Surveys
Number of women accessing livestock infrastructure and information	Household Surveys Group Interviews
Number of women in group and community based decision making bodies;	Group and Community Interviews
Changes in household and community perception of women and their capabilities.	Perception and Attitude Surveys

95. Human Nutrition and Malaria: The project will seek to empower women especially female heads of households through increased household income and nutritional status. Livestock are a source of food (meat, milk, eggs) rich in proteins. Animal source foods supply essential nutrients that are lacking in plant source foods which are iron, zinc, vitamin B12, riboflavin and conjugated linoleic acids. The positive outcomes of these micronutrients on human health (particularly women and children) are good physical and mental health which leads to increased productivity. Malaria remains a major public health and development challenge in Zambia and has a direct health impact and severe social and economic burden on communities especially on women who are care givers. The risk posed by malaria will be mitigated by awareness campaigns on malaria prevention strategies that include use of insecticide treated nets, in door residual spraying, prevention during pregnancy, environmental management and chemical control.

96. Social Impact: The social impact of the project is expected to be positive. The project will provide income and better livelihoods to participating communities. It is expected that average annual income of livestock farmers will increase overtime (by 2025 the average annual income is projected to have increased by 97%). The project will help communities in the project area to diversify agricultural output. Other positive effects will include an improvement in the nutritional status of the population through consumption of meat and milk products rich in proteins and supply of draught power for crop production. Livestock manure will enhance crop yields and will be used to generate energy for lighting and cooking through biogas digesters to be promoted by the project.

97. Rehabilitated feeder roads leading to livestock service centres will facilitate sale of livestock and related agro-products which will generally improve trade in the targeted provinces and increased economic activity will significantly boost local development. Value addition training will improve skills and give employment to women and youth. Other employment opportunities will be created through the operation of the livestock service centres. The anticipated economic well-being resulting from higher family incomes will generate positive multiplier effects on social stability. The project will help curb rural exodus by retaining the population especially the youth in the project target areas.

B.8 Project Preparation and Supervision

98. The consultations with the main stakeholders engaged during the identification phase were maintained throughout the preparation and pre-appraisal phases. During each phase, the Mission held discussions with senior GoZ officials at the national, Provincial and District levels, technical experts, potential beneficiaries and the private sector representatives, on the project design including site selection, definition of key activities, implementation arrangements and the sustainability of project's interventions. Opportunities for cooperation and parallel financing were discussed with other DPs including IFAD. This participatory approach will be promoted during the implementation phase. The LISP will be implemented through the GoZ existing structures and farmer organisations. This will include participation of beneficiaries, both men and women, who will be involved in implementation, supervision, monitoring and evaluation of planned activities. The development of the basic community infrastructure (LSC tier 1 and 1+) will be demand driven with the active participation of community representatives (interest groups and cooperatives) during construction and also management. The Project Steering Committee, comprising key stakeholders, will ably follow-up on the implementation of LISP.

Table B.8.1: Project Timeframe/Implementation Schedule[14]

No	Description of Activities	Financial Year = Calendar Year																							
		PY0				PY1				PY2				PY3				PY4				PY5			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Appraisal Mission																								
2	Loan Negotiations																								
3	Board Approval																								
4	Signature																								
5	Appointment of Government Staff for the Project																								
6	Fulfilment of Loan Conditions																								
7	Project Launch/Start Off																								
8	Project Preparation Facility - Infrastructure Design																								
	Component 1: Livestock Infrastructure Development																								
9	**Rural Community Infrastructure Support**																								
9.1	*Preparatory Activities*																								
9.2	*Construction of LSC Tier 1*																								
9.3	*Construction of LSC Tier 1+*																								
9.4	*Construction of LSC Tier 2*																								
9.5	*Rehabilitation of Milk Collection Centres*																								
9.6	*Construction of Livestock Market Centres*																								
9.7	*Construction of Livestock Slaughter Houses*																								
10	**Public Infrastructure Support**																								
10.1	*Preparatory Activities*																								
10.2	*Rehabilitation of Rural Feeder Roads*																								
10.3	*Construction of Regional Veterinary Laboratory*																								
10.4	*Construction of District Veterinary Laboratory*																								
10.5	*Establishment of Quarantine Stations*																								
10.6	*Construction of LSC Tier 3*																								
10.7	*Construction of Vet Check Point (Full Model)*																								
10.8	*Construction of Vet Check Point (Boom Gate)*																								
	Component 2: Capacity Building																								
11	Support to Participating Institutions																								
12	Women/Youth Empowerment																								
	Component 3: Project Management																								
13	Project Management																								
14	Bank: Supervision Missions																								
15	Bank: Mid-Term Review Mission																								
16	Bank: Project Completion Mission																								

Notes: Q1 = First Quarter (January to March); Q2 = Second Quarter (April, May, June); Q3 = Third Quarter (July, August, September) and Q4 = Forth Quarter (October, November, December)
PY1 = Project Year 1

[14] This is a general implementation schedule. Consequently, the detailed annual work schedule will be developed by the Project Coordination Unit before the beginning of each fiscal year, based on the component activities and the associated detailed cost tables.

C. ADDITIONAL TECHNICAL ANNEXES

C.1 Livestock Sub-Sector

1. Zambia's recent economic performance has been encouraging with growth rates averaging 6 percent per annum during the latter half of 2000s. Despite impressive economic growth, poverty levels have remained persistently high, especially in the rural areas. Over the 1998-2006 periods, the poverty head count experienced only a modest decline from 67 to 59 percent while rural poverty remained significantly higher, falling from 83 to only 77 percent (CSO). Broad based and higher growth rates are needed if Zambia is to reach its first Millennium Development Goal (MDG) which aims to reduce the proportion of Zambians living in extreme poverty by 50 percent Zambia has immense, untapped mineral and agricultural resources. Less than half of Zambia's 23 million hectares (ha) of potential arable land is used for agriculture and its substantial water resources are largely underutilized.

2. Zambia's economy has for a long time has relied on copper production that accounts for about 90% of the country's foreign earnings. In recent years, there has been a relative shift from heavy dependence on copper to agriculture in view of the fluctuating copper prices on the world market. However, a shift to agriculture as the main source of national income cannot be achieved overnight, particularly considering the many constraints in the agricultural sector. The agricultural sector contributes 18 –20% to the country's Gross Domestic Product (GDP). Zambia's growth is currently being driven by copper mining, construction and tourism. Agriculture accounts for a relatively small share of the economy due to the importance of the mineral sector. Yet most people still depend on agriculture since earnings from copper are not widely distributed. The economy remains vulnerable to instability in the global metals markets as unexpected declines in copper prices could weaken Zambia's prospects for growth and external sustainability. Livestock plays a key role in contributing to rural incomes, diversification of sources of earnings and risk management. In the traditional sector, livestock serve as "walking" savings accounts to counter drought and fluctuations in the exchange rate, prices and employment in the mines.

3. The Zambian Government is increasingly recognizing the importance of the livestock sector to economic growth and poverty reduction. The importance of the sector is highlighted through recent survey result which reveals that approximately 45% of the rural population own livestock and animal sales alone account for 26% of rural household income, higher than that contributed by field crops (21%). Among livestock owning households, cattle are owned by 310,000 households (CSO, MACO, FSRP Survey 2006/07, 2008/09). The Southern, Central, Western and Eastern Provinces account for nearly 90% of the cattle population and 83% of the national cattle herd is kept by the traditional system. The main livestock areas have continued to be Southern province, Central province, Lusaka province, and the Eastern province. Northern, and Muchinga Provinces have continued to show a steady increase in livestock numbers.

C.2 Livestock Development

4. The Zambian livestock sub-sector is of major importance to the economy of the country and the livelihoods of the rural population. The sub-sector has continued to play an important role in socio-economic development and contribution towards household food and nutritional

security as well as in poverty alleviation. It accounts for about 36.4% of total agricultural production. About 23% of the per capita supply of protein comes from animal products. Beef is the most preferred and cattle have continued to contribute 65% of the meat and almost 100% of the milk. The overall objective of the livestock sub-sector is to improve the productive efficiency of the livestock sector in a sustainable manner and to encourage increased marketing of both livestock and livestock products to contribute to the socio-economic status of the people.

5. Livestock Condition: Livestock in most parts of the country were generally reported to be in a satisfactory condition. This is as a result of the good rainfall received during the 2011/2012 agricultural seasons. Most streams and watering points had water for longer periods. With the good crop production livestock have been able to get feed from crop residues upon harvesting of various crops.

6. Department of Livestock Development: The department's core business is to promote an efficient management of livestock production countrywide in order to ensure sustainable household and national food security. During the year under review, cattle population increased from 3.4 million to 3.6 million heads while the mortality rate reduced from 18.5% to 17%. Northern, Luapula and Muchinga Provinces have impressively continued to show an increase in livestock activities. During the period under review, Zambia continued being ranked the lowest consumers of dairy products among the major dairy producing countries in the region, estimated at 8.2 litres per capita. In order to promote the dairy industry in the country, the government embarked on the promotion of dairy through the construction of milk collection centres countrywide. Other programmes undertaken by the department were Regulation and Quality Control, Stocking of Livestock breeding centres, Livestock restocking and monitoring, Artificial Insemination Programme, Livestock Research, Hides and skins improvement programmes.

7. Constraints and Challenges: With regard to funding, a lot of challenges were faced due to the new Integrated Financial Management System. Poor staffing levels have continued to have a negative impact especially in terms of provision of extension services. Other challenges include poor and in certain incidences lack of housing for frontline staff, inadequate training of staff, poor infrastructure and lack of equipment for programme implementation, lack of transportation for operations, poor collection of livestock statistics with a number of potential sources of really useful livestock information remaining untapped compounded with large gaps in availability and consistency of current livestock data, low Investment in the sector and high cost of inputs.

8. Livestock Development: The main objective of the department is to increase the overall production and quality of marketable livestock and livestock products in an environmentally sustainable manner. During the period under review, the department undertook the following activities: Livestock production and extension, Livestock information management/Dissemination, Livestock out grower schemes, Dairy development scheme, Livestock products, Regulation and quality control, Pasture and range management research, stocking of livestock breeding centres, Livestock restocking and monitoring, Artificial insemination programme, Ruminant research, hides and skins improvement programmes and Infrastructure development.

9. Livestock Production and Extension: A total of 248,550 households were estimated to have raised cattle and out of the total households, 74.6 percent raised cattle for draught power. The country has a livestock population estimated at 3.6 million cattle, 0.6 million sheep, 1.1 million goats, 33 million poultry and 1,110,000 pigs. Southern Province accounted for the highest cattle percentage of about 40.7 percent of the total national stock. An estimated 30,548 cows were sold during the period under review. There have been 5.6% and 33.3% increments in

cattle and goat populations respectively relative to 2011. However, sheep and pig had reduced populations of 87.98% and 26.39% due to the high demand of the two species on the Kasumbalesa market which lead to a higher offtake rate.

10. Zambia has long sought for ways to diversify its economy away from the reliance on copper to foster broad based economic growth. The Government has targeted agriculture as a priority sector in poverty reduction and food security as two thirds of the population live in rural areas and relies on the agricultural sector for their livelihoods. The livestock sector is relatively unexploited but recognized as an increasingly dynamic part of the agricultural economy. While livestock contributes 35 percent to agricultural value-added, the potential to expand the sector's contribution to economic growth is high given its natural resource base (four times more grazing than arable land) and favourable market prospects to drive the diversification agenda. The livestock industry has also a strong bearing on poverty-stricken communities, either directly through the provision of produce and services such as animal draught power and transport or indirectly through the provision of employment and wealth creation.

11. Though under-developed, the livestock industry constitutes about 35% of the total agricultural contribution to GDP. The industry is faced with a number of challenges, including institutional weaknesses, limited access to start up capital, poor marketing arrangements, and inefficient service delivery that gives way to frequent outbreaks of diseases of national economic importance. These and other related factors inhibit full exploitation of the livestock potential in the country. However, the proposed Livestock Development Policy (LDP) for Zambia is geared towards addressing these challenges in order fully exploit fully the potential for the livestock industry and encompasses the following objectives in its vision: (i) To achieve food security for the majority of the Zambian population through increased livestock production; (ii) To develop an inclusive livestock sector with most farmers (small and large) producing for the domestic and export markets; (iii) To promote a competitive and efficient livestock sector based on regional comparative advantage; (iv) To develop a diversified livestock sector linked to well developed value addition industries and exports; (v) To facilitate the expansion of co-operative and farmer organizations into highly competitive and commercial entities; and (vi) To have a livestock sector that utilizes natural resources on a sustainable basis for income and employment generation and economic growth. The draft LDP emphasises that with regard to commercialization of the livestock sector, it is expected that an increased number of small-scale farmers will be fully integrated into commercial production through cooperative arrangements or as individuals.

12. There is great export potential for Zambia's livestock and livestock products especially beef cattle within the country, in the region and internationally. The local demand for beef is higher compared to all other meats, mainly because all Zambian regions are now keeping cattle and beef prices are relatively low. Future demand for red meat will depend upon the overall trend of economic development in the country and the overall macro-economic growth of the economy. This, in turn, is expected to improve the investment climate for beef cattle and other livestock. Other factors that would stimulate livestock production are effective disease control and livestock movement, export-oriented production, greater exploration of new markets and improved infrastructure.

13. The livestock sector is very important for poverty reduction, livelihood security and economic growth in Zambia and within the region but the sector lacks the necessary infrastructure for production and value addition. Revitalizing the livestock sub-sector will directly lead to improved food security, greater wealth creation, more employment opportunities and greater contribution to the economic performance of the country. Livestock husbandry

enhances the economic viability and sustainability of farming systems since it diversifies income, provides all-year-round employment and serves as insurance in times of need. Sales of livestock and their products provide funds for financing farm investments. Livestock often forms the major capital reserve of farming households and contribute substantially to crop production through provision of draught power and manure. However, the livestock sub-sector remains under-developed and its growth negatively affected by frequent outbreaks of diseases of national economic importance thus limiting its ability to penetrate international markets, especially for cattle and other livestock.

14. Some of the recommendations made from a study undertaken in Zambia to determine what it would take to improve the livestock markets focussed on the area of improved breeding practices to increase animal reproduction and productivity. The following outcomes were recommended as able help increase the rate of growth of the cattle population. The extension service educates farmers on weaning practices reducing calving intervals, especially in the traditional sector; (1) The extension service educates farmers in isolating good breeding stock; (2) The government invests more in breeding research, working with farmers and research institutions to study high productivity breeds. (3) Calf mortality falls as a result of lower disease, better veterinary services and farmer training; and (4) The public and private sectors combine to increase the supply of artificial insemination services.

15. Past and Present Livestock Projects in Zambia: The European Union (EU), World Bank (WB), International Fund for Agriculture Development (IFAD) and AfDB are currently involved or formulating projects or programmes to help GRZ improve the livestock sector. The EU is implementing a Performance Enhancement Programme that focuses on strengthening institutional capacity of the Ministry. IFAD is implementing a livestock disease control project in collaboration with African Union Interafrican Bureau for Animal Resources (AU-IBAR) named VACNADA for CBPP while SADC-TAD is implementing a project for surveillance of FMD and CBPP. The World Bank has recently signed a project agreement for the Livestock Development and Animal Health Project (LDAHP) which focuses on support to disease free zones especially institutional and technical capacity building and infrastructure in the Southern, Eastern, Western, Lusaka, Central and Copper Belt of Zambia. Another project was "The Support Programme for Integrated National Action Plans for Avian and Human Influenza" (SPINAP-AHI) covering 47 countries in Africa and was executed by the African Union-Inter-Africa Bureau for Animal Resources (AU-IBAR) with funding from the European Commission. The main objective of the SPINAP-AHI project was to assist African Union member states implement their national preparedness plans against the global spread of Avian Influenza. The other project was by the Emergency Centre for Trans-boundary Animal Diseases (ECTAD-FAO). The project started in August 2008 and the main activities under the project were poultry farmer awareness meetings and sample collection in HPAI high risk districts of Northern, Copperbelt, Luapula, Lusaka and Southern Provinces. Another project is Pan African Tsetse and Trypanosomiasis Eradication Campaign (PATTEC) which is under the AU-IBAR. The programme aims at the Creation of Sustainable Tsetse and Trypanosomiasis Free Areas in the continent of Africa through systematic eradication of the tsetse fly.

16. The Bank's LISP will focus on providing and improving livestock production and marketing infrastructure, working alongside all the other projects. A joint sub-committee on livestock has been established by cooperating partners to work with GRZ. The overall sector goal is to contribute to economic growth, through increased livestock products and productivity, improved market linkages and food security. The specific project objective is to improve household income of livestock farmers by supporting rural infrastructure, institutional capacity building, and improved diagnosis, treatment and control of diseases. Zambia's long term

livestock sector strategy is to establish a Disease Free Zone with an objective of accessing international markets for livestock and meat products. In the livestock sector, the main thrust will be to control livestock diseases of national economic importance, that is, those diseases of an epidemic nature and have trans-boundary (regional or international) significance. The other area of emphasis will involve re-stocking and increasing overall production, productivity and management of marketable livestock and livestock products especially in the traditional sector.

17. The LISP project will support a strategy which will enhance the veterinary and livestock services and raise the productivity of the smallholder production systems. It has been noted that in the recent past there is increasing demand and potential for livestock and livestock products particularly in urban areas of Zambia. Beef demand is currently estimated to be rising at the rate of 5-7 percent per annum (pa) and dairy products at 10 percent pa. Currently, large commercial operators provide animal products to urban areas but, increasingly, a lack of available animals constrains their ability to effectively utilize their capacity. There is considerable scope for smallholders to supply to more formalized commercial markets while meeting the growing demand in rural markets. However, investments and capacity building are required to secure the position of smallholders as suppliers of quality animal products.

18. Low productivity is the most important challenge faced by the livestock sector and is a result of underinvestment, poor animal husbandry, poor animal nutrition and unacceptable losses due to animal diseases. However, productivity improvements in the sector face a number of challenges. The smallholder cattle sector is characterized by slow growth rates (5-8 years to reach market weight), high calf and adult mortality rates (20-30 percent and 9 percent respectively), and low reproductive performance. In contrast, production ratios for the commercial sector feature low calf mortality (1-2 percent), high reproductive rates (65-70 percent) and an off take between 17-18 percent. Despite Government support and recognition of the considerable potential for increased livestock production, Zambia is reputed to be the most animal disease-stricken country in the Southern Africa Development Community (SADC) region. Livestock diseases are a major constraint to increasing production. Consequently, the control of these diseases and their vectors can contribute significantly to productivity improvements. Other factors responsible for low productivity include: (i) inadequate infrastructure for livestock production, processing and marketing; (ii) weak extension and advisory services; and (iii) absence of or weak producer organizations. The LISP project will provide livestock infrastructure for animal handling and disease control and marketing to facilitate access of livestock and livestock products to local and regional markets and to strengthen institutions in the livestock sub-sector. This will result in increased commercialization of livestock keeping leading to optimal utilization of resources and increased household incomes and food security. It will also result in the increased availability of safe and quality meat for local and external markets with subsequent improved consumer protection and safety and higher prices for the producers.

19. Status of livestock diseases in Zambia: In the livestock sector, the main thrust remains the control of livestock diseases with national economic importance and with effect on trade. The major notifiable diseases reported by the Director of Veterinary Services (DVS) in Zambia include FMD and CBPP. The FMD outbreaks tend to occur in cycles of 5-6 years while the outbreaks of CBPP occur in cycles of 8-10 years. The other important diseases are ECF (which is endemic in the North) and trypanosomiasis which occurs mainly in areas bordering the national parks and are infested with tsetse flies. The ongoing and main disease control strategies include twice yearly vaccination (March and September) for FMD after typing, test and test and slaughter for CBPP (private sector involved in the purchase and slaughter of the positive

animals). For trypanosomiasis, the African-wide strategy is to eradicate tsetse fly and Zambia has an ongoing project to eradicate the fly in its territory.

20. According to a Report sponsored by the World Bank, DFID and AfDB and developed by Nathan Associates Inc, on Emerging Market Economics, Zambia, Jobs, Prosperity & Competitiveness, the GRZ is urged to increase investment in disease prevention and control. The precise form that policies and institutions would take would emerge after discussion and dialogue between the Ministry of Livestock, the ZNFU, the beef and dairy industries and the private sector suppliers of drugs, medicines and vaccines. The outcomes would be as follows: (1) A partnership is developed between the public sector, farmers and the private sector that sets out clear roles for each in preventing and controlling diseases; (2) The main areas for disease transmission are targeted by a combined effort from government, farmers and the industry; (3) Migration routes have feed and watering points and facilities for inspection, inoculation and spray races; (4) Establishment of adequate quarantine infrastructure in each province starting with the main cattle rearing provinces; (5) A tagging system is introduced for all animals allowing the trace back of diseased animals. Disease reporting and follow up action is improved by better co-operation between farmers, the Ministry of Livestock and the Ministry of Health; Laws and regulations concerning animal health and animal health are enforced; (6) The extension services and ZNFU work together, use the media to educate farmers and police relating to the enforcement of livestock movements and disease control measures; The supply of veterinary services and drugs, especially targeting traditional and emergent farmers, increases though improved coordination between the public and private sectors. Innovative business models developed by the private sector enable emergent farmers to afford private services. The tax burden on importing drugs is lowered; (7) The number of qualified veterinarians increase to 20-25 per province over the next 5 years to 30-40 per province within 10 years through a combination of government and private services; and (8) The number of trained and certified "para-veterinarians" increases to 800 over the next 5 years and to 1,500 within the next 10 years. Para-vets are deployed at district and camp levels and encouraged to earn fees; and (9) Diseases of National Economic Importance (DNEIs) are given priority and the following outcomes, in terms of disease incidence and mortality, achieved over 5 and 10 years.

21. The LISP project will supplement the efforts of the DVS to control and manage the spread of important notifiable and trade related diseases through the erection of livestock check points with mini quarantine holding grounds to screen animals crossing from one zone to another. The check points will be managed by qualified veterinary staff who will also validate any livestock movement permits issued by the veterinary department. Laboratories will be rehabilitated and upgraded/equipped to provide disease diagnostic and improve the quality of diagnostic services. The laboratories targeted will be the existing Regional Veterinary Laboratory at Isoka and the other laboratories within the district headquarters. The other important key component for the LISP project will include community sensitization, mobilisation and strengthening, and training to focus on capacity building of livestock producers and other livestock marketing value chain players. Community engagement on disease control and other sanitary measures will also be undertaken so as to achieve ownership of the project, improve reporting of disease outbreaks and enhance the sustainability of the project.

22. Proposed Control and Management of Trade-Sensitive Diseases: In order to control the production and trade sensitive diseases, the GRZ through the DVS has proposed specific Contingency Plans for each disease. The latter are meant to systematically control each disease over a given timeframe. The following is a brief on each trade-sensitive disease and the detailed contingency plan.

23. Foot and Mouth Disease (FMD): To control the FMD, the bi-annual vaccination in all the northern zones that keep cattle will be continued. It is recommended that a multivalent vaccine which comprises of the most prevalent serotypes be used since more than one FMD serotype may cause outbreaks in the area. The vaccination should be accompanied by animal identification under the new animal identification Act to reduce the risk of the spread of the disease in the controlled zone. This activity will be augmented by both active and passive surveillance and stock movement controls by field officer especially at the introduced livestock check points.

24. Contagious Bovine Pleuropneumonia (CBPP): The control of CBPP will continue through the process of test-and-slaughter in collaboration with the private sector who will purchase and slaughter all the clinically health animals since they are fit for human consumption. The test and slaughter activity will eventually lead to the eradication of CBPP over several years. This activity is also supported by abattoir surveillance where the meat inspection staff is trained to recognize any suspect CBPP and to report the disease on passive and active surveillance.

25. Trypanosomiasis: Though trypanosomosis is not really a trade-sensitive disease, many areas in Zambia are infested with the vector tsetse fly and the disease is prevalent. Trypanosomosis can cause massive losses in production and productivity due to its chronic manifestation resulting to stunted growth and weight loss. Suppression of tsetse fly and control of trypanosomosis will be conducted through the PATTEC project and other prophylactic and chemotherapeutic methods available where the disease occurs.

26. Livestock related legal framework, policies and regulations: A number of statutory laws (Acts) govern the livestock sector in Zambia. Some of the sector laws were recently reviewed to expand and strengthen mandates in the control of diseases. The laws that govern the sector are: (i) The Animal Health Act, No 27 of 2010. This is the main Act of Parliament providing for control of animal diseases and other matters relating to diseases of animals. It defines the powers and functions of the DVS and other staff. Some of these functions are prevent and control animal diseases, provide for quarantine, regulate importation and exportation of animals, animal products, articles and feed and establishment of an animal control fund; (ii) The Veterinary and Paraprofessional Act, No 45 of 2010. This is establishes the Veterinary Association of Zambia and sustains the Board of Veterinary Surgery which is re-named the Veterinary Council of Zambia. The Act further provides the details for the registration of veterinary and veterinary paraprofessionals and regulates their professional conduct and provides for the licensing of laboratories and health facilities, and recognition and approval of training programmes for veterinary and veterinary paraprofessionals; (iii) Animal Identification Act, No 28 of 2010 provides for registration of animal identification marks and marking operators and also provides for the appointment of the Registrar of Animal Identification; (iv) The Dairy Industry Development Act, No 22 of 2010. The Act is to regulate the dairy industry so as to develop and efficient and self-sustaining dairy industry that will effectively contribute towards poverty alleviation, household food security and employment creation and to establish the Dairy Industry Development Board and provides for its functions and powers. Other details are related to milk production, processing, manufacturing, marketing and distribution and participation of all stakeholders within the dairy industry and, self-regulation; (v) Prevention of Cruelty to Animals Act, Cap 245. Animal welfare protection is now a sanitary standard; (vi) The Public Health Act, Cap 295; (vii) The Tsetse Control Act, cap 249; (viii) The Pig Industry Act, Cap 251; (ix) The Standards Act, Cap 416; (x) The Science and Technology Act, No 26; (xi) The Technical Education Vocational and Entrepreneurship Training Act, No 13.

27. The pieces of registration will continue to be updated from time to time in accordance with the policy changes and production trends. It is prudent that a regular review of both policy and institutional framework of the livestock sector be continuous to allow for the development of a competitive livestock industry. Further, the proposed Zambian Livestock Development Policy provides various policy options necessary for achieving sustainable development and management of the livestock sub-sector. The policy will guide the development of the sub-sector to increase household incomes, assure food security and create employment through improved livestock farming, value addition of products and support of livestock-based industries, among others.

28. Institutional/organizational setup: Zambia has sustained a Directorate of Veterinary Services since the pre-independent days. The colonialists established disease control systems which developed the several legal frameworks and Acts to govern the sector. During the above period, strict and effective disease control that included compulsory screening and slaughter of infected livestock and vaccinations were observed. Barriers were erected at various points to inspect and screen the animals that were to the slaughterhouses. The Ministry of livestock is currently divided into two major divisions, the Veterinary Department which is tasked with the responsibility of disease control and movement of livestock and the Livestock Department which is tasked with the extension services such as feeding and nutrition and pasture establishment, management and conservation. These two Departments are headed by directors with several division chiefs under them who run the various sections.

29. Mission Recommendations: (i) The laboratories should be built as part of the offices or close to the offices for ease of consultations on diagnosis while the slaughterhouses be located far from residential areas; (ii) Following the stakeholder's workshop, it is proposed that various partners such the Department of Cooperatives and Heifer International be incorporated in the implementation of the LISP project. The above two should be engaged to carry out community mobilization, group formation, registration and organization, capacity building such as rearing and feeding animals. The HI has an advantage of a very strong network of field and extension staff at the grassroots; (iii) The laboratories and slaughterhouses should have provision for storage of adequate clean water to ensure hygienic procedures in the premises. In addition, the facilities should be built with or (if rehabilitated) be provided with proper disposal pit or incinerators for condemned organs or carcasses and proper animal dung/waste digester facilities or for biogas production. The slaughterhouses should also be used as points of disease monitoring and surveillance;

30. (iv) In line with the recommendations from the Ministry of Agriculture and Livestock Development Annual Report for 2011 and HI, training should target both ministry staff and the livestock keepers. The staff should be trained on community mobilization and organization, disease monitoring, surveillance, reporting and analysis and AI skills. The community should be trained on group formation and management, managing community projects and finances, livestock feeding and management and disease reporting; (v) The HI project reports show that based on the model they use for wealth creation using livestock as the entry point, there is significant improvement in the household income, wellbeing, health, attitude change and better livestock management and increased milk production. The women and youth are the main beneficiaries since they are the primary focal entry points in the HI projects. During the implementation of the LISP project, deliberate effort should be made to recruit and engage women and youth into the project. The involvement of the Department of Cooperatives and HI will be very crucial at this stage; (vi) There should be introduction of aggressive extension services in the LISP project areas, public education on important livestock diseases and their control and participatory disease search and reporting to enhance community-based disease

control. In addition, the introduction of disease check points and barriers supplement the community efforts to control the spread of livestock diseases;

31. (vii) A suitable livestock marketing and information system or value chain should be developed to link up the producers, livestock auction markets/yards, main buyers and/or processors and consumers to ensure good returns for the producers and eradicate unnecessary middle men or cartels. The Department of Cooperatives should take a lead role with the support of the Department of Livestock Production; (viii) The existing slaughter slabs are in pathetic conditions. The one-roomed slaughter slabs have inadequate running water and storage, no office, poor lighting and ventilation system, poor ceiling, poor drainage and waste disposal system and were located near residential areas. There is urgent need for construction of modern slaughterhouses with adequate running water and storage, an office, store, good lighting and ventilation system, proper drainage and waste disposal system and should be located far from residential areas; (ix) Based on the observations, interactions and interviews with the community groups visited, the community-based facilities are virtually non-existent in the north. The communities appeared well-prepared, keen and ready to manage any infrastructure built for them. The group managing the MCC visited was not only very keen to maintain it but also boost its output. The Departments of Cooperatives and Livestock Production in collaboration with HI should be support farmers to achieve these goals; and (x) In support of the recommendations from the Ministry of Agriculture and Livestock Development Annual Report of 2011, livestock vaccinations should be sustained (bi-annual/annual or as recommended) for the major diseases such as FMD and NCD, in order to reduce their effect on livestock sales and trade. ECF immunization should also be considered in endemic areas associated with high mortalities.

C.3 PROJECT DEVELOPMENT OBJECTIVES

32. Sector Goal and Objectives: Project development goal is to contribute to economic growth and food security. The specific Project objectives are to improve smallholder livestock production, productivity, market linkages and income of livestock farmers.

33. The specific project objectives Specific Project objectives are to (i) increase land area available for all season agriculture by the development of water resources, (ii) promote crop diversification and value chain development for improved food and nutrition security, wealth creation and rural employment especially for women, (iii) expand drought resistant cropping which will serve as a safeguard against the effect of climate change and also serve as viable raw materials for industrial use and import substitution, and (iv) enhance the capacity of both the public and private sectors in order to improve service delivery functions to smallholder farmers.

C.4 PROJECT DESIGN

34. The LISP components are: (1) **Livestock Infrastructure Development** with 2 sub-components (Rural Community Infrastructure Support and Public Infrastructure Support) involving construction or rehabilitation of (i) Livestock Service Centres (LSCs), (ii) milk collection centres, (iii) livestock marketing centre, (iv) livestock slaughter facilities, (v) rural access roads, (vi) district veterinary laboratories, (vii) quarantine stations, and (viii) veterinary check points; (2) **Capacity Building** with 2 sub-components (Support to Participating Institutions, and Women/youth Empowerment) focussing on community mobilisation, formation and strengthening livestock farmers' organisations (interest groups and cooperatives), promotion

of women participation and empowerment, pilot livestock stocking, livestock management field demonstrations, staff and farmer training, and environmental and social management activities; and (3) **Project Management** focussing on project implementation through the existing MAL institutional structures.

35. Project's Target Area and Population: **Project Area:** The Project will be implemented in the northern part of Zambia covering Mafinga, Isoka, Mpika, Nakonde and Chinsali in Muchinga Province and Mbala, Kasama, Mungwi and Mporokoso in Northern Province. **Livestock Population:** The Districts were selected on the basis of livestock population and potential growth trends, despite the current low population. The GoZ has embarked on restocking programme through reviving livestock ranches and breeding centres including establishment of Artificial Insemination (AI) centres. Other selection factors include animal movements/routes to and from Tanzania and Malawi and also high marketing potential in the border Districts leading to demand for livestock infrastructures for disease control. **Project Beneficiaries:** The population within participating Districts is 1,338,456 out of which 51% are women and the total number of households (HH) is 233,300 with 33,600 female HH. Although livestock infrastructure will directly benefit 248 registered cooperatives with a total of 100,000 paid up households (> 30% FHH), it is estimated that all 215,700 HH with livestock, within participating Districts, will indirectly benefit through improved livestock production, productivity and marketing, reduced mortality, improved food security, livestock products, income generating activities and veterinary services.

36. Participatory Process for Project Identification, Design and Implementation: The consultations with the main stakeholders engaged during the identification phase were maintained throughout the preparation and pre-appraisal phases. During each phase, the Mission held discussions with senior GoZ officials at the national, Provincial and District levels, technical experts, potential beneficiaries and the private sector representatives, on the project design including site selection, definition of key activities, implementation arrangements and the sustainability of project's interventions. Opportunities for cooperation and parallel financing were discussed with other DPs including IFAD. This participatory approach will be promoted during the implementation phase. The LISP will be implemented through the GoZ existing structures and farmer organisations. This will include participation of beneficiaries, both men and women, who will be involved in implementation, supervision, monitoring and evaluation of planned activities. The development of the basic community infrastructure (LSC tier 1 and 1+) will be demand driven with the active participation of community representatives (interest groups and cooperatives) during construction and also management. The Project Steering Committee, comprising key stakeholders, will ably follow-up on the implementation of LISP.

C.5 COMPONENT 1: LIVESTOCK INFRASTRUCTURE DEVELOPMENT

37. Summary of Component 1 is indicated in Table C.5.1 which focuses mainly on development of community and public livestock infrastructures. Additional information has been provided in the subsequent paragraphs.

Table C.5.1: Description of LISP Component1

No	Component Name	Total Cost (UA million)	Component Description
1	Livestock Infrastructure Development	**9.51 (69.0%)**	Sub-component 1: Rural Community Infrastructure Support • 156 demand-driven livestock service centres tier 1 constructed. • 30 livestock service centres tier 1+ constructed/rehabilitated. • 2 livestock service centres tier 2 constructed. • 3 milk collection centres constructed/rehabilitated. • 2 livestock market centres constructed. • 8 livestock slaughter facilities constructed. • Project Preparation Report (PPF) Sub-component 2: Public Infrastructure Support • 80 km of feeder road rehabilitated. • 2 Regional veterinary laboratories rehabilitated. • 7 District veterinary laboratories rehabilitated. • 2 quarantine stations constructed. • 2 livestock service centres tier 3 constructed (within existing Government livestock ranches/breeding centres). • 2 veterinary check points constructed. • 3 veterinary check points (with boom gate) constructed. • Assorted equipment for CVRI's Public Health Laboratory.

38. Basic Description of the Infrastructures: For all infrastructures, the required water will be supplied through direct connection to the district water reticulation system or through use of borehole, with electrically powered-pump fitted with two (2) 5,000 litre-overhead water storage tanks. Electrical power will be supplied through connection to the national electricity grid, where feasible, or solar power-system or generator. In addition, two improved pit latrines will be constructed for emergency use.

39. Livestock Service Centres (LSC): The LSCs and related infrastructure will be at the core of the operational plan for improved public and private sector services to livestock farmers, and will be constructed/rehabilitated to improve delivery of veterinary services and also to facilitate trade in livestock and livestock products. These are centres which will allow interaction between smallholder farmers and veterinary staff for purposes of carrying out animal husbandry services leading to efficient service delivery and therefore enhance compliance with regional and international trade regulations. The LSCs have been categorised into four different tiers/levels (1,

1+, 2 and 3) depending on the usage and type of livestock infrastructure, LSC Tier 1 being the lowest level whilst Tier 3 is the highest and well developed.

40. LSC Tier 1: LISP will fund the construction/rehabilitation of 156 LSC Tier 1 which will be first point of contact with livestock farmers and provide services like animal castration, dehorning, dipping/spraying/pour-ons, branding and other management practices, at cost. LSC Tier 1 will have basic wooden, infrastructure such as crush pen, holding pen, livestock watering point/water trough, feeding trough, borehole & overhead tank and improved pit latrines. The beneficiaries will be required to contribute free labour and provide locally available construction materials with the aim of cultivating the sense of ownership.

41. LSC Tier 1+: LISP will fund the construction/rehabilitation of 30 LSC Tier 1+ which will be first point of contact with livestock farmers and provide services like animal castration, dehorning, dipping/spraying/pour-ons, branding and other management practices, at cost. LSC Tier 1+ will have basic wooden, infrastructure such as crush pen, holding pen, livestock watering point/water trough, feeding trough, dip tank, borehole & overhead tank and improved pit latrines. The beneficiaries will be required to contribute free labour and provide locally available construction materials with the aim of cultivating the sense of ownership.

42. LSC Tier 2: LISP will fund the construction/rehabilitation of 5 LSC Tier 2 which will be first point of contact with livestock farmers and provide services like animal castration, dehorning, dipping/spraying/pour-ons, branding and other management practices, at cost. LSC Tier 2 will have basic wooden, infrastructure such as crush pen, holding pen, livestock watering point/water trough, feeding trough, dip tank, loading and off-loading bays, resting-shelter, 2 low cost staff houses, office/store room, equipment, borehole & overhead tank, electricity (national grid, solar or wind-power) and improved pit latrines. The beneficiaries will be required to contribute free labour and provide locally available construction materials with the aim of cultivating the sense of ownership.

43. Milk Collection Centres (MCC): The project will fund the construction of 3 MCCs in Mpika, Mbala and Kasama Districts. Apart from the MCC's requirements, the project will install on pilot-basis, milk processing units which will be embedded to milk collection centres. Milk processing units will assist the beneficiaries, especially women farmers, to add value to the milk through micro-processing, to improve marketing of their produce, and to build their technical and business capacities, though appropriate training. Each MCCs will have a building-block with reception hall, 2 office/store room, tank-room with appropriate equipment (like cooler tank, lactoscan), and another separate block with 4 rooms for renting out to private sector (livestock drugs/chemicals and feeds suppliers), water supply (borehole & overhead tank), electricity, improved pit latrines, external drainage system and waste management area. MCCs will be wholly managed by the community, either through use of registered cooperative or leased out to private sector, which will also take care of operational and maintenance costs. MCCs will also act as a meeting point with the private sector milk processors.\

44. Livestock Market Centres: Upgrading of 2 livestock market centres in Nakonde and Mbala Districts through provision of modern facilities including off-loading and loading bays, holding pens, cages/shelves, ablution (waste room/garbage yard), office block, store room, drainage system, borehole & overhead tank, pit latrines, gravel-access road, security fence and parking area. Apart from access road, the area around the slaughter house will have proper landscaping, traditional incinerator, and waste management area. Such markets will be constructed on public land but will be wholly managed by registered smallholder livestock marketing associations or leased out to private sector, which will also take care of the operational

and maintenance costs. For sustainability, appropriate fees will be levied on the market or slaughter facilities' users.

45. Livestock Slaughter Facilities: The project will fund the construction of 8 basic slaughter facilities/houses, for large and small livestock, within Mafinga, Mpika, Nakonde, Chinsali, Mbala, Kasama, Mungwi, and Mporokoso Districts. Modern slaughter facilities will be constructed mainly for cattle and goats which will supply consumers with wholesome meat from livestock slaughtered under hygienic conditions and the standard slaughter facilities' design will be based on the daily slaughter requirement of 2 to 5 cattle, 5 to 20 small ruminants (goats). The facilities include separate hygienic slaughter floors (for cattle and small-stock) with amenities, hides and skins treatment and storage sheds, office block/store room, borehole & overhead tank, electricity (optional), pit latrines, gravel-access road, security fence, parking area, sewage reticulation and septic tank. The slaughter facilities will be constructed on public/council land but will be wholly managed by registered District Livestock Farmers Associations or Cooperatives or leased out to private sector, which will also take care of the operational and maintenance costs, and also charge for the services. For sustainability, appropriate fees will be imposed on the slaughter facilities users.

46. Rural Feeder Roads: A safe and efficient road network is a public good which is essential for the continued economic and social development. Based on this, LISP will rehabilitate rural feeder (access) roads, with proper crossings, which will link the project sites. However, due to limited resources, LISP will only rehabilitate 80 kilometres (km) of feeder road network, including appropriate crossings (like culverts/drifts) in order to alleviate the communication problems within the project area and in particular to facilitate smooth movement of livestock and livestock products. The feeder road alignment will largely follow the existing centre line with minor changes in order to avoid collateral damages to adjacent infrastructures and agricultural field. The feeder roads will be rehabilitated to the most appropriate standards for use by vehicles throughout the year, with adequate provision of drainage system. Some sections of the feeder roads can be spot-gravelled. Since the feeder roads do not only serve project beneficiaries, but any other road user, to ensure sustainability of the rehabilitated roads, the respective Provinces will be required to include the roads in the annual routine maintenance programme.

47. Livestock service centres SC Tier 3: The project will fund the construction/rehabilitation of 5 LSC Tier 3 which will be used for livestock castration, dehorning, dipping/spraying/pour-ons, branding, artificial insemination and embryo transfer, training of farmers including mounting appropriate demonstrations (feed formulation, rangeland management, pasture development, use of biogas digesters), other management practices, at cost, and livestock marketing activities. Construction/rehabilitation of 3 livestock service centres (Tier 3), each with structures including crush pen, holding pen, water trough, feeding trough, dip tank, weighing scale, loading and off-loading bays, marketing unit, 1 high, 2 medium, and 7 low-cost camp/staff houses, office & store room, appropriate equipment, training centre/dormitories, biogas digester (for demonstration), demonstration structures (goat housing, pig pens and poultry pens/housing), borehole & overhead tank, improved pit latrines, proper landscaping, external drainage system and waste management area. Tier 3 facilities shall be constructed in Mbesuma Livestock Ranch (Chinsali District) and Kalungwishi Livestock Ranche (Kasama District) and will consequently include sustainable pasture/fodder development plot (including appropriate irrigation system, if need be) and another plot for sustainable rangeland management.

48. Regional and District Veterinary Laboratories: The intervention includes renovation of buildings, construction of new blocks and associated external works, water reticulation system or borehole & overhead tank, provision of essential laboratory furniture and equipment including

incinerators. Regional laboratories will be renovated Chinsali District. The GoZ is planning to construct a Regional Laboratory in Kasama District, consequently the LISP will only provide additional laboratory equipment, if need be. District veterinary laboratory in Kasama District will be situated at Misamfu Research Station which will focus on livestock feeds. The LISP will renovate the laboratory block at Misamfu and provide the necessary equipment. On-the-job staff training will be provided, especially, in the use of the procured laboratory equipment.

49. Veterinary Control/Check Points: To control the movement of livestock and livestock products and enhance bio-security and curb disease spread, a total of 5 livestock check points will be established/upgraded. This will involve the Construction of (i) 3 veterinary boom gate check points Nakonde, Mafinga and Mporokoso Districts, each with 1 boom gate, a guard house, 1 low cost staff house, borehole & overhead tank, electricity (national grid, solar or wind-power) and improved pit latrines, and (ii) 2 Veterinary Check Points in Mpika and Mbala Districts, each with loading/offloading bays, holding pen, mini-quarantine station, crush pen, 1 office block including store room, 2 medium and 3 low staff houses and a block of 3 self-contained rooms, borehole & overhead tank, electricity, provision of essential equipment and communication facilities. The check point in Mafinga District will be located at Katanga on the Chama-Muyombe road. Mpika District check point will be located at Kanona (existing ZAWA Check Point) in Chitambo District (Central Province), junction Great North Road and Mpepetwe Road. Check point in Nakonde District will be located at Nteko at Chozi Turn Off on the Mbala-Nakonde road. The Mbala District check point will be located along Mbala – Kasama Highway.

50. Veterinary Quarantine Stations: The LISP will establish 2 mini Quarantine Stations in Nakonde and Mbala Districts. with holding area, waste area/disposal pit, incinerator office block with basic furniture and equipment, 3 low cost staff houses, borehole & overhead tank and electricity (solar power or generator). The above facilities are necessary since animals or birds, in quarantine, may be subjected to such measures as vaccination, blood test or other clinical tests as deemed necessary by the Quarantine Station Officer. For sustainability, all animals and birds under quarantine will be subjected to the quarantine fees, as stipulated by GRZ. Additional funds will be generated from the booking fees and importation or exportation licences which will be paid by the livestock owners.

51. Population Data: The human and livestock population data are provided in Tables C.5.2 and C.5.3 respectively.

Table C.5.2: CSO Human Population and MAL Households (HH)

Province	District	Population (CSO)			Number of HH (MAL)			HH with Livestock (MAL)		
		Male	Female	Total	MHH	FHH	Total	MHH	FHH	Total
Muchinga	Mafinga	48,020	50,625	98,645	12,600	2,600	15,200	11,400	2,200	13,600
	Isoka	32,014	33,751	65,765	12,700	2,600	15,300	11,800	1,900	13,700
	Mpika	103,534	107,891	211,425	23,100	4,200	27,300	22,100	3,800	25,900
	Nakonde	57,577	60,440	118,017	19,200	3,100	22,300	18,700	2,600	21,300
	Chinsali	72,431	75,414	147,845	29,800	4,600	34,400	28,700	4,400	33,100
Northern	Mbala	105,420	107,834	213,254	35,800	5,600	41,400	33,500	4,600	38,100
	Kasama	116,966	121,069	238,035	18,400	2,900	21,300	15,000	2,500	17,500
	Mungwi	70,432	74,105	144,537	28,900	4,300	33,200	26,800	3,800	30,600
	Mporokoso	49,907	51,026	100,933	19,200	3,700	22,900	18,500	3,400	21,900
Total		**656,301**	**682,155**	**1,338,456**	**199,700**	**33,600**	**233,300**	**186,500**	**29,200**	**215,700**

Table C.5.3: Livestock Data

Province	District	Year	Cattle	Goats	Sheep	Pigs	Chickens	Ducks	Guinea Fowl
Muchinga	Mafinga	2010	20,094	7,602	450	5,692	99,996	6,124	2,990
		2011	23,603	10,087	487	6,109	94,976	2,361	6,096
	Isoka	2010	1,256	736	35	271	2,681	386	645
		2011	8,415	3,608	363	4,951	62,328	5,507	1,007
	Mpika	2010	16,900	31,442	11,620	15,921	169,854	889	1,496
		2011	17,630	31,442	11,620	15,921	79,088	889	1,496
	Nakonde	2010	16,411	12,561	123	2,046	90,432	2,233	908
		2011	16,411	11,794	123	2,046	56,452	2,233	908
	Chinsali	2010	13,339	12,164	1,535	11,358	59,505	1,560	2,314
		2011	7,871	13,296	1,617	2,843	40,452	5,720	1,700
Northern	Mbala	2010	21,500	18,115	608	4,130	89,000	0.0	0.0
		2011	20,220	20,590	420	5,895	95,250	0.00	460
	Kasama	2010	4,313	3,785	258	5,314	83,263	0.0	0.0
		2011	3,752	673	258	3,156	107,914	312	143
	Mungwi	2010	8,583	16,964	0.0	12,579	129,982	386	298
		2011	10,158	4,673	670	7,673	122,833	1,102	0.0
	Mporokoso	2010	1,237	4,085	356	2,261	76,491	974	0.0
		2011	2,427	5,793	284	3,610	38,393	0.0	0.0

Table C.5.4: Tentative List of Livestock Infrastructures

No	Province	District	No of Camps	Rural Community Infrastructures (Qty = No)						Public Infrastructures (No, unless stated)						
				1	2	3	4	5	6	7	8	9	10	11	12	13
				LSC[15] Tier 1	LSC Tier 1+	LSC Tier 2	Milk Collection Centres	Livestock Market Centres	Livestock Slaughter Facilities	Feeder Roads (km)	Regional Veterinary Laboratories	District Veterinary Laboratories	Quarantine Stations	Livestock Service Centre Tier 3	Veterinary Check Points	Veterinary Check Points (Boom Gate)
1	Muchinga	1. Mafinga	6	18	1	1	0	0	1	5	1	0	0	0	0	1[16]
		2. Isoka	3	9	1	0	0	0	0	5	0	0	0	0	0	0
		3. Mpika	4	12	3	1	1	0	1	10	0	1	0	0	1[17]	0
		4. Nakonde	7	21	2	1	0	1	1	5	0	1	1	0	0	1[18]
		5. Chinsali	5	15	2	1	0	0	1	15	0	1	0	1	0	0
		Sub-total	**25**	**75**	**9**	**4**	**1**	**1**	**4**	**40**	**1**	**3**	**1**	**1**	**1**	**2**
2	Northern	1. Mbala	8	24	3	1	1	1	1	10	0	1	1	0	1[19]	0
		2. Kasama	6	18	1	0	1	0	1	10	1[20]	1[21]	0	0	0	0
		3. Mungwi	6	18	2	0	0	0	1	5	0	1	0	0	0	0
		4. Mporokoso	7	21	1	0	0	0	1	15	0	1	0	1	0	1
		Sub-total	**27**	**81**	**7**	**1**	**2**	**1**	**4**	**40**	**1**	**4**	**1**	**1**	**1**	**1**
LISP Total			**52**	**156**	**16**	**5**	**3**	**2**	**8**	**80**	**2**	**7**	**2**	**2**	**2**	**3**

[15] LSC = Livestock Service Centre.

[16] Check point located at Katanga on the Chama-Muyombe road.

[17] Mpika check point will be located at Kanona (existing ZAWA Check Point) in Chitambo District (Central Province), junction Great North Road and Mpepetwe Road.

[18] Check point located at Nteko at Chozi Turn Off on the Mbala-Nakonde road.

[19] The Mbala check point will be located along Mbala – Kasama Highway.

[20] The Government (2013) has made provision for construction of Regional Laboratory in Kasama District. LISP will provide additional equipment only, if need be.

[21] Misamfu Livestock Feeds Mini-Laboratory and Equipment (Kasama District).

C.6 COMPONENT 2: CAPACITY BUILDING

52. Summary of Component 2 is indicated in Table C.6.1 which focuses mainly on crop diversification and value chain development. Additional information has been provided in the subsequent paragraphs.

Table C.6.2: Description of LISP Component 2

No	Component Name	Total Cost (UA million)	Component Description
2	Capacity Building	**3.22 (23.4%)**	Sub-component 1: Support to Participating Institutions • Support to Govt institutions through operating costs (Procurement Unit, Gender Unit, Department of Cooperatives, Department of Livestock Production and Health, and Department of Nutrition). • Support to consultancies and studies, including NGO services (livestock-pass on programme and biogas digesters). • Community mobilisation activities and formation of cooperatives and support to Department of Cooperatives. • Procurement of vehicles and equipment: 2 4x4-drive vehicles (1 per Province), 27 off-road motorcycles (3 per District), office equipment and furniture. • Staff and farmer training based on needs assessment (>50% women). • Support to Livestock Information Management System (LIMS) under NALEIC. • Technical Assistance (Pasture/Forage Production and Management). • Livestock management-field demonstration centres including pilot livestock stocking, pasture management and feeding (LSC Tier 3). • Environmental and social management activities. Sub-component 2: Women/youth Empowerment • Formation/strengthening of 27 women/youth cooperatives. • Income generating activities (small-stock pass-on programme) for 27 participating women and youth groups. • Training and empowerment of 27 women and youth groups in skin and hides processing (leather and leather products). • Nutrition and malaria awareness (>50% women). • Cooperative artisan (youth) training for construction of LSC tier 1.

53. The component would focus on building or strengthening capacities of main stockholders mainly i) participating institutions, including public administration and NGOs, ii) livestock farmers organizations/association, and iii) specific programmes for youth and women. The capacities of public administration will be strengthened to deliver livestock related services including extension and advisory services, disease control, monitoring and evaluation. Activities will include conducting a comprehensive needs assessment to determine the gap in the supply and demand chain of livestock services, identify needs in term of training for the staff and, prepare the relevant training plan. The submission of a comprehensive training program will be the triggers for the starting of this activity. Priority will be given to the field staff in the project area. About 120 staff will be trained. The project will also finance vehicles, motorcycles and office equipment and furniture to improve efficient delivery of advisory and technical services to farmers. Technical assistance will be provided to enhance pasture management and forage development and support the development of biogas digester. The project will additionally, support LIMS to upgrade the M&E capacities of the MAL.

54. Farmer's organizations, when they exist are embryonic and lack of resource of all nature (human, technical and financial). The project will strengthen the capacities of the existing associations/cooperative, through advisory, advocacy and information services and the up-scale of their capacity to deliver livestock related services to their members. It is expected that about 100,000 farmers will be trained on various thematics, ranging from animal husbandry and nutrition, to pasture and rangeland management. At least 50% of the trainees will be women. The milk collection centers owned by farmer's cooperatives will be upgraded towards the development of added value products. Actions will be taken to promote the development of livestock farmers associations where they do not exist.

55. The project will design specific activities to empower women and youth and livestock related activities. They include the training and processing equipment procurement to take advantage of the job creation opportunities offers by the livestock by-products (skins, hooves and hides). Other income generating activities will be enhanced through support to the pilot small stock for pass-on-programme and the pilot livestocking programme under Tier 3. The project will additionally support campaign to increase farmers awareness on HIV/AIDS, malaria and nutrition issues.

56. Value Addition and Entrepreneurship Development: The value addition activities in the project area are currently non-existent. This is because the situation in the project areas does not favour commercial production of beef and dairy products; thus, investment in value addition infrastructure would not have economic value. It is after livestock stocking phase, as proposed in the project, that commercial quantities of livestock become available, the value addition facilities would then become meaningful. Currently, majority of what is produced is consumed at the home-stead. It was discovered however that some raw milk collection centres exist; such facilities should be upgraded and made functional under the project, as demonstration centres.

57. When stocking/re-stocking takes root, there would then be need to introduce value addition practices. This will involve setting up some operations (milk collection centres, slaughter houses, abattoirs, etc.) close to the farm gate for conversion of produce to be in the form that will suit the industrial end users. Thus losses on raw fresh milk and meat products are reduced and their demand will increase. It will then lead to job creation and enterprise development with positive multiplier effects. Then, the project would feed into a typical value chain activity, where increased production of milk and beef will naturally feed into the value addition and marketing components of the project. Farmers will supply their produce to the

agro-industry and this has several advantages, including but not limited to the following (i) availability of raw materials to the agro industries, (ii) ready markets for farmers for their produce, (iii) reduction of post-harvest losses of these commodities, which before now was the case, (iv) assurance on quality standards of the raw materials being supplied to the industry and, (iv) possible mark-up in the prices of the raw materials to sustain regularity of supply. These will in the end increase incomes of farmers, enhance their livelihoods and gives farmers the incentives to continue production. In this way fresh milk and beef are preserved with minimal post-harvest losses thus increasing food availability.

58. Producers' level of organisation: The important roles livestock producers' organisations can play in the livestock value chain; especially as a veritable entry point for private sector operators, cannot be over-emphasized. Currently, there is no veritable platform for livestock producers to aggregate and talk of common issues. Government should facilitate the effective functioning of these organizations. Institutional regulatory functions should be in place after the groups have been formally registered. The groups would then be meant to have any strong links to the organized private sector entities, especially the agro processing industries. This will facilitate backward integration strategies by developing large scale farms to cushion the effects of price and supply instability. Thus, the project as a consequence would work with Department of Cooperatives, in this regard.

59. Operation and Ownership of Value Addition Facilities**:** After re-stocking and supply of processing equipment, the size and variety of which will depend on the production potential of the various sites, the facility will serve clusters of district. The value addition centres will belong to the cooperatives but they will be managed by competent private sector operators as partners. They will invest by providing 10 – 15% of the equipment cost as their counterpart funding, in a matching grant arrangement. They will pay royalties to the cooperatives. The cooperatives will use the proceeds to maintain their infrastructure and provide cheaper inputs to their members through bulk purchases. The establishment of the cooperatives will be supported by the project through capacity building and close monitoring. The revenue from operated facilities will be an incentive to motivate the cooperatives to keep it operational. Women will be preferentially employed for preliminary value-added operations in the facility.

Appendix C.6.1: Formation of Cooperatives' Brochure (MAL0

1. Introduction: It is important to know what a cooperative is before a process of forming one begins. A co-operative is an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise and whose activities are not prohibited by law. The definition is self-explanatory, it states that a cooperative is formed by persons coming together willingly in order to solve problems as individuals or as a community. It is an organization that is not formed on the basis of acquiring something in a short period of time but an organization that can continuously give good results to members in form of services.

2. **Common and felt needs:** There must be a felt need (that which affects the livelihood of the people if not fulfilled) and/or a common need (that which is faced by many people in the community) before a cooperative is formed. A cooperative therefore is a platform for solving people's problems. To some extend a cooperative is a business which attracts members' investments. **Cooperative formed by individuals:** A cooperative is not one man's show or controlled by founders, all individuals are equal. A cooperative is a democratic institution controlled by people. The members own the co-operative collectively on mutual basis. Decisions are democratically made and not based on individual status or wealth/capital. **Cooperative as an enterprise:** A cooperative is an enterprise, which means it is a business entity that has a market focus and engages in the exchange of goods and services. It is important to mention that co-operatives are formed out of felt and common needs. If a cooperative is formed, registered and does nothing thereafter, it is categorized as a non-enterprising or defunct cooperative. Such cooperatives deserve to be sidelined or deregistered for failing to meet their objectives.

3. Procedure of Forming a Cooperative: If a group of individuals decide to form a cooperative, they have to follow the following procedure: They must make sure that in their area of operation there exist no other cooperative similar to the one they intend to form. It could be a waste of time and resources to form another one, but rather join the existing cooperative. That way, cooperators will maintain the strength of the movement. According to the Cooperative Societies Act, 10 people or more are eligible to form a cooperative. These people: (i) should have a common bond or felt need; (ii) The team should hold a series of meetings and minutes compiled. The idea is to discuss the formation issues and compilation of the by-laws; (iii) Select an interim committee to guide the group through the formation process; (iv) Formulate vision, the mission statement and a business plan; and (iv) The following documents should be submitted to specific District Cooperative Development Officer or the Cooperative Inspector for verification: Four copies of minutes of formation meetings; Four copies of by-laws of the cooperative to be registered.(The Department of Cooperatives has prepared a model by-law which is a guide that can be changed by members to suit their situation before registration is done.); Four copies of list of members indicating names, NRC numbers; addresses or location, paid up shares and their signatures appended thereto; and Four copies of application forms for registration of cooperative society. (Forms can be obtained from the District Cooperative Development Officer or the Cooperative Inspector in your specific districts); (v) The District Cooperative Development Officer or the Cooperative Inspector will attach recommendation; (vi) The documents can either be delivered by government officers or cooperative official to the Registrar of cooperative; and (vii) There is a prescribed registration fee, which is K10,000 for primary societies and K20,000 for cooperatives unions. The foundation for establishing a cooperative is very important, if a cooperative is formed on the based on non-sustainable grounds, it will not stand. If a cooperative is formed dubiously, that cooperative will face problems and eventually it will collapse. Be reminded to follow the right procedure and hold meetings with member who are the owners of a cooperative before registration is done.

C.7 COMPONENT 3: PROJECT MANAGEMENT

60. Summary of Component 3 is indicated in Table C.7.1 which focuses mainly on institutional strengthening and capacity building. Additional information has been provided in the subsequent paragraphs.

Table C.7.1: Description of LISP Component 3

No	Component Name	Total Cost (UA million)	Component Description
3	Project Management	**1.05 (7.6%)**	• Project management including supervision. • Progress review meetings including MTR and PCR. • Financial management including audit. • Support to PCT recruitment of staff. • Participatory monitoring and evaluation (M&E). • Assorted office equipment and furniture.