INTERNATIONAL TRYPANOTOLERANCE CENTRE (ITC)

ANNUAL WORKPLAN

2011

January 2011

International Trypanotolerance Centre

Banjul, The Gambia

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Introduction

This Annual Work plan contains the research and development activities for the year 2011. It is based on consultative meetings held in January and additional information from the Regional Project PROGEBE.

As laid out in the ITC medium-term (2005-8) and long-term (2005-15) vision strategy, Research and Development (R&D) activities are carried out within three institutional programmes composed of 10 projects but only five projects will be taken up in 2011.

The *Low-Input Systems Improvement Programme (LISIP)* consists of three Institutional Projects, and the *Market-Oriented Systems Improvement Programme (MOSIP)* and the *Systems Overlap and Linkages Improvement Programme (SOLIP)* each with one Institutional Project.

Under each Institutional Project, a number of various integrated activities will be implemented in the course of this year. Their results will contribute to the achievement of Project and Programme objectives in line with the expected outputs set for 2011. This year will also serve as a transition phase of the restructuring process of ITC to keep it in line within the realities on ground.

Low Input Systems Improvement Programme (LISIP)

Research focus: Low Input System

Background and Justification

A significant large proportion of the livestock-based production system in West and Central Africa use traditional husbandry methods, where producers depends largely on browses and natural pastures/range lands and crop residues for livestock feed, and very little animal husbandry and veterinary products are utilized. This system is referred in this context as traditional, local unimproved or low input system. Livestock product outputs from Low Input Systems are usually only marginally or moderately larger than the subsistence requirements. Although the productivity of endemic livestock could be low, it is argued that they have other useful traits such as disease resistance, which could add to sustainability of production, if properly exploited. Moreover, the number of producers in these systems suggests that they can contribute significant livestock products to meet some local demands, if technological options that promote better animal nutrition, animal health and reproduction are made available. These envisaged technological options to be developed will have significant impact on production under the prevailing socio-economic circumstances of the producers.

Activities in Institutional Projects 1 to 3 of the ITC Research and Development Programme address ways of identifying stress factors for livestock in their natural environments and seek to develop options to reduce or remove these stresses with a view to increase efficiency of production.

Overall objective

To increase the efficiency of production of livestock-based farming systems by minimising constraints identified through participatory approaches, and reinforced by application of technological options, developed with consideration to farmers socio-economic circumstances, in order to improve their livelihoods and food security.

Specific objectives

- Understand the impacts of production, physiological and other stress factors on disease resistance in livestock in order to maximise responses to inputs, and hence returns to family investments.
- Develop integrated strategic vector and parasite control measures based on results from targeted disease risk assessments in animals and evaluation of their production environments.
- Contribute to the formulation of synergistic options for farming enterprises that allow for the integration of resources at the farm level, including nutrient cycling, feed use and traction power with a view to optimise resource use.

- Improve production and disease tolerance of indigenous stock through selective breeding schemes based on participatory approaches with a view to reduce cost of production per unit of livestock products.

Expected outputs

- Assessment of risk of vector-borne diseases (trypanosomosis, helminthosis, tick-borne complex) of ruminant livestock in the mandate countries completed
- Major steps in the epidemiology and diagnosis of cowdriosis and on trypanocidal drug resistance
- The stability of the Trypanotolerance trait in crossbred cattle has been tested
- Impact of disease control strategies established
- Dissemination of genetically improved ruminant livestock in Gambia to smallholder farmers increased
- Alternative feed and food supplements e.g. *Moringa oleifera* have been tested on station and on farm
- Modalities for sustainable integration of livestock with forestry established through participatory approach
- Public awareness events/media on ITC generated technologies launched

Project Number 1	**LISIP**

Project Number 1: Assessment of Climatic factors on *Glossina* spp distribution, challenge and trypanosome infection in endemic cattle breeds at two PROGEBE sites in The Gambia (Niamina East and Kiang West districts)

Project Coordinator: Dr Arss Secka

Scientists: Dr Ibrahima Mara, Dr Momodou Mbake, Dr Rueben Kegbu, Mr Sunday Lah

Technicians: Ansumana Ceesay, Mustapha Touray, Nuha Bojang, Modou Gaye, Ansumana Jarju, Ebrima Colley, Mustapha A Bojang, Lamin Fofana

Collaborators: Hydrometeorology department

Background and Justification

The Gambia National Coordination Unit (NCU) of the Regional Project on the Sustainable Management of Endemic Ruminant Livestock Species (PROGEBE) launched a call in 2010 for proposals under various 'Strategic Intervention Lines'. ITC formulated a proposal under the research theme "Effect of climatic factors on *Glossina* spp and Animal Trypanosomosis" that was submitted to the NCU for approval. It was then submitted to the African Development Bank (AfDB) by NCU to seek for approval. The bank puts its blessing on the proposal by agreeing to fund it.

Climate change resulting from accumulation of green house gasses leads to global warming, sea level rise, change in rainfall patterns, and frequency of extreme events around the world. Climate change has also negatively impacted on human and animal health, food and water security, and diversity in the ecosystems. *Glossina* species, vectors of trypanosome which causes trypanosomosis in animals and sleeping sickness in humans, could be affected by the consequences of climate change. The effect of climate change on the epidemiology of trypanosomosis in The Gambia is not yet well documented, thus the need to carry out a longitudinal study to assess the effect of weather and vegetation variation on *Glossina* spp distribution, challenge and trypanosome infection in endemic cattle breeds at two PROGEBE sites in The Gambia. Two decades ago both Niamina East and Kiang West were known to have high and medium tsetse challenge, respectively. The present tsetse challenges and cattle trypanosomosis risk in these sites need to be updated to get a better understanding of the current situation.

General objective

The general objective of this research project is to contribute in the achievement of in-situ conservation of Endemic ruminant livestock species for increase productivity to strengthen food security and alleviate poverty.

Specific objectives

- To establish the tsetse density and challenge in two study sites in The Gambia
- To determine the annual trend of trypanosome infections prevalence in cattle in two sites in The Gambia
- To assess the effect of climatic factors such as rainfall, humidity and temperature on tsetse density, challenge and prevalence of trypanosome infections in cattle
- To determine the efficacy of trypanocidals in the treatment of trypanosomosis

Expected outputs in 2011

- The tsetse density, challenge, and trypanosome infection rates over a period of 12 months in two PROGEBE sites are known.
- The trend of cattle trypanosomosis infection rates during a 12 month period is established in two PROGEBE sites is established.
- Effect of climatic factors on tsetse density, challenge, and trypanosome infections in cattle is known.
- The efficacy of trypanocidals on sale in The Gambia for treatment of trypanosome infections is known.

Activities

Assessment of the tsetse density and challenge

Assessment of tsetse species, density, infection rates, trypanosome type and tsetse challenge at cattle grazing areas in the two study sites. Biconical traps baited with Phenol and Octanol will be strategically set up at key important locations to trap tsetse flies that will be harvested daily for two days. The harvested flies would be first sorted into species, sexed, aged and classified into teneral and non-teneral categories. Only fresh non-teneral flies will be dissected to determine the prevalence of tsetse-trypanosome infection rate. The mid-gut, mouth parts and salivary glands will be removed by the standard dissection technique and examined under high power magnifying microscope for trypanosome parasites.

Cattle trypanosomosis prevalence

A sample of 301 cattle from each study site will be selected using multistage sampling method. Ten herds will be selected at random and 30 or 31 cattle selected systematically from each herd to reach a total sample size of 301 during each two monthly sampling exercise for the duration of 12 months. Upon obtaining the consent of the owner, blood sample would be drawn from each cattle through the jugular vein, spinned, and the packed cell volume level

measured. The buffy coat layer from each spinned sample will be place on a microscope slide and examined for the presence of trypanosomes using a phase-contrast microscope at high magnification.

As an ethical obligation and motivation to farmers, cattle found positive to trypanosome infection would be offered free treatment using commonly sold trypanocidals in The Gambia. The treated trypanosome positive animals will be re-bled after two weeks to check if the infection has been cleared or not in order to establish the drug efficacy/resistance.

Climatic parameters

Data on temperature, humidity and rainfall parameters would be collected in collaboration with the hydrometeorology unit of the department of water resources. The data will cover the whole survey period. The effect of rainfall, humidity and temperature parameters on tsetse density and trypanosomosis will be evaluated using statistical models.

Project Number 2	**LISIP**

Project Number 2: Genetic improvement through pure breeding of trypanotolerant endemic ruminant livestock breeds for low input and emerging systems

Project Coordinator: Dr Momodou Mbake

Scientists: Dr Arss Secka, Dr Ibrahima Mara, Dr Rueben Kigbu, Mr Sunday Lah

Technicians: Lamin Darbo, Modou Gaye, Ansumana Jarju, Ebrima Colley, Mustapha A Bojang, Lamin Fofana, Alpha Jallow

Collaborators: PROGEBE-Gambia, GILMA, Professor Leo Demfle,

Background and Justification

The demand for meat and milk in developing countries is expected to double by 2020 due to rapid population and urbanisation growth rate in these countries. Increasing the productivity of individual animal units would more likely meet the expected demand for livestock products as compared to expanding only the livestock population. Trypanotolerant endemic ruminant livestock breeds are the most suitable livestock entities that can produce more efficiently under low input animal husbandry systems in West and Central African tsetse-infested areas. The most sustainable method of improving the production efficiency of these breeds is to improve the genetic characteristics through pure breeding and selection. Hence, the overall goal of this genetic improvement programme is to increase output per head of trypanotolerant ruminant animal while maintaining their disease resistance traits. This breeding programme is based on the principle of three tier system: Open Nucleus Herd/Flock, Multiplier and Farmer. Every year elite ruminant breeding males are selected from the nucleus herd at ITC, disseminated to the multiplier farmers through the Gambia Indigenous Livestock Multipliers Association (GILMA), and eventually male offsprings are transferred to the farmers to improve the productivity of ruminant livestock.

Overall objective

- To increase efficiency of meat and milk production and to further improve the genetic resistance of indigenous ruminant livestock to endemic diseases through pure breeding

The **Specific objectives** for the year 2011are as follows:

- To revitalize the whole pure breeding programme at the nucleus, multiplier and farmer level
- To revamp the infrastructures at ITC breeding stations and provide the necessary logistics for optimization of the breeding programme in collaboration with PROGEBE National Coordination Unit
- Disseminate at least 15 elite bulls with high breeding values for growth rate and milk production to selected cattle multipliers at the three PROGEBE sites

Expected outputs 2011

- Selected elite bulls from the open nucleus herd transferred to multipliers and farmers
- The pure breeding programme is running more efficiently
- Infrastructures and logistics of the breeding stations are improved

Activities

Management of open nucleus herd and flock and data collection

The open nucleus herds and flocks at ITC stations will be managed like village herds in terms of grazing methods. Breeding will be tightly controlled by ensuring that all dams coming to heat are mated by selected bulls. Mating date, calving date, daily milk off-takes, monthly weights, diseases, and treatments will be recorded in the data base. Each newly born calve will be tagged, weighed, and parents recorded. It would be allowed to suckle ad libitum and its growth rate continuously monitored until weaned. All weaned calves will be sent to Niamina East for exposure to high tsetse challenge until they reach three years old in order to select the animals that best withstand the tsetse challenge. Selected heifers will be used as replacement stocks. The selected bulls will be managed at ITC Sololo station before handed over to GILMA or multiplier farmers within the PROGEBE sites. The rejects will be culled and sold out. Sound herd health and flock health will be instituted to prevent and control infections and infestations. In order to supervise the dissemination and monitor the performance of selected elite breeder bulls, bucks and rams at multipliers and farmers level and the pure breeding programme, several treks will be undertaken by senior officials at Kerr Seringe.

Selection of elite bulls, rams and bucks

An updated computer software programme will be used to calculate the breeding values of male offsprings from the open nucleus herds and flocks based on the data collected for each animal. Elite bulls, rams and bucks with high breeding values for faster growth rate and higher milk production (cattle) will be selected.

Screening village herds

In order to increase the diversity of the genetic pool of the nucleus herds and flocks, some outstanding male ruminant animals will be screened. The selected males will be introduced into the nucleus herds and flocks as replacement breeder males.

Restocking of open nucleus sheep flock

The present sheep flock size of 7 animals at ITC Keneba station is too few to enable selection of many elite rams in a year. More ewes will be bought in 2011 to increase the flock size.

ITC stations rehabilitation

The planned rehabilitation works by PROGEBE Gambia for ITC stations for the year 2011 are as follows:

- Renovate the labs, some houses, and water system (pipes, tank, taps) at Keneba.
- Construct bull mating pens, small ruminant pens, animal loading ramp, feed store, drinking troughs, training centre, and fence the Keneba station.
- Rehabilitate the lab at field laboratory at Touba in Niamina East

Project Number 3	**LISIP**

Project Number 3: Regional Project on Sustainable Management of Endemic Ruminant Livestock in West Africa (PROGEBE)

Project coordinator: Dr Abdel Kader

Deputy coordinator: Dr Mustapha Diaw

Regional Experts: Mr Alasane Jallow, Mrs Ndeye Digale, Dr Ibrahima Mara, Mr Pape Sowe, Mr Alagie Jabang

Collaborators: Governments of Gambia, Guinea, Mali and Senegal; African Development Bank, UNOPS, ILRI, GEF, Service providers

I. Introduction

The Regional Project on Sustainable Management of Endemic Ruminant Livestock (PROGEBE), born from the will of the Gambia, Guinea, Mali, Senegal, GEF and AfDB, aims at i) preserving and even enhancing the endemic livestock related-biodiversity, and ii) improving the productivity and management of endemic ruminant livestock in an enabling physical and institutional environment for food security and poverty reduction.

PROGEBE started its activities in 2008 with the establishment of five (5) coordination units[1] and start of financial resource mobilizations, further thought to strategies to be developed, and procurement of logistics and equipment.

In 2009, the process was continued with the updating of the baseline situation of the project area, purchase of additional equipment and logistics, recruitment of the staff of the 12 primary site teams, organization of two thematic workshops operation animal production and community based natural resources management. Various partnerships were forged with institutions involved in livestock production, natural resources management, communication or credit. Synergies of actions were developed with other institutions and actors concerned with livestock development in the sub-region.

In addition, the project monitoring and evaluation was implemented through the production of regular activities reports, organization of follow-up, supervision and audit missions, activities operational planning participatory process, and holding of NRM indicators review workshops.

[1] A regional unit relayed at country level by 4 national units and 12 primary site teams.

In 2010, the focus was on finalizing the implementation of teams and updating of the baseline situation, start of genetic improvement programs, research and development and capacity building, beginnings of local conventions emergence process, computerization of project monitoring and evaluation system.

This Annual Work Plan and Budget (AWPB) was developed following a broad consultation and participatory process. Each National Coordination Unit organized first site level meetings and a national planning workshop. The exploitation of the project working documents[2], the provisional results of the project and the results of the meetings led to the development of draft national AWPBs. In addition, an ILRI team discussed with each National Coordination Unit its draft program of activities. A preliminary version of the AWPB was first developed by the RCU team and then shared with UNCs and technical partners. On the basis of contributions received, the draft was reviewed and shared during the project regional operational planning workshop. Following the corrections inspired by the results of the regional planning workshop, the AWPB was submitted for validation to the Regional Steering Committee, AfDB and UNDP-GEF.

The 2011 AWPB describes, for each of the six (6)[3] strategic intervention lines of the project, the objectives, implementation strategies and outputs already recorded. Then, activities planned for 2011 as well as expected results are described successively. In accordance with the systemic approach followed in designing the project, activities will focus on animals, livestock professionals, and animal physical, socio-economic and institutional environment.

II. Strategic intervention lines activities

The years 2008 and 2009 were mainly devoted to establish the project and start field activities. In 2010, the later were intensified as well as to capacity building related activities.

2.1. Strategic intervention line 1. Preservation of genetic characteristics and improvement of production and productivity of endemic ruminant livestock (ERL)

2.1.1. Review of strategic intervention line objectives

It covers the Component A (sub-component I) of AfDB appraisal report and the Outcome I of GEF project document.

This strategic line is primarily focused on the animal. It will contribute to:

1. characterize, preserve and disseminate ERL in its natural ecosystem;
2. improve ERL breeding conditions to unlock its production potential;
3. strengthen technical and institutional capacities of stakeholders concerned by livestock development in the project area.

2.1.2. Planned activities

2.1.2.1. 2011 Annual Provisional Program

[2] AfDB Appraisal Report and GEF Prodoc.

[3] The `activities, organized around AfDB Appraisal Report components and GEF Prodoc outcomes, have been grouped around six intervention lines to facilitate communication and operational planning.

a) Objectives

In 2011, actions to be undertaken will be aimed specifically at:

1. completing the updating of the baseline situation;
2. rehabilitating the infrastructure of the stations hosting the foundation nuclei;
3. continuing the strengthening of the skills of the project team and agro-pastoralists in livestock techniques and genetics;
4. strengthening the institutional capacity of agro-pastoralists organizations.
5. continuing to improving the provision of required outreach services (veterinary services, inputs, equipment, financial services, etc.);
6. starting the genetic improvement of small ruminants.

b) Activities

In 2011, the activities to be undertaken will include:

- The finalization of the baseline situation, as follows:
    - Holding a sharing workshop of the results of the baseline situation in Guinea,
    - The additional collection of blood samples for ERL genotyping;
    - The finalization of studies on best options for the management of livestock production systems;
- The effective running of the genetic improvement program, as follows:
    - The rehabilitation and equipment of five livestock breeding centers or research,
    - the completion of the buckling of multiplier herds animals,
    - the dissemination of 32 selected genitors from village cattle multiplication herds,
    - the implementation of the small ruminant genetic improvement system.
- The intensification of the livestock breeding systems, as follows:
    - The training of 3507 of agro-pastoralists multipliers herd owners, 69 technicians and 74 community volunteers or auxiliary by partners on livestock techniques and genetics;
    - counseling and advice on actions to be undertaken by site teams to the benefit of agro-pastoralists multipliers herd owners;
    - The counseling and advisory support to women groups in rural poultry management;
    - the use of multiplier herds as demonstration units for the intensification of ERL production systems,
    - the dissemination of technical themes through four exchange visits and 12 platforms,
    - the collaborative identification of incentives,
    - the continuation of the current R/D programs and their start in Mali and Guinea;
    - The implementation at country level of a pilot program targeting identified and validated best options;
    - the intermediation and facilitation for the effective access of agro-pastoralists to appropriate financial and professional veterinary services, especially in Senegal and Mali. In Senegal, one objective is to take advantage of PMV-GRN achievements
    - the institutional development of 13 professional organizations through networking and support;

- The start of the training of the second Senegalese expert in genetics at AgroTechParis;
- the organization of on-the-job training for students in genetics sponsored by the project;

c) Implementation modalities

For each country, under the supervision of the RCU, the project NCU will be in charge of the implementation and coordination of collaborative activities with technical partners, local governments and beneficiary communities. The NCU will be relayed in the field by teams of sites. The assistance of several technical partners, local collectivities and beneficiary communities will be sought. Achievements[4] already existing in the different countries will be taken into account.

d) Expected outcomes

The implementation of the above-mentioned activities would lead to:

1. The complete updating of the baseline situation and sharing of related results as well as deepening of intervention strategies;
2. The genetic progress is disseminated through multiplier herds.
3. the improvement of the operation of the 5 livestock breeding or research center;
4. the strengthening of technical capacities of the project counseling and advisory device and agro-pastoralist in genetics and livestock techniques;
5. The institutional capacity of professional organizations are strengthened;
6. the animal production genetic potential of small ruminants is unlock;
7. the small ruminant genetic improvement program is started;
8. the access for agro-pastoralists to financial and veterinary services is improved.

2.2. Strategic intervention line 2. Improvement of the valorization (marketing and commercialization) of ERL and its products

It covers the Component A (sub-component II) of AfDB Appraisal Report and the Outcome II of GEF project document.

2.2.1. Review of strategic intervention line objectives

Specifically, this intervention line will allow to:

1. better define the opportunities and constraints of the commercialization of ERL and its products to maximize profit;
2. make more functional the processing and marketing system (19 livestock markets, 17 slaughter areas, 11 mini-diaries) of ERL products;
3. strengthen individual and organizational capacities of professionals involved in the valorization and commercialization of ERL and its products.

2.2.1.1. Planned activities

2.2.1.2. 2011 Annual provisional program

a) Objectives

[4] Studies on characterization in Senegal, existence of specialized organizations, etc.

The aim of the planned activities will be to:

1. complete the updating of the baseline situation, improve the animal productions marketing strategies and conduct complementary studies on ERL marketing opportunities and constraints;
2. rehabilitate and equip 17 slaughtering areas, 19 livestock markets, 11 mini-dairies and 100 km of feeder roads;
3. set up, with collectivities and professionals, more sustainable management systems of the 47 processing and marketing infrastructures;
4. strengthen the technical and institutional capacities of professionals;
5. define and implement a strategy to support fairs and competitions;
6. define a strategy for the establishment of a market information system.

b) Activities

The 2011 activities will focus mainly on:

- the finalization of the baseline situation, as follows :
    - holding of the baseline situation results sharing workshop in Guinea,
    - exploitation of best bet options study,
    - implementation of the study on the opportunities and constraints of ERL marketing and competitiveness,
- the improvement of the marketing of ERL products, as follows :
    - rehabilitation and equipment of des 19 livestock markets, 17 slaughtering areas, 11 mini-dairies and 100 km of feeder roads;
    - negotiation of tripartite protocols with local authorities and professionals for the establishment of a management system which will entrust more responsibilities to the professionals and allow partial reinvestment of part of revenues in the maintenance and operation of collective infrastructures;
    - support to the development of business plans for organizations managing the infrastructure;
    - Continuation of collaborative relationships negotiations with institutions specialized in the provision of financial services;
    - support to the organization of competitions and fairs.
- The organizational development of the 30 professional organizations involved in the marketing of ERL products, through:
    - networking
    - identification of new market niches,
    - technical and institutional capacity building,
    - setting up a market information system.

c) Modalities

Activities execution will be done involving professional partners (NGOs, consulting firms, development support structures, etc.) through contracts and/or partnership protocols. These partners will be supervised and supported by the NCUs. Each National Coordination will recruit a project manager and civil engineering firm for the livestock markets, slaughtering areas, feeder roads, and mini-dairies.

Before starting the rehabilitation work or construction infrastructures for the processing and marketing of ERL and its products with the local collectivities concerned, negotiations

involving the professionals will be conducted to agree on modalities for the sustainable management of rehabilitated infrastructures. Partnerships will be forged with banking and financial institutions for easier access to credit.

d) Expected outcomes

The expected outcomes from the implementation of the 2011 program can be summed up at the start of the process to improve capacities in processing and commercialization of endemic ruminant livestock products by:

1. rehabilitating 17 slaughtering areas, 19 livestock markets and setting up of 11 mini-dairies, etc.);
2. strengthening the institutional capacities of stakeholders for a sustainable management of community livestock products processing and marketing infrastructures;
3. disseminating of marketing information;
4. developing more effective ERL products marketing strategies;
5. an enabling financial environment to the valorization of livestock products in the project area.

2.3. Strategic intervention line 3. Sustainable management of ERL ecosystems

It covers the Component B of AfDB Appraisal Report and Outcome III of GEF Project Document.

2.3.1. Review of the strategic intervention line objectives

This strategic line targets sustainable management of ERL ecosystems by:

- reducing the incidence of ecosystems pejorative factors (bushfires, expansion of farmland and residential areas, destructive use of wood energy, etc.);
- emerging or strengthening, at each site, of at least, a community dynamic for natural resources sustainable management through local conventions (POAS/land occupation and use mapping, management plan, etc.);
- facilitating access to water in the project area;
- putting in place monitoring and environmental monitoring mechanisms for the assessment of the environmental effects resulting from the project implementation and ensure that the effective mitigation actions and/or empowerment planned by the project are in place.

2.3.2. Planned activities

2.3.2.1. 2011 annual provisional program

a) Objectives

This will be mainly:

1. to complete, in Mali and Guinea, the updating of the baseline situation and improving the sustainable natural resources management strategies;
2. to strengthen the technical and institutional capacities of communities for the promotion of local conventions of sustainable ERL ecosystems management;
3. to implement the environmental monitoring and surveillance system through partnerships with specialized institutions.

b) Activities

It is planned to:

- finalize:
    - surveys for the characterization of ERL ecosystems in Guinea and holding of sharing workshop in Guinea. Media will be developed to disseminate the key lessons learned from studies on the baseline situation;
    - concerted identification of stock routes to rehabilitate, water points and firewalls to put in place;
- finalize the mapping of the primary sites in Guinea and Mali;
- facilitate the negotiation of tripartite protocols (communities, CBOs and NRM project) on the emergence or strengthening of local conventions for sustainable NRM;
- train 1,046 relays and agro-pastoralists on themes related to NRM (composting, recycling of agricultural and agro-industrial residues, haying, forage crops, fodder banks, SDR, reforestation, etc.);
- complete the mapping of the primary sites of Guinea and Mali;
- facilitate the negotiation of tripartite protocols (communities, CBOs and NRM project) on the emergence or strengthening of local conventions DNRM;
- Continue training on topics related to NRM (composting, recovery of agricultural residues and agro-industrial, hay, forage, fodder banks, erosion control and land reclamation, reforestation, ...) for the benefit of 1046 over and agro-pastoralists;
- support community natural resources management organizations for their institutional development with the assistance of a provider and the participation of site animators;
- conduct a spatial analysis of bushfires evolution;
- analyzes the behavior of communities vis-à-vis bushfires and management of vulnerability factors;
- continue bushfires management through the strengthening of the equipment of Bushfire Management Committees and their mobilization in the bushfires passive and active fight;
- train 45 sites agents and community leaders in conflict management;
- organize at site level a practical training session in participatory mapping;
- involve the media and opinion leaders in the extension of sustainable ecosystems management themes by organizing awareness workshops;
- improve 25 ha of stock roads;
- conduct feasibility studies on the establishment of 36 water points;
- mark 611 km of stock routes and establish 615 km of community firewalls;
- develop 30.5 hectares of fodder banks;
- promote:
    - the development of sustainable supply of quality seeds;
    - the diversification of forest products valorization.

In addition, with national institutes specialized in environmental monitoring, environmental monitoring and surveillance systems will be implemented. On the basis of the guidelines of the Project for the Integrated Management of Ecosystems of Senegal (PGIES) these systems will allow the early detection of environmental problems to be taken care, the monitoring of the environmental impact induced by the project on the various elements of the ecosystems[5]

[5] Epidemiology, bush fires, water points, pollution, ecosystems destruction, etc.

And to ensure the effective implementation of the measures prescribed by the project to mitigate adverse impacts.

c) Modalities

The implementation of this intervention line will involve a combination of various contributions. ILRI, in the framework of the ERL characterization, will provide a significant part of baseline data describing the ERL ecosystems and their management. These data will be integrated, after treatment, in the baseline situation of the project and will be used to refine the intervention strategies. National institutions, such as the National Environmental Agency (NEA) in The Gambia, Center for Observation and Environmental Monitoring (COSE) in Guinea, National Directorate for Sanitation and Pollution and Nuisance Control (DNACPN) in Mali and Environment Department of Senegal will be in charge of environmental surveillance.

The project will establish environmental monitoring mechanisms with the assistance of technical partners such as NEA, COSE, DNACPN and Ecological Monitoring Center of Senegal (CSE). Training on NRM (fodder bank, organic manure, etc.) will be provided by specialized technical partners. Community dynamics will be promoted through consultations and empowerment of the beneficiaries with the assistance of partners in charge of capacity building. With stakeholders (institutes, communities, CBOs in NRM), partnership protocols will be signed.

d) Expected outcomes

Carrying out the above-mentioned activities would lead to achieving the following outcomes:

1. complete updating of the baseline situation of ERL natural ecosystems;
2. communities mobilize effectively in community proximity management of their local natural resources and bushfire control;
3. technical and organizational capacities of communities are strengthened in NRM within project intervention areas;
4. ecosystems pejorative factors are detected;
5. environmental effects resulting from the project are monitored;
6. mitigation activities in NRM are implemented effectively;

2.4. Strategic intervention line 4. Legal, policy and institutional frameworks

It covers the Outcome 4 of GEF Project Document. The AfDB Appraisal Report analyzes these issues in a cross-cutting manner in components A and B.

2.4.1. Review of the strategic intervention line objectives

The aim for this strategic intervention line is to promote a political, legal and institutional enabling environment to the preservation of natural habitats, sustainable management of genetic resources and development of ERL. Consultation frameworks will be used to raise awareness, mobilize, exchange and lobby for the development and implementation of policies, regulations and legislation at local, national and even regional levels taking into consideration endemic ruminant livestock concerns.

In addition, training and support of CBOs as well as networking will contribute to the emergence of an enabling institutional environment for ERL.

2.4.2. Planned activities

2.4.2.1. 2011 Annual provisional program

a) Objectives

The objectives in 2011 are particularly to:

1. continue the consultations, awareness raising and training for the effective mobilization of communities and authorities in the sustainable management of their land;
2. share the results of the review of laws and regulations about natural resources management;
3. promote concerted mechanisms for animal genetic resources and transhumance management in the sub-region through the holding of two regional workshops;
4. promote exchanges with actors, at national and regional levels, for concerted approaches to promote and implement ERL enabling policies, regulations and laws;
5. support the formalization of CBOs and their institutional strengthening.

b) Activities

It is a matter of continuing and strengthening the activities started by:

- Developing and disseminating appropriate information media for the dissemination of the baseline situation results as well as laws and regulations on transhumance;
- organizing meetings to share with communities the results of the Bamako workshop on transhumance;
- translation into local languages, production and dissemination of laws and regulations;
- raising community awareness on the implementation of regulations and laws;
- training in negotiation, advocacy and lobbying skills of community organizations leaders of the project area;
- training of site staff and national experts on the implementation of regulations and laws;
- support the formalization and networking of 32 CBOs with the assistance of a provider and the participation of animators.

c) Modalities

The process of promoting awareness of key stakeholders (leaders, agro-pastoralists and experts) on the application of laws and regulations on the management of AnGR and natural resources will be conducted through meetings and on the basis of appropriate dissemination media. Advocacy and lobbying skills of community leaders will be strengthened. The transhumance management device will be reviewed through a regional workshop with the participation of national institutions and sub- regional organizations.

The CBO partners in the implementation of the activities of the first 3 strategic intervention lines will be supported in the formalization of their legal status with the assistance of providers and sites animators.

d) Expected outcomes

With the implementation of the above-mentioned activities, the expected outcomes are essentially as follows:

1. an enabling legal and institutional environment for livestock development in general and ERL in particular is promoted;
2. interests in livestock development in trypanosomiasis endemic areas are taken into account among the various decision-making centers;
3. concerted transhumance management is strengthened.

2.5. Strategic intervention line 5: Cooperation, knowledge management, exchange and coordination

It covers the Outcome V of GEF Project Document. The AfDB Appraisal Report treats it as a cross-cutting issue in components A and B.

2.5.1. Review of the strategic intervention line objectives

This strategic intervention line intends to:

1. promote the capitalization, sharing and valorization of experiences gained;
2. establish or strengthen networks between research, development support and professional organizations in trypanosomiasis endemic areas;
3. allow later replication of experiences gained within the 8 secondary sites.

2.5.2. Planned activities

2.5.2.1. 2011 Annual provisional program

a) Objectives

The aim of the 2011 program will be to:

1. continue the maintenance and animation of the project website;
2. continue the regular publication of the electronic newsletter and periodical activities reports;
3. strengthen the initiated networks;
4. promote exchange of information for coordination purposes, mutual reinforcement and lobbying.

b) Activities

It is a matter of continuing and strengthening the started activities by:

- organizing a workshop for the sharing and exploitation on the results of the baseline situation studies in Guinea;
- the joint organization of a regional workshop on the of transhumance management;
- organizing a sharing and validation workshop of the study on the opportunities and constraints of ERL marketing;
- production of media for the exchange of the results of the studies (baseline surveys, etc.).
- continuation of the organization of exchange visits, animation of project website and broadcasting of radio programs, electronic newsletter and activity reports;

- organizing impregnating workshops for the benefit of networks of journalists, local politicians and parliamentarians specialized in NRM, biodiversity and/or livestock;
- continuation of the platform initiated by the project at local level (LSC), national (NSC) and regional (RSC AnGR Interim Steering Committee, etc.).
- promoting the emergence of livestock innovation platforms (1 per site);
- continuation of the support to the establishment of networks or platforms or livestock breeders' associations in the sub-region.

c) Modalities

The URC will play a key role in the conceptualization of activities, exchange of experiences and harmonization of policies on of AnGR management.

Protocols will be negotiated with community radios to take into account the concerns of livestock in trypanosomiasis endemic areas in their program schedule. The project will work in synergy with countries' public administrations, national research systems, international institutions and structures supporting livestock development in trypanosomiasis endemic area (FAO, INSAH, OSS, OMVG, ECOWAS, Horticulture and Livestock Project in The Gambia and PDESOC in Senegal...), agro-pastoralists associations, NGOs.

Events already held in the project area such as fairs will be used to enhance the visibility of livestock matters in trypanosomiasis endemic areas.

The Regional Information and Communication Expert will coordinate the inventory, development and facilitation of networks. In connection with the Regional Monitoring and Evaluation Expert, he will identify the elements to be shared with network members and the modalities for such sharing.

d) Expected outcomes

With the implementation of the above-mentioned activities, the expected outcomes are

1. better taking into account of ERL development interests;
2. development of synergies among the different actors of the livestock sector in trypanosomiasis endemic areas.

2.6. Strategic intervention line 6: Project Management

It covers Component C of AfDB Appraisal Report and management activities to be carried out under the GEF Project Document.

2.6.1. Review of the strategic intervention line objectives

The goal of this strategic intervention line is to:

- plan project activities in a concerted and participatory manner;
- mobilize the resources needed for the timely implementation of activities and in compliance with the donors' rules and procedures;
- collect, process and analyze project implementation monitoring and evaluation data ;
- ensure the visibility of the project;
- report and inform on the implementation of the project;

- ensure project supervision and oversight by bodies established for this purpose.

2.6.2. Planned activities

2.6.2.1. 2011 annual provisional program

a) Objectives

For 2011, it is planned to continue the following:

- plan project activities in a concerted manner;
- ensure the diligent implementation of the work Plan with emphasis on partnerships monitoring;
- mobilize in time, resources needed to implement the project;
- manage project resources in a transparent and efficient manner;
- collect, process and analyze project implementation monitoring and evaluation data;
- ensure the visibility of the project.

b) Activities

For 2011, the following activities are planned:

- hold the meetings of the Regional and National Steering; Committees;
- audit of 2010 accounts with already recruited service providers;
- continue support and internal monitoring missions taking into account budgetary constraints;
- take part in potential donors supervision missions;
- continue the preparation and dissemination of periodic activities reports;
- undertake the mid-term project review with 2012 planning in mind;
- design and produce promotional materials for the project;
- mobilize in time the resources needed for activities implementation in compliance with project's rules and procedures ;
- mobilize additional resources with other partners et through project proposals;
- monitor and coordinate the rehabilitation of livestock infrastructures;
- hold regular project coordination meetings;
- visit Project UNCs at least quarterly ;
- hold national and regional operational planning workshops.

Various training courses will be organized to strengthen the human resources capacities of the project. They will focus on livestock techniques, rapid diagnosis, group animation techniques, conflict management, environmental monitoring, monitoring and evaluation, management procedures, and gender.

In 2011, the main acquisitions will focus on the rehabilitation and equipment of research centers, midterm review, and regional study on marketing.

c) Modalities

Each NCU is responsible of its management. The RCU supervises supports, coordinates and facilitates. The RCU and the NCUs will prepare annual work programs and budget as well as draft invitations to tender for the procurement of goods and services.

d) Expected outcomes

The expected outcomes are:

- the availability of resources and their use in accordance with relevant rules and procedures;
- the implementation of planned activities within the specified period;
- a shared understanding of project goals and strategies for its implementation;
- monitoring and supervision of the implementation of the project by all stakeholders;
- the visibility of the project ensured at regional and national levels.

Market-oriented Systems Improvement Programme (MOSIP)

Research focus: Medium to high input (market-oriented) systems

Background and Justification

Several recent assessments showed that livestock production systems in several countries in West Africa are transforming into market-oriented systems. Indicators for this trend include aggregate demand for livestock products, patterns of consumption in relation to human population densities, mobility and settlement patterns of livestock herds/flocks, and the development of input and output markets. Large number of previously managed herds/flocks and their owners are settling around urban areas to take advantage of this market demand. Higher levels of inputs including exotic and crossbred genotypes, drugs, veterinary care and labour inputs are being used more frequently. Changes in the management and the higher levels of production imposed are impacting on animal health in ways not easily predictable. As these production systems are expected to contribute increasingly to the aggregate demand in cities and urban towns in the region, appropriate technologies are needed to aid their maturation into fully profitable enterprises for producers and to deliver healthy products at competitive prices to consumers.

Overall objectives

To design, test and provide technological options in feeding systems, health management, housing, reproduction and other husbandry practices to support Market-oriented systems; and provide solutions for emerging scenarios related to diseases, nutritional and other stresses associated with intensification of production.

The **specific objectives** for 2011 are as follows:

- revitalize and maintain the F1 crossbred cattle herd to serve as research and demonstration site for improved productivity using appropriate technologies
- produce new batch of F1 crossbred cattle through oestrus synchronization and artificial insemination of selected N'Dama cows and sexed semen of Holstein-Friesian
- determine the performance of the F1 crossbred cattle and dairy cooperatives in the peri-urban areas

Expected outputs

- productive and efficient F1 crossbred herd is maintained for research and technology transfer to students and potential interested farmers
- new batch of female F1 crossbred cattle are produced by mid 2012
- the performance of the F1 crossbred cattle and dairy cooperatives in the peri-urban areas is established

Project Number 4	**MOSIP**

Project Number 4: Development and evaluation of crossbreds and other improved breeds for milk and meat production in urban/peri-urban areas

Project leader: Mr Sunday Lah

Scientists: Dr Rueben Kigbu, Dr Arss Secka, Dr Ibrahima Mara, Dr Momodou Mbake

Technicians: Lamin J Janneh, Ansumana Ceesay, Mustapha Touray, Nuha Bojang

Collaborators: F1 crossbred cattle Farmers

Background and Justification

The demand for milk and meat far exceeds supply from local production in sub-Saharan African countries. This is especially so for West Africa where population growth and urbanisation are highest and the milk production systems the least developed. It is believed that the low milking capacity of indigenous breeds and the fluctuations in feed supplies constitute major constraints to the improvement of local production. Macro-economic policies in the countries of the sub region have created opportunities for profitable domestic production especially in urban and peri-urban centres. In these high demand areas, crossbreeding of indigenous ruminants with high producing exotic breeds is considered justified.

Overall objective

To produce, evaluate and integrate crossbreds and other improved livestock breeds in market-oriented farming system with small holder farmers as a strategy for improving milk and meat production to meet the demands of the growing population.

The **specific objectives** for 2011 are

- To assess the performance of F1 crossbred cattle owners and dairy cooperatives in the urban and peri-urban areas
- To improve the F1 crossbred cattle herd on ITC station for farmer training on F1 production and management and used as research herd for techniques on reproductive biotechnology

- To improve the safety of locally produced milk and milk products at ITC

Expected outputs

- Performance of F1 crossbred cattle owners and dairy cooperatives in the urban and peri-urban areas is known
- The F1 crossbred cattle herd on ITC station is restocked and managed more efficiently
- Safety of locally produced milk and milk products at ITC is enhanced

Activities

Performance survey of FI cattle holders and dairy cooperatives

Many farmers in the urban and peri-urban areas were helped by ITC to acquire F1 crossbred cattle for dairy production. These animals health status were monitored to ensure their survival and production. Five dairy cooperatives were formed, trained and supported to process milk into various products for sale as an income generation, food security and poverty alleviation actity. For the past five years, there has been very little or no information generated on the performances of F1 crossbreds and dairy cooperatives in the urban and peri-urban areas. A survey will be implemented to check if the formed dairy cooperatives are still functional and making profit.

Production of F1 crossbred cattle to restock the Dairy herd

Thirty cows will be acquired and then put into good condition for insemination. Thirty N'Dama cows with parity of at least two will be selected from the nucleus herd or purchased from farmers. These cattle will be grazing around the ITC camp and supplemented on groundnut hay. The manifestation of oestrus will be synchronized using prostaglandin F2 alpha hormone. Holstein-Friesian semen will be used to inseminate the cows about six hours after standing heat. Preferably sexed semen will be used to ensure that only female F1 calves will be born. The gestating cows will be managed well throughout the gestation period. Latest batch of F1 crossbreds are expected to be born in 2012. Produced female F1s will replace the old unproductive F1s in the herd.

Feeding the Dairy herd

Andropogon grasses will be collected and stored to feed the dairy herd during the dry season. The collection of this grass is expected to start in early September so as to get non-lignified grasses which is more palatable and higher in nutrients than the lignified ones. Spent brewers grains will be collected from Julbrew Factory, and groundnut cake will be purchased from Gambia Groundnut Corporation to supplement the lactating cows. Similarly groundnut hay will be purchased for supplementing target animals. Possibilities of cultivating Elephant grasses, *Pennisetum spp,* in Kerr Seringe station to feed the animals with silage grasses during the dry season will be explored.

Processing of produced milk

All produced milk will be pasteurised and packaged and sold out to consumers. The price of milk per litre could be raised a little bit to cover the electricity cost of pasteurising the milk. Other forms of milk products such as Yorghut will also be produced.

Systems Overlap and Linkages Improvement Programme (SOLIP)

Research focus: Medium to high input (market-oriented) systems

Background and Justification

It is commonly accepted that producers and processors adopting technological packages developed in a participatory approach can significantly bridge the widening gap between demand and supply for livestock products in the developing world, including West and central Africa. Also considered crucial for improved uptake of technologies and effective distribution of livestock products at reasonable prices are the availability of favourable micro and macro-economic government policies. The favourable economic environment thus created is believed to encourage production and improve marketing of livestock products. However, continued demand for these products partly depends on consumers' perception of, and confidence in, the quality of the production, processing, marketing and consumption of livestock products. As a consequent of inadequate human and financial resources, only one topic addressing some of the training needs of the staff at the centre will be pursued.

Overall objective

- To monitor the evolution of low input systems into market-oriented systems through production system and production marketing characterisation and to support this process with human resource development

Specific objectives

- Quantify the economic impact of diseases and management stresses on livestock and predict possible levels of improvement with technological options
- Investigate public health issues concerning consumption of livestock products
- Provide and disseminate data on quality of livestock products with a view to increase consumer confidence in these products
- Develop models for collaboration with NARS and exchange of information among partners and other stakeholders
- Increase the scientific personnel capacity of staff in partner NARS institutions

Expected outputs

- Research capacity of technical and scientific personnel of ITC improved

Project Number 5	**SOLIP**

Project Number 5: Training, information exchange and capacity building

Project leader: Dr Ibrahima Mara

Scientists: Dr Rueben Kigbu, Dr Arss Secka, Mr Sunday Lah, Dr Momodou Mbake

Technicians: Lamin J Janneh, Ansumana Ceesay, Mustapha Touray, Nuha Bojang

Background and Justification

The promotion of expertise and motivation of technical, scientific and extension personnel, better access to sources of information and opportunities for collaborative research are undisputed key elements to the effective generation and dissemination of agricultural technologies and innovations in the Region. This project will continue to train technical and scientific personnel of ITC and national partner NARS.

Overall objective

- Contribute to human resource development and capacity building through effective training and information exchange within the region

Specific objectives for 2011

- Strengthen the research capacity of technical and scientific personnel at ITC and NARS
- Promote the dissemination of research results through workshops and seminars

Activities

- Organise training sessions on various topics such as French Language, Information technology, Statistical procedures, and Proposal development using Logical framework. One ITC personnel at the University of the Gambia will be supported to complete his undergraduate degree course.
- Organise restitution workshop by the end of year to disseminate study findings and disseminate appropriate technologies that could be adopted in the low input and market oriented systems.

Work plans

Project Number 1. Assessment of Climatic factors on *Glossina* spp distribution, challenge and trypanosome infection in endemic cattle breeds at two PROGEBE sites in The Gambia (Niamina East and Kiang West districts)

Implementer	**Planned activities**	**Implementation schedule 2011**												Budget (D)
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
ITC	Realize administrative requirements	X												8,000.00
	Purchase consumables	X	X											194,325.00
	Carry out Field sampling and laboratory analyses		X		X		X		X		X		X	257,223.00
	Collect, collate and analyze data		X		X		X		X		X		X	2,000.00
	Plan, monitor and evaluate activities				X				X				X	10,000.00
	Organize restitution workshops												X	28,000.00
	Prepare reports and manuscript for publication												X	15,000.00
	Total													**514,548.00**

Project Number 2. Genetic Improvement through Pure Breeding of Trypanotolerant Endemic Ruminant Livestock Breeds for Low Input and Emerging Systems

Implementer	**Planned activities**	**Implementation schedule 2011**												Budget (D)
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
ITC	Restock the sheep and goats flocks at Keneba: purchase 50 ewes and transfer the goats from Kerr Seringe to Keneba				X	X	X							119,702.50
	Collect and store Andropogon grasses	X								X	X	X	X	14,000.00
	Purchase/support production of groundnut hay					X	X					X	X	14,000.00
	Apply disease control and prevention strategies (vaccination, deworming, and treatments)	X	X	X	X	X	X	X	X	X	X	X	X	20,000.00
	Revive GILMA for the dissemination of improved breeding animals		X			X			X			X		19,670.00
	Supervise the dissemination and monitor the performance of elite breeder bulls, bucks and rams at multipliers and farmers level and the pure breeding programme			X			X			X			X	19,670.00
	Total													**207,042.50**

Project Number 3. Regional Project on Sustainable Management of Endemic Ruminant Livestock in West Africa (PROGEBE)

Rubric/Outputs	Activities									Responsible
	Nature	Unit	Qty	Duration	Period				Location	
					Q1	Q2	Q3	Q4		
STRATEGIC INTERVENTION LINE 1. Preservation of genetic characteristics and improvement of endemic ruminant livestock production and productivity										
Genetic improvement	Finalize the baseline situation in Guinea	Report	1	3 months					Primary sites	ILRI
	Finalize the molecular characterization of ERL	Study	4	3 months					Primary sites	ILRI
	Finalize the studies on best-bet options for ERL management	Program	4						Primary sites	NCU/ILRI
	Conduct a comparative study on ERL and none ERL and define an incentive system for ERL production.	Study	1						Mali	ILRI
	Rehabilitate research centers	Centre	5	6 months					Research centers	RHOFA/NHOFA
	Equip research centers	Set	5	3 months					Research centers	RHOFA/NHOFA
	Support the operating of research centers	Nb	5	12 months					Research centers	RHOFA/NHOFA
	Pursue the implementation of cattle genetic improvement system	Nb	5	12 months					Primary sites, centers	RHOFA/NHOFA
	Implement the strategy for genetic improvement of SR	Strategy	1	12 months					Primary sites	NEAP
	Identify small ruminant herds	Nb	140	3 months					Guinea, Mali	NEAP
	Implement the zoo-sanitary monitoring system	Herds Nucleus	390 5	12 months					Primary sites, centers	NEAP
	Establish with the breeders associations mechanisms for the management of GI programs	Nb.	4	6 months					Gambia, Guinea, Mali, Senegal	NC
	Development of an impact assessment tool (gain at different timelines for different scales of operation, for nucleus / multiplier model)	Nb	1							ILRI
	Disseminate bulls in multiplier herds	Nb	32	12 months					Primary sites, centers	NEAP
Access to health and Financial services	Continue the facilitation and intermediation on access to financial services (credit, insurance, etc.)	Mission	9	12 months					Primary sites	NC/NEAP
	Pursue the implementation of partnerships with private veterinarians	Mission Equipment	12	12 months					Primary sites	NEAP
Strengthening technical and institutional capacities	Implement R/D programs	Workshop Program	5	12 months					Gambia, Guinea, Mali, Senegal	NC/NEAP
	Institutional support to organizations of agro-pastoralists, private veterinarians existing or emerging	Diagnosis Review of texts Session	13						Primary sites	NEAP/RECB
	Supervise the training of national experts in genetics	MSc.	6	12 months						NC/RECB
	Re-conduct of the trainings of technicians in animal health, feeding housing, reproduction and genetics	Session Nb	3 69	3-5 Days					Primary sites	NEAP/RECB
	Re-conduct of the trainings of breeders in animal health, feeding housing, reproduction and genetics	Nb	3507							

	Pursue the training of Livestock Auxiliaries in basic veterinary health care	Session Nb	4 74	3-5 Days					Primary sites	NEAP/RECB
	Support and facilitate research-action in a project site in each country (identification, design and testing of best-bet options targeting different actors)	Program	4						Primary sites	CN/CR
	Conduct extension activities for an increased productivity of livestock systems in areas covered by the PROGEBE	Nb	10 systems per specie						Primary sites	ENPA
	Conduct extension activities for women groups for the improvement of rural poultry management (health and housing)	Nb	Un par site						Primary sites	ENPA
STRATEGIC INTERVENTION LINE 2. Improvement of the valorization of endemic ruminant livestock and its products										
Knowledge of ERL commercialization aspects	Conduct the regional study on ERL marketing opportunities and constraints and competitiveness.	Study	1	3 months					RCU	RC
Processing and marketing infrastructures	Rehabilitate/build livestock markets	Nb	17 +2	6 months					Primary sites	NEAP/NHOFA
	Develop slaughtering areas	Nb	17	6 months					Primary sites	NEAP/NHOFA
	Rehabilitate/build mini dairies	Nb	11	6 months					Primary sites	NEAP /NHOFA
	Finalize the feasibility studies and conduct the control	Nb	5	12 months					Primary sites	NEAP /NHOFA
	Rehabilitate/construct feeder roads	km	100	6 months					Primary sites	NEAP /NHOFA
Strengthening technical and institutional capacities	Establish tripartite protocols (CBOs, Communities, project) for the sustainable management of infrastructures	Nb	47	6 months					Gambia, Guinea, Mali, Senegal	NC/RECB
	Pursue the institutional support to existing and emerging CBOs	Nb	30	3-5 Days					Gambia, Guinea, Mali, Senegal	NEAP/RECB
	Train organizations using the slaughtering areas or livestock markets	Nb Session	19	3-5 Days					Gambia, Guinea, Mali, Senegal	NEAP/RECB
	Support the development of business plans for CBO managing the infrastructures	Nb	47	3 months						
	Train women associations managing the mini dairies	Nb Session	11	3-5 Days					Primary sites	NEAP/RECB
	Pursue the support to fairs	Nb	7						Gambia, Guinea, Mali, Senegal	NC/RICE
	Establish a market information system	System	1	6 months					RCU	RICE
STRATEGIC INTERVENTION LINE 3 : Sustainable management of endemic ruminant livestock ecosystems										
Knowledge of the environment	Finalize mapping of Primary sites	Map	3	3 months					Primary sites	NENRM
	Pursue development and implementation of national environmental monitoring systems	System	4	12 months					Gambia, Guinea, Mali, Senegal	NEME/NENRM
	Prepare environmental monitoring reports	Rapports	4	12 months					Gambia, Guinea, Mali, Senegal	NEME/NENRM
Community NRM	Continue the development or strengthening of local NRM conventions - Land use plans - Forest management plans - etc.	Nb Nb	13 3	3 months					Primary sites	NENRM
	Start the implementation of local convention	Nb	13						Primary sites	NENRM
	Prepare a regional synthesis note on locales NRM conventions	Note	1	1 months						ILRI
	Pursue the improvement of rangelands	Ha	25						Primary sites	NENRM
	Continue the opening and demarcation of livestock routes	km	611						Primary sites	NENRM
	Establish water points	Nb	36	6 months					Primary sites	NENRM

	Establish fodder banks	ha	30.5						Primary sites	NENRM
	Develop community quality seed production	System	12	6 months					Primary sites	REME/RC
	Promote the valorization of forest products	Contact Mission								RC/NENRM
Bush fire control	Hold annual consultations on bush fire control	Session	12						Primary sites	NENRM
	Renew the equipments of CBOs to control bush fires	Set							Primary sites	NENRM
	Carry out spatial analysis of trends of bush fire at the project sites	Nb	12						Primary sites	NENRM/partner
	Conduct in deep analysis of community behaviors with regards to bush fire and analysis of vulnerability factors	Nb	12						Primary sites	NENRM/partner
	Organize awareness raising sessions on bush fire control	Session	110						Primary sites	NENRM
	Set up and maintain firewalls	km	615						Primary sites	NENRM
Strengthening technical and institutional capacities	Pursue the institutional support to existing and emerging CBOs	Nb CBO	16	6 months					Primary sites	NENRM
	Train site staff and community leaders in participatory mapping & develop a transhumance management plans	Session	4 121	3-5 days					Primary sites	NENRM
	Train site staff and community leaders in conflict management and develop a conflict management strategy.	Session Nb	12 121	3-5 days					Primary sites Guinea	NENRM
	Re-conduct training of site staff and agro-pastoralists on NRM: composting, forage crop productions, erosion control and land reclamation, collection and valorization of agricultural residues, etc.	Nb	1076	3-5days					Primary sites	NENRM
STRATEGIC INTERVENTION LINE 4. Legal, policy and institutional frameworks										
Legal and institutional environment	Validate the reports on the review of laws and regulations on AnGR and NRM	Workshop	4	2-3 Days					Gambia, Guinea, Mali, Senegal	ILRI
	Translate into national languages, reproduce and disseminate laws and regulations	Document	4						Gambia, Guinea, Mali, Senegal	NC/RICE
Capacity strengthening	Raise awareness of breeders and community leaders on AnGR and NRM laws, regulations and policies	Session Nb	12 1211	2-3 Days					Primary sites	NC/RECB
	Train community leaders in negotiation, lobbying and advocacy techniques	Session Nb	4 129	3-5 Days					Primary sites	NC/RECB
	Pursue the support to the formalization of CBOs	Nb CBO	32						Primary sites	NC/RECB
STRATÉGIC INTERVENTION LINE 5. Cooperation, knowledge management, exchange and coordination										
Cooperation, knowledge management, exchange and coordination	Organize workshops to share project results - baseline situation in Guinea - studies on best-bet options for ERL management - study on ERL marketing opportunities and constraints	Workshop	1 4 1	2-3 Days					Gambia, Guinea, Mali, Senegal	REME
	Produce and circulate exchange and dissemination supports on the achievements of the project (baseline surveys, studies, etc.)	Reports Posters Leaflets							Gambia, Guinea, Mali, Senegal	RICE
	Organize exchange visits within and between sites	Visit	11						Primary sites	
	Organize visits to exchange experiences with projects with related objectives	Visit	5						To be determined	RICE
	Hold a regional workshop on transhumance management.	Workshop	1	3-5 Days					Bamako	RC
	Electronic Newsletter	Bulletin	4						RCU	RICE
	Update and manage the website	Update Forum	As needed						RCU	RICE
	Organize national sensitization meetings on ERL development for local elected officials and journalists	Session	4						Gambia, Guinea, Mali, Senegal	NEME/RICE

	Broadcast radio and television programs & ensure the project visibility at national level	Program	47						Gambia, Guinea, Mali, Senegal	NC/RICE
	Develop and apply a communication strategy with ILRI on the genetic improvement program	Strategy Meeting	1 Monthly						NCU/RCU	Point focal AG
	Put in place innovation platforms (AP, NRM, Marketing of ERL and its products, etc.)	Nb	12						Primary sites	NEAP/ILRI
	Promote the emergence of platforms of exchange on ERL (legal and regulatory aspects, genetic improvement, NRM, farming systems, etc.)	Platform	4						Gambia, Guinea, Mali, Senegal	RICE
	Organize workshops on the capitalization of the project outputs and experiences.	Nb	2	1 -2 days					Senegal	REME/NEME
	Improve communication between sites and NCU	Contacts	At least once a week						NCU and primary sites	NC
	Continue to support and promote the network of livestock breeders associations of West Africa sub-region	Support							Gambia, Guinea, Mali, Senegal	RICE
STRATEGIC INTERVENTION LINE 6. Project Management										
Coordination and monitoring/evaluation	Conduct the audit of 2010 fiscal years	Audit	4	2 months					Gambia, Guinea, Mali, Senegal	RHOFA/NHOFA
	Carry out support and internal monitoring missions	Mission	At least 4 per CU	3-5 Days					Gambia, Guinea, Mali, Senegal	REME/NEME
	Carry out environmental control and monitoring missions	Mission	4 par NCU	3-5 Days					Primary sites	NEME/NENRM
	Participate in AfDB and/or GEF supervision missions	Mission	2	5-10 Days					Gambia, Guinea, Mali, Senegal	BAD/FEM
	Hold operational planning workshops	Workshop	5	2-3 Days					Gambia, Guinea, Mali, Senegal, RCU	REME/NEME
	Hold steering committees meetings	Workshop	5	1-2 Days					Gambia, Guinea, Mali, Senegal, RCU	RC/NC
	Prepare activities reports	Report	5 per CU						Gambia, Guinea, Mali, Senegal, RCU	REME/NEME
	Hold a national technical committees meetings	Nb	1/quat/count	1 day					Gambia, Guinea, Mali, Senegal	
	Hold coordination meetings	Meeting	Weekly or bi-monthly						Gambia, Guinea, Mali, Senegal, RCU	REME/NEME
	Monitor and evaluate partnerships	Meeting	1/quart/part	1 jour					Gambia, Guinea, Mali, Senegal, RCU	REME/NEME
	Conduct the mid-term evaluation	Nb	1	1 months					Gambia, Guinea, Mali, Senegal, RCU	RC/REME
	Participation to national and international workshops	Nb	To be determined						To be determined	RC/NC
	Train site staff on rapid diagnostic, IEC and group animation techniques	Session	4	3-5 Days					Gambia, Guinea, Mali, Senegal	NC/NEME
	Train project staff on gender.	Session	4	3 Days					To be determined	RC/REME
	Train project staff on project management and monitoring and evaluation	Nb							To be determined	RC/REME
Management	Staff	Salary		12 months					Gambia, Guinea, Mali, Senegal, RCU	RHOFA/NHOFA
	Operations			12 months					Gambia, Guinea, Mali, Senegal, RCU	RHOFA/NHOFA

	Acquisitions								Gambia, Guinea, Mali, Senegal, RCU	RHOFA/NHOFA
	Mobilize AfDB budget - approved operating funds - direct payments	 Nb Nb							Gambia, Guinea, Mali, Senegal, RCU	RC/NC
	Mobilize GEF budget - approved AWPB	Nb	1						Gambia, Guinea, Mali, Senegal, RCU	RC/NC
	Mobilize national counterpart funds	Nb	4						Gambia, Guinea, Mali, Senegal	NC
	Mobilize additional funds - ITC, ILRI, FAO, etc. - Through our research/project proposals	Proposal	At least 3						Gambia, Guinea, Mali, Senegal, RCU	RC/NC

Budget per strategic intervention line

Strategic intervention lines	Global Budget	Total RE[6] end of Dec.10	Total commitment end of Dec.10	Total BE[7] end of Dec.10	Real balance end of Dec.10	Global Balance at the end of 2010	Global RE rate at the end 2010	Global BE rate at the end 2010	Budget 2011							
									RCU	Gambia	Guinea	Mali	Senegal	ILRI/ MoU avec UNOPS	Total	%
S.L. 1	13,481,025	3,318,020	4,901,110	8,219,130	10,163,005	5,261,895	25%	**61%**	18,963	389,278	402,900	109,880	400,936	169,125	1,491,082	**23%**
S.L. 2	8,222,670	523,743	707,378	1,231,121	7,698,927	6,991,549	6%	**15%**	210,000	347,000	50,280	69,500	296,510		973,290	**15%**
S.L. 3	7,242,000	1,849,847	1,318,919	3,168,766	5,392,153	4,073,234	26%	**44%**		321,510	250,750	303,000	237,731	60,315	1,173,306	**18%**
S.L. 4	815,292	391,324	0	391,324	423,968	423,968	48%	**48%**	7,880	11,000	7,500	39,000	2,000	152,075	219,455	**3%**
S.L. 5	6,066,808	846,948	0	846,948	5,219,860	5,219,860	14%	**14%**	41,000	11,500	15,500	9,000	54,470		131,470	**2%**
S.L. 6	4,816,500	3,140,893	1,622,957	4,763,851	1,675,607	52,649	65%	**99%**	717,878	414,740	493,150	383,290	462,566	-	2,471,624	**38%**
Total	40,644,295	10,070,775	8,550,365	18,621,140	30,573,520	22,023,155	25%	**46%**	995,721	1,495,028	1,220,080	913,670	1,454,212	381,515	6,460,227	**100%**
Misc. & variation of prices	3,272,144			0				**0%**								
Grand Total	**43,916,439**	**10,070,775**	**8,550,365**	**18,621,140**	**33,845,664**	**25,295,299**	23%	**42%**	995,721	1,495,028	1,220,080	913,670	1,454,212	381,515	**6,460,227**	
%									**15%**	**23%**	**19%**	**14%**	**23%**	**6%**	**100%**	

6 Real execution
7 Budget execution

Project Number 4. Development and evaluation of crossbreds and other improved breeds for milk and meat production in urban/peri-urban areas

Implementer	**Planned activities**	**Implementation schedule 2011**												Budget (D)
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
ITC	Performance survey of FI cattle holders and dairy cooperatives					X	X							1,800.00
	Production of F1 crossbred cattle to restock the Dairy herd (30 cows, transport cost, sexed semen, hormones, liquid nitrogen, feed supplements)			X	X	X	X	X	X	X	X	X	X	450,000.00
	Collect, purchase and stock roughage and concentrate feeds for the F1 Dairy herd	X	X		X		X					X	X	269,724.00
	Implement herd health management practices at the F1 Dairy herd	X	X	X	X	X	X	X	X	X	X	X	X	15,070.00
	Total													**736,594.00**

Project Number 5. Training, information exchange and capacity building

Implementer	**Planned activities**	**Implementation schedule 2011**												Budget (D)
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
ITC	French language classes	X	X	X	X	X	X	X	X	X	X	X	X	
	Information Technology classes					X		X		X		X		
	Statistics classes													
	Project proposal development		X	X	X					X		X		
	Restitution workshops												X	Project one